

A Record of the March of Events of 1946

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1947
BRITANNICA
BOOK OF
THE YEAR

- Prepared Under the Editorial Direction of
Walter Yust, Editor of
Encyclopædia Britannica

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INTRODUCTION

THE year 1946 is notable for the attempt to establish peace upon earth under the direction of the United Nations and for the apparent effort of scientists to utilize atomic energy, not for the destruction of mankind, but for the extended services of good will and international prosperity. *The Book of the Year*, now in its tenth issue, aims to record, for the most part, the activities of men and women who were hopeful of doing these things during the year 1946.

It records also, as usual, the activities of those who unfortunately did not wish to do these things, or who did not think clearly about them or who did not care.

A review of the articles which pass the Editor's desk year after year makes apparent this conflict of interests. No one short of the mad can wish for anything less than peace, good will and prosperity. Yet we fight in peace as we fight in war—and death and disaster are always threatening.

The trouble must lie in a world-wide spiritual and moral inadequacy. We need to be wiser. We need to be more honest. We need to learn better the techniques of friendliness.

The record of the year would seem to indicate that the people of the world might be beginning to learn the rich advantages of humility, honesty and restraint over simulated optimism, intellectual dishonesty and personal ambition.

Such education is urgent, for if the people of the world will not learn to live in peace together, they will surely altogether perish.

* * * * *

The Book of the Year was made not only by its authoritative contributors, but by the checkers, the stylists, the young women of the working card files; by Miss Elsiebeth McDaniel and her assistant, Miss Martha Harriett Mullen, who marshalled the handling of copy; by Miss Helen Doolittle, who carried on the heavy correspondence necessary to assemble contributions; by the Misses Wilma Widdicombe and Audrey Milgate, who laid the final page arrangements; by Mrs. Mildred B. MacDonald, secretary to the Associate Editor; and by Mrs. Mae H. MacKay, who with her two assistants, Mrs. Harriet Milburn and Miss Lorene Lawson, directed the work of more than 40 staff assistants to speed the articles to the presses.

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- E.F.D.** **Maine**
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- E.G.A.** **Hawaii; Virgin Islands; etc.**
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- E.G.An.** **Shoe Industry**
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- E.G.Col.** **International Bank for Reconstruction and Development**
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- E.L.R.** **St. Louis**
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- E.P.Jo.** **Diabetes**
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- E.R.H.** **Fires and Fire Losses; etc.**
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- E.S.C.** **Institutum Divi Thomae**
ELTON S. COOK. Dean of Research, Institutum Divi Thomae, Cincinnati, Ohio.
- E.S.Pt.** **Ethiopia**
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- F.A.I.** **Inter-American Defense Board.**
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- F.W.N.** **Yeast**
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- F.W.Pk.** **British South African Protectorates**
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- G.A.Ro.** **Copper; Nickel; etc.**
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- G.A.Si.** **United Church of Canada**
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- G.A.V.** **Rhodesia, Northern; etc.**
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- G.R.G.** **Toronto**
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- G.R.Mn.** **British East Africa**
GEORGE ROY MORRISON. Editorial Assistant, *East Africa and Rhodesia*. Author of *Mixed Farming in East Africa*.
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- G.W.McC.** **Pennsylvania, University of**
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- H.A.C.** **Deafness**
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- H.A.Ce.** **Seeing Eye, The**
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- H.A.H.** **Arizona**
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- H.A.Wm.** **Great Britain (in part)**
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- H.Bec.** **Sociology**
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- H.B.Ws.** **Indiana University**
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- H.Cy.** **Bank of England**
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- H.D.G.** **Candy**
H. DON GUSSOW. Publisher and Editor of *Candy Industry*, New York, N.Y.
- H.D.W.** **International Monetary Fund**
HARRY D. WHITE. United States Executive Director, International Monetary Fund, Washington, D.C.
- H.E.Ba.** **Flour**
HARRY E. BARNARD. Former Research Director, National Farm Chemurgic Council.
- He.Br.** **Banking (in part)**
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- H.G.Rn.** **India (in part); etc.**
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- H.H.Be.** **Soil Erosion and Soil Conservation**
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- H.H.P.** **Indiana**
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- H.J.A.** **Drugs and Drug Traffic (in part)**
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- H.J.De.** **Washington**
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- H.Js.** **Town and Regional Planning; etc.**
HARLEAN JAMES. Executive Secretary, American Planning and Civic Association, Washington, D.C.
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- H.Ko.** **Communism; Czechoslovakia; etc.**
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- H.L.St.** **Motor-Boat Racing; etc.**
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- H.M.Sh.** **Italy**
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- H.M.Wr.** **Infantile Paralysis**
H. M. WEAVER. Director of Research, National Foundation for Infantile Paralysis, New York, N.Y.
- H.Od.** **Standards, National Bureau of**
HUGH ODISHAW. Assistant to the Director, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C.
- H.O.V.** **New York University**
HAROLD O. VOORHIS. Vice-Chancellor and Secretary, New York University, New York, N.Y.
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- H.T.** **Soap, Perfumery and Cosmetics**
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- H.T.Ch.** **Chiang Kai-shek; China**
HUNG-TI CHU. Former Head of Information and Reference Department, Chinese News Service.
- H.W.Do.** **Princeton University**
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- H.W.Rn.** **Tunnels**
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ISAAH BOWMAN. President, The Johns Hopkins University, Baltimore, Md. Author of *Geography in Relation to the Social Sciences*; etc.
- I.Br.** **Theatre (in part)**
IVOR BROWN. Editor of the *Observer*, London, Eng. Professor of Drama to the Royal Society of Literature.
- I.D.B.** **Libraries (in part)**
ISABEL DuBOIS. Head of Library section, Bureau of Naval Personnel, Navy Department, Washington, D.C.
- I.Gg.** **Post Office (in part)**
ISAAC GREGG. Former Director of Press Relations, Office of the Postmaster General, Washington, D.C.
- I.Gn.** **Zionism**
ISRAEL GOLDSTEIN. Rabbi, Congregation B'nai Jeshurun, New York, N.Y. Chairman, World Federation of General Zionists. Author of *A Century of Judaism in New York*; etc.
- I.L.Bl.** **Linen and Flax; etc.**
IRENE L. BLUNT. Secretary, The National Federation of Textiles, Inc., New York, N.Y.
- I.L.K.** **Education (in part)**
ISAAC LEON KANDEL. Professor of Education, Teachers College, Columbia University, New York, N.Y. Editor, *Educational Yearbook*.
- I.W.D.** **Farm Credit Administration**
I. W. DUGGAN. Governor, Farm Credit Administration, U.S. Department of Agriculture, Washington, D.C.
- I.W.R.** **Words and Meanings, New**
I. WILLIS RUSSELL. Chairman of the Research Committee on New Words of the American Dialect Society which prepared the article. The Committee consists of: Henry Alexander, C. L. Barnhart, Atcheson L. Hench, A. H. Marckwardt, Mamie J. Meredith, Peter Tamony and Harold Wentworth.
- J.A.G.** **Furniture Industry**
J. A. GARY. Editor, *Furniture Age*, Chicago, Ill.
- J.A.Gy.** **South Africa, The Union of**
JAMES A. GRAY. Managing Editor, *South Africa and African World*.
- J.A.Ma.** **Montreal**
J. ARTHUR MATHEWSON. Of Mathewson and Smith, Barristers, Montreal, Que.
- J.A.Mi.** **Electric Transportation (in part)**
JOHN ANDERSON MILLER. General Electric Co., Schenectady, N.Y. Author of *Fares Please!*; etc.
- J.A.My.** **Tuberculosis**
J. A. MYERS, M.D. Professor of Medicine and Preventive Medicine and Public Health, University of Minnesota Medical School, Minneapolis, Minn. Author of *Man's Greatest Victory over Tuberculosis*; etc.
- J.A.S.R.** **Coal (in part)**
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- J.B.Bd.** Airports and Flying Fields (*in part*)
J. B. BAYARD, JR. Director, Airport Division, Horner & Shiffrin and Smith, Hinchman & Grylls, Inc.
- J.B.Hk.** Women's Reserve of the Navy
JOY BRIGHT HANCOCK. Captain, U.S.N.R. Director, Women's Reserve, U.S.N.R.
- J.Bk.** Book-Collecting and Book Prices
JACOB BLANCK. Editor, *Bibliography of American Literature*. Author of *Peter Parley to Penrod*; etc.
- J.Br.** Connecticut
JAMES BREWSTER. State Librarian, Connecticut State Library, Hartford, Conn.
- J.B.Sn.** Textile Industry (*in part*)
JOHN BAMBER SPEAKMAN. Professor of Textile Industries, Leeds University, Leeds, Eng.
- J.C.Ar.** Utah
J. CECIL ALTER. Senior Meteorologist, U.S. Weather Bureau. Historian and Editor, Utah State Historical Society. Author of *Utah, the Storied Domain*; etc.
- J.Ce.** Burma (*in part*)
SIR JOHN CLAGUE. Advisor to the Secretary of State for Burma, 1937-42.
- J.C.Mn.** Kansas
JAMES C. MALIN. Professor of History, University of Kansas, Lawrence, Kan.
- J.C.Ms.** Agriculture (*in part*); Fruit; etc.
J. CLYDE MARQUIS. American Representative and Vice-President, International Institute of Agriculture, Rome, Italy, 1935-41. Former Director of Economic Information, U.S. Department of Agriculture, Washington, D.C.
- J.E.Ar.** Notre Dame, University of
JAMES E. ARMSTRONG. Alumni Secretary, Alumni Association, Notre Dame University, Notre Dame, Ind.
- J.E.H.** Federal Bureau of Investigation
J. EDGAR HOOVER. Director, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C.
- J.E.Mo.** National Education Association
JOY ELMER MORGAN. Editor of the *Journal of the National Education Association*, Washington, D.C.
- J.En.** Delaware
JEANNETTE ECKMAN. Editor, *Delaware, A Guide to the First State*.
- J.E.Sn.** Los Angeles
JAMES E. SHELTON. President, Security-First National Bank of Los Angeles, Los Angeles, Calif.
- J.E.Wt.** National Association of Evangelicals
J. ELWIN WRIGHT. Executive Secretary, National Association of Evangelicals, Boston, Mass.
- J.F.Fy.** Coast Guard, U.S.
JOSEPH F. FARLEY. Commandant, United States Coast Guard.
- J.G.Fo.** Elections (*in part*)
JOHN GALWAY FOSTER. Conservative M.P. for Northwich Division of Cheshire, Eng. Recorder of Oxford-Bar-at-Law. Author of *Some Problems of English Private International Law*.
- J.H.Ms.** Business Review (*in part*); etc.
JOHN H. MYERS. Associate Professor of Business Statistics, School of Commerce, Northwestern University, Evanston, Ill.
- J.J.Dn.** Civil Service (*in part*)
J. J. DONOVAN. Associate Director, Civil Service Assembly of the United States and Canada.
- J.J.Kt.** Virginia
JAMES J. KILPATRICK. Staff Writer, *The Richmond News Leader*, Richmond, Va.
- J.J.My.** Secret Service, U.S.
JAMES J. MALONEY. Chief, United States Secret Service, Treasury Department, Washington, D.C.
- J.K.L.** Banking (*in part*); etc.
JOHN K. LANGUM. Vice-President, Federal Reserve Bank of Chicago, Chicago, Ill.
- J.K.Sn.** Pigeon Racing
JOHN K. SHAWVAN. President, Congress of American Pigeon Fanciers, Inc., Washington, D.C.
- J.LaF.** Roman Catholic Church; Pius XII; etc.
JOHN LaFARGE, S.J. Editor in Chief, *America*, National Catholic Weekly, New York, N.Y.
- J.L.E.** Telegraphy
JOSEPH L. EGAN. President, The Western Union Telegraph Company, New York, N.Y.
- J.L.He.** Horse Racing (*in part*)
JOHN L. HERVEY. Author of *Racing in America*; *American Race Horses*; *The Old Gray Mare of Long Island*; etc.
- J.L.J.** Manitoba
J. L. JOHNSTON. Librarian, Provincial Library, Winnipeg, Man.
- J.L.Ml.** Minnesota, University of
J. L. MORRILL. President, University of Minnesota, Minneapolis, Minn.
- J.L.N.** Virginia, University of
JOHN LLOYD NEWCOMB. President, University of Virginia, Charlottesville, Va.
- J.Ln.** Accidents (*in part*); etc.
JAMES LILBURN. Publishers' reader, London, Eng.
- J.McAt.** Social Security (*in part*)
JOHN McALMONT. Member of British Civil Service.
- J.M.J.** Defense Transportation, Office of
J. MONROE JOHNSON. Director, Office of Defense Transportation, Washington, D.C.
- J.M.L.** Florida (*in part*)
JAMES MILLER LEAKE. Professor of History and Political Science, University of Florida, Gainesville, Fla.
- J.M.Mag.** Taxation (*in part*)
JOHN M. MAGUIRE. Professor of Law, Harvard Law School, Cambridge, Mass.
- J.N.B.** Radio (*in part*)
JOHN NATHAN BAILEY. Associate Editor, Broadcasting Publications Inc., Washington, D.C.
- J.Nn.** Ethical Culture Movement
JEROME NATHANSON. Leader, New York Society for Ethical Culture, New York, N.Y. Author of *Forerunners of Freedom*.
- J.P.D.** Boxing
JAMES P. DAWSON. Writer on baseball and boxing, *The New York Times*, New York, N.Y.
- J.P.J.** Donations and Bequests (*in part*)
JOHN PRICE JONES. President and Treasurer, The John Price Jones Corporation, New York, N.Y. Author of *The Yearbook of Philanthropy*.
- J.Ra.** Pacific Islands, British (*in part*); etc.
JOSEPHINE RAMAGE. Assistant Librarian, London School of Economics and Political Science, 1936-43.
- J.R.Cl.** Mormons
J. REUBEN CLARK, JR. First Counselor in the First Presidency, Church of Jesus Christ of Latter-Day Saints, Salt Lake City, Utah.
- J.R.Hr.** Venereal Diseases (*in part*)
J. R. HELLER, JR., M.D. Medical Director, Chief, Venereal Disease Division, U.S. Public Health Service, Washington, D.C.
- J.R.J.** Methodist Church
JAMES R. JOY. Librarian and Historian, The Methodist Historical Society in the City of New York, New York, N.Y.
- J.Rl.** Illiteracy
JANE MARIE RUSSELL (Mrs. Frederick B. Russell). Research Assistant, Division of International Educational Relations, U.S. Office of Education, Federal Security Agency, Washington, D.C.
- J.R.Sn.** War Mobilization and Reconversion, Office of
JOHN R. STEELMAN. Director, Office of War Mobilization and Reconversion, Washington, D.C.
- J.R.Tu.** Tennis
JOHN R. TUNIS. Author of *Sports For the Fun of It*; *Democracy and Sport*; etc.
- J.S.A.** Baltimore; Maryland (*in part*)
JOHN S. ARMSTRONG. Financial Editor, *The Sun*, Baltimore, Md.
- J.S.Cs.** Surplus Property Disposal
JAMES S. COLLINS. Acting Director, Information Division, War Assets Administration, Washington, D.C.
- J.Sg.** Mediterranean, British Possessions in the
SIR JOHN SHUCKBURGH. Deputy Under-Secretary of State, British Colonial Office, 1931-42.
- J.S.L.** Anaesthesia
JOHN S. LUNDY, M.D. Professor of Anaesthesiology, University of Minnesota Graduate School, Minneapolis, Minn. Head, Section on Anaesthesiology, Mayo Clinic, Rochester, Minn.
- J.Sto.** Electronics
JAMES STOKLEY. Author of *Science Remakes Our World*; *Electrons in Action*.
- J.T.Ar.** Etching
JOHN TAYLOR ARMS. President, Society of American Etchers. First Vice-President, National Academy of Design. Author of *Hand-Book of Print Making and Print Makers*; etc.
- J.W.Hy.** American Veterans of World War II (Amvets)
JACK W. HARDY. National Commander, American Veterans of World War II (Amvets).
- J.W.Je.** Federal Power Commission
JOHN W. JENKINS. Information Division, Federal Power Commission, Washington, D.C.

- K.E.M.** Bryn Mawr College
KATHARINE ELIZABETH McBRIDE. President, Bryn Mawr College, Bryn Mawr, Pa.
- K.F.L.** Child Welfare
KATHARINE F. LENROOT. Chief, Children's Bureau, U.S. Department of Labor, Washington, D.C.
- K.Kr.** Priorities and Allocations; etc.
KARL KEYERLEBER. Director, Office of Information, Office of Temporary Controls, Civilian Production Administration, Washington, D.C.
- K.M.E.** London University
KITTY M. EGAN. Assistant, University of London, London, Eng.
- K.N.K.A.** National Mediation Board
KENNETH N. K. ABEL. Economist, Office of Business Economics, U.S. Department of Commerce.
- K.R.K.** Tennessee Valley Authority
KENNETH R. KENNEDY. Assistant Chief, Information Service Staff, Tennessee Valley Authority, Knoxville, Tenn.
- K.S.L.** Missions, Foreign
KENNETH SCOTT LATOURETTE, D.D. Professor of Missions and Oriental History, Yale University, New Haven, Conn.
- K.Sm.** Poland
KAZIMIERZ SMOGORZEWSKI. Polish Journalist in Paris, Berlin, etc. Founder and Editor, *Free Europe*.
- K.T.C.** Massachusetts Institute of Technology
KARL T. COMPTON. President, Massachusetts Institute of Technology, Cambridge, Mass.
- L.A.L.** Insurance (in part)
LEROY A. LINCOLN. President, Metropolitan Life Insurance Company, New York, N.Y.
- L.A.M.** Veterinary Medicine
LOUIS A. MERILLAT, M.D.V., V.S. Editor, *Journal of the American Veterinary Medical Association* and *American Journal of Veterinary Research*. Author of *Veterinary Military History of the United States*.
- L.A.McA.** Oregon
LEWIS A. McARTHUR. Vice-President and Director, Oregon Historical Society, Portland, Ore. Member and Secretary, Oregon Geographic Board. Author of *Oregon Place Names*; etc.
- L.A.Wn.** Liberia
LESTER A. WALTON. United States Ambassador to Liberia, 1935-
- L.B.H.** Selective Service, U.S.
LEWIS B. HERSHEY. Major General, U.S.A. Director, Bureau of Selective Service, Washington, D.C.
- L.C.S.** Archery
LOUIS CARTER SMITH. Secretary-Treasurer, National Archery Association of the United States.
- L.deB.H.** Swimming
L. de BREDA HANDLEY. Honorary Coach, Women's Swimming Association of New York. Author of *Swimming for Women*; etc.
- L.D.U.** Detroit
LENT D. UPSON. Dean, School of Public Affairs and Social Work, Wayne University, Detroit, Mich.
- L.Du.** Conservative Party, Great Britain; etc.
LEONARD DUDENEY. Parliamentary Gallery and Lobby correspondent 1918-43.
- L.Ef.** Billiards
LOUIS EFFRAT. Member of sports staff, *The New York Times*, New York, N.Y.
- L.E.L.** Prisons
LEWIS E. LAWES. Former Warden, Sing Sing Prison, Ossining, N.Y. Former Chief Business Consultant, Prison War Program Branch, War Production Board, New York, N.Y.
- L.E.T.** Census Data, 1946
LEON E. TRUESDELL. Chief, Population Division, United States Bureau of the Census, Washington, D.C. Author of *Farm Population of the U.S.*; *The Canadian Born in the United States*; etc.
- L.Fd.** Reconstruction Planning
LOUISE FIELD. Research Associate, The Twentieth Century Fund, New York, N.Y.
- L.F.K.** United Service Organizations
LINDSLEY F. KIMBALL. President, United Service Organizations, Inc.
- L.Gl.** Motor Transportation (in part)
LAURIE GUPWELL. Chairman, A. J. Gupwell (Transport) Ltd., London, Eng.
- L.Gu.** Municipal Government (in part)
LUTHER GULICK. Director, Institute of Public Administration, New York, N.Y.
- L.G.V.V.** Michigan
LEWIS GEORGE VANDER VELDE. Professor of History and Director of the Michigan Historical Collections, University of Michigan, Ann Arbor, Mich.
- L.Gy.** France
LEO GERSHOY. Professor of History, New York University, New York, N.Y. Author of *The French Revolution and Napoleon*; etc.
- L.H.L.** Chicago; Illinois
LEWIS HARPER LEECH. Editorial writer, *Chicago Daily News*, Chicago, Ill. Author of *The Paradox of Plenty*; etc.
- L.Ho.** Coinage
LELAND HOWARD. Acting Director of the United States Mint, Washington, D.C.
- L.Md.** Idaho
LA MOYNE MAYFIELD. Public Accountant, Boise, Idaho.
- L.M.F.** Petroleum
LEONARD M. FANNING. Author of *American Oil Operations Abroad*; etc.
- L.M.Gh.** United Nations
LELAND M. GOODRICH. Professor of Political Science, Brown University, Providence, R.I. Co-author of *Charter of the United Nations: Commentary and Documents*.
- L.Mh.** Dance (in part)
LUCILE MARSH. Director, National Dance League. Author of *The Dance in Education*; *Textbook of Social Dancing*; etc.
- L.M.S.M.** Dentistry
LEROY M. S. MINER, D.M.D., M.D. Professor of Oral Surgery, Harvard University; Former Professor of Stomatology, Boston University, Boston, Mass.
- L.M.W.** Alaska
LEW M. WILLIAMS. Secretary of Alaska, U.S. Department of the Interior, Juneau, Alaska.
- L.O.C.** Coast and Geodetic Survey, U.S.
LEO OTIS COLBERT. Rear Admiral, U.S.C. & G.S. Director, U.S. Coast and Geodetic Survey. Department of Commerce, Washington, D.C.
- L.O.P.** Motion Pictures (in part)
LOUELLA O. PARSONS. Motion Picture Editor, International News Service. Author of *The Gay Illiterate*; *How To Write in the Movies*.
- L.W.Ba.** Boy Scouts
LORNE W. BARCLAY. National Director of Publications, Boy Scouts of America.
- L.W.L.** Nebraska
LANE W. LANCASTER. Professor of Political Science, University of Nebraska, Lincoln, Neb.
- L.W.M.** American Dental Association
LON W. MORREY, D.D.S. Director, Bureau of Public Relations, American Dental Association, Chicago, Ill.
- L.Wo.** Labour Unions (in part)
LEO WOLMAN. Professor of Economics, Columbia University, New York, N.Y. Author of *Ebb and Flow in Trade Unionism*; etc.
- M.Ab.** Foreign Investments in the United States; etc.
MILTON ABELSON. Economic Analyst, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C.
- M.C.Ml.** Rhode Island
MATTHEW C. MITCHELL. Associate Professor of Political Science, Brown University, Providence, R.I.
- M.C.T.** American Library Association
MARY C. TUOMEY. National Relations Assistant, American Library Association.
- M.Dn.** Law (in part)
MITCHELL DAWSON. Lawyer, writer. Former Editor, *Chicago Bar Record*, Chicago, Ill.
- M.D.T.** Military Academy, U.S.
MAXWELL D. TAYLOR. Major General, U.S.A. Superintendent, U.S. Military Academy, West Point, N.Y.
- M.E.H.** Biochemistry
MARTIN E. HANKE. Associate Professor of Biochemistry, The University of Chicago, Chicago, Ill. Co-author of *Practical Methods in Biochemistry*.
- M.F.C.** Italian Literature
MICHELE F. CANTARELLA. Associate Professor and Chairman, Department of Italian language and literature, Smith College, Northampton, Mass. Co-author of *Dieci Novelle Contemporanee*; etc.
- M.Fd.** Pneumonia
MAXWELL FINLAND, M.D. Associate Physician, Thorndike Memorial Laboratory; Physician in Chief, Fourth Medical Service, Boston City Hospital. Associate Professor of Medicine, Harvard Medical School, Boston, Mass.
- M.Fe.** League of Nations; Mandates
MAURICE FANSHAW. Chief Intelligence Officer, Central Office, League of Nations Union of Great Britain.

- M.Fi.** **Medicine; etc.**
MORRIS FISHBEIN, M.D. Editor, *The Journal of the American Medical Association and Hygeia*, Chicago, Ill. Editor of medical articles, *Britannica Book of the Year*.
- M.Fr.** **Bacteriology**
MARTIN FROBISHER, JR. Associate Professor of Bacteriology, The Johns Hopkins School of Hygiene and Public Health, Baltimore, Md. Author of *Fundamentals of Bacteriology*; etc.
- M.G.G.** **Public Utilities (in part)**
MARTIN G. GLAESER. Professor of Economics, University of Wisconsin, Madison, Wis.
- M.Gt.** **Budget, National; etc.**
MILTON GILBERT. Chief, National Income Division, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C.
- M.Ha.** **Philately**
MANNEL HAHN. Head, Service Section, *The Rotarian and Revista Rotaria*. Author of *U.S. Post Office, 1851-60; U.S. Postal Markings, 1847-51; So You're Collecting Stamps*; etc.
- M.H.T.** **Columbia University**
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- M.H.W.** **Oklahoma**
MURIEL H. WRIGHT. Associate Editor, *The Chronicles of Oklahoma*, Oklahoma Historical Society, Oklahoma City, Okla.
- M.Jol.** **French Literature**
MARIE JOLAS (Mrs. Eugene Jolas). Paris, France.
- M.J.Sy.** **Vocational Rehabilitation, Office of**
MICHAEL J. SHORTLEY. Director, Office of Vocational Rehabilitation, Federal Security Agency, Washington, D.C.
- M.J.To.** **Massachusetts**
MAURICE J. TOBIN. Governor of Massachusetts.
- M.Lb.** **Liquors, Alcoholic (in part)**
MAX LOEB. Chief of Field Division, Illinois Liquor Control Commission.
- M.L.E.** **Civil Liberties (in part)**
MORRIS L. ERNST. Attorney, firm of Greenbaum, Wolf and Ernst, New York, N.Y. Author of *The Best Is Yet*; etc.
- M.L.M.** **Central America; Honduras; etc.**
MAX L. MOORHEAD. Assistant Professor of History, University of Oklahoma, Norman, Okla.
- M.L.W.** **Four-H Clubs**
M. L. WILSON. Director of Extension Work, U.S. Department of Agriculture, Washington, D.C. Author of *Farm Relief and Domestic Allotment Plan*; etc.
- M.Mh.** **Price Administration, Office of**
MAX McCULLOUGH. Commissioner, Office of Price Administration Office of Temporary Controls, Washington, D.C.
- M.M.Hn.** **Wellesley College**
MILDRED McAFEE HORTON (Mrs. D. Horton). President, Wellesley College, Wellesley, Mass.
- M.P.W.** **Track and Field Sports; etc.**
MILTON P. WOODARD. Sports writer, *The Chicago Sun*, Chicago, Ill.
- M.S.Bn.** **Camp Fire Girls**
MARION SEERY BROWN. Assistant to the Director of Public Relations, Camp Fire Girls, Inc.
- M.Si.** **Printing**
MACD. SINCLAIR. Editor, *Printing Equipment Engineer*, Cleveland, Ohio.
- M.S.Mr.** **Hutchins, Robert Maynard**
MILTON S. MAYER. Lecturer, University College; Tutor, Social Thought, The University of Chicago, Chicago, Ill.
- M.Sp.** **Birth Statistics (in part); etc.**
MORTIMER SPIEGELMAN. Supervisor of Mathematical Research, Statistical Bureau, Metropolitan Life Insurance Company.
- M.Sr.** **Birth Control**
MARGARET SANGER. Honorary Chairman, Planned Parenthood Federation, Inc.
- M.S.Ss.** **Young Womens Christian Association**
MARY S. SIMS. Secretary, General Administration, National Board, Young Womens Christian Associations of the United States of America.
- M.T.H.** **Federal Deposit Insurance Corporation**
MAPLE T. HARL. Chairman, Federal Deposit Insurance Corporation, Washington, D.C.
- M.V.W.** **Juvenile Delinquency**
MIRIAM VAN WATERS. Superintendent, Reformatory for Women, Framingham, Mass. Author of *Youth in Conflict*; etc.
- M.Wg.** **British West Africa**
MARGARET WRONG. Author of *Land and Life of Africa; Five Points for Africa; Across Africa; West African Journey*.
- M.W.H.** **Parents and Teachers, National Congress of**
MABEL W. HUGHES (Mrs. L. W. Hughes). President, National Congress of Parents and Teachers, Chicago, Ill.
- M.W.Ss.** **Aqueducts**
MICHAEL W. STRAUS. Commissioner, Bureau of Reclamation, U.S. Department of the Interior, Washington, D.C.
- N.B.D.** **National Parks and Monuments**
NEWTON B. DRURY. Director, National Park Service, U.S. Department of the Interior, Washington, D.C.
- N.C.B.** **Lumber (in part)**
NELSON C. BROWN. Professor in charge of Forest Utilization, New York State College of Forestry, Syracuse University, Syracuse, N.Y.
- N.E.W.** **Plague, Bubonic and Pneumonic**
N. E. WAYSON, M.D. Medical Officer in charge, Plague Investigations, U.S. Public Health Service, San Francisco, Calif.
- N.F.S.** **Jet Propulsion; Munitions of War (in part)**
NATHANIEL F. SILSBEE. Colonel, Air Corps, A.U.S. Technical Editor, *Skyways*. Co-author of *Jet Propulsion Progress*.
- N.G.G.** **Rivers and Harbours (in part); etc.**
NICHOLAS GEORGE GEDYE. Consulting Civil Engineer, Westminster, Eng.
- N.L.P.** **Astronomy**
NEWTON LACY PIERCE. Associate Professor of Astronomy, Princeton University, Princeton, N.J.
- N.T.** **Socialism (in part)**
NORMAN THOMAS. Socialist presidential candidate, 1940, 1944. Author of *America's Way Out*.
- O.C.G.** **Marriage and Divorce (in part)**
OTTO C. GILES. Journalist, Barrister, London, Eng. Author of *Standard Contracts; The Gestapo*.
- O.E.P.** **Young Men's Christian Association**
OWEN E. PENCE. Director, Bureau of Records, Studies and Trends, National Council of the Young Men's Christian Associations of the United States of America.
- O.J.W.** **Wines**
OSCAR J. WILE. President, Browne-Vintners Co., Inc., New York, N.Y. Author of *Wine Without Frills; What, When and How to Serve*.
- O.L.Ds.** **Securities and Exchange Commission**
ORVAL L. DuBOIS. Secretary, Securities and Exchange Commission, Philadelphia, Pa.
- O.Le.** **Sinkiang**
OWEN LATTIMORE. Director, Page School of International Relations, The Johns Hopkins University, Baltimore, Md. Author of *Solution in Asia*; etc.
- O.M.** **Montreal, University of**
OLIVIER MAURALT. Rector, University of Montreal, Montreal, Que.
- O.N.B.** **Veterans' Administration**
OMAR N. BRADLEY. General, U.S.A. Administrator of Veterans' Affairs, Veterans' Administration, Washington, D.C.
- O.P.P.** **Automobile Industry**
OSCAR PAUL PEARSON. Manager, Statistical Department, Automobile Manufacturers' Association, Detroit, Mich.
- P.Ae.** **Colorado**
PEARL ANOE. Feature writer for the Director of Publicity, State of Colorado.
- P.A.Se.** **Exploration and Discovery (in part)**
PAUL ALLMAN SIPLE. Explorer, geographer. Author of *Adaptations of the Explorer to the Climate of Antarctica; Scout to Explorer*; etc.
- P.A.V.** **Korea; Mongolia; etc.**
PAUL A. VARG. Instructor in History, Ohio State University, Columbus, Ohio.

- P.B.D.** **Drugs and Drug Traffic (in part)**
PAUL B. DUNBAR. Commissioner of Food and Drugs, Food and Drug Administration, Federal Security Agency, Washington, D.C.
- P.B.F.** **Federal Works Agency**
PHILIP B. FLEMING. Major General, U.S.A. Administrator, Federal Works Agency, Washington, D.C.
- P.Bn.** **Crime (in part); etc.**
PRESTON BENSON. Journalist for the *Star*, London, Eng.
- P.By.** **Cleveland; Ohio**
PAUL BELLAMY. Editor, *Cleveland Plain Dealer*, Cleveland, Ohio.
- P.D.W.** **Heart and Heart Diseases**
PAUL D. WHITE, M.D. Clinical Professor of Medicine, Harvard University Medical School, Boston, Mass. Author of *Heart Disease*.
- P.E.** **Trailers**
PAUL EDWARDS. Editor, *Trailer Topics Magazine*, Chicago, Ill.
- P.E.M.** **Paris Peace Conference; etc.**
PHILIP E. MOSELY. Professor of International Relations, Russian Institute of Columbia University, New York, N.Y.
- P.E.P.** **Libraries (in part)**
PAUL E. POSTELL. Chief, Library Branch, Special Services Division, War Department, New York, N.Y.
- P.E.R.** **Prisoners of War and Displaced Persons; etc.**
PHILIP E. RYAN. Director, International Activities, American National Red Cross.
- P.G.H.** **Committee for Economic Development**
PAUL G. HOFFMAN. Chairman, Board of Trustees, Committee for Economic Development. President, The Studebaker Corporation, South Bend, Ind.
- P.H.Gh.** **American Legion**
PAUL H. GRIFFITH. National Commander, The American Legion.
- P.J.M.** **Catholic University of America**
PATRICK J. McCORMICK. Rector, The Catholic University of America, Washington, D.C.
- P.K.H.** **Arab League**
PHILIP K. HITT. Professor of Semitic Literature, Princeton University, Princeton, N.J. Author of *History of the Arabs*.
- P.M.Hg.** **National Labor Relations Board**
PAUL M. HERZOG. Chairman, National Labor Relations Board Washington, D.C.
- P.My.** **Congress of Industrial Organizations**
PHILIP MURRAY. President, Congress of Industrial Organizations
- P.R.Hy.** **Medical Rehabilitation of Disabled Veterans**
PAUL R. HAWLEY. Major General, U.S.A. Chief Medical Director, Veterans' Administration, Washington, D.C.
- P.Ss.** **Insurance (in part)**
PERCY STEBBINGS. Insurance editor and correspondent to *Financial Times*; *Bankers' Magazine*; etc.
- P.T.** **Gynaecology and Obstetrics**
PAUL TITUS, M.D. Secretary-Treasurer, American Board of Obstetrics and Gynecology.
- R.A.Bn.** **Advertising (in part)**
ROGER A. BARTON. Managing Editor, *Advertising & Selling*, New York, N.Y.
- R.A.G.** **Northwest Territories**
R. A. GIBSON. Deputy Commissioner, Administration of the Northwest Territories, Can.
- R.A.Ga.** **Iowa**
RUTH A. GALLAHER. Associate Editor of the State Historical Society of Iowa, Iowa City, Iowa.
- Ra.L.** **Endocrinology (in part)**
RACHMIEL LEVINE, M.D. Former Director of Metabolic and Endocrine Research, Michael Reese Hospital, Chicago, Ill.
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ROBERT C. GOODWIN. Director, United States Employment Service, Department of Labor, Washington, D.C.
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THEODORE T. STONE, M.D. Associate Professor in Nervous and Mental Diseases, Northwestern University Medical School, Chicago, Ill.
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UGO CARUSI. Commissioner, Immigration and Naturalization Service, U.S. Department of Justice, Philadelphia, Pa.
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- W.D.R.** **Golf**
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WILLIAM GREEN. President, American Federation of Labor.
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WIBO G. PEEKEMA. Head of the Legal and Political Division of the Netherlands Ministry for Overseas Territories.
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WILLIAM MANGER. Counselor, Pan American Union.
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- W.Rs.** **Liberal Party**
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- W.W.Wz.** **National War Stabilization Board**
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- X**
ANONYMOUS.

1947

1946

JANUARY							JULY						
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FEBRUARY							AUGUST						
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1948

JANUARY							JULY						
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27	28	29	30	27	28	29	30	31

JANUARY 1947

- 1 New Year's day.
- 3 First session of 80th U.S. congress convenes.
- 6 Epiphany, or Twelfth Night.
- 8 Jackson day.
- 13 Festival of St. Veronica.
- 17 Feast of St. Anthony the Great.
- 17 Benjamin Franklin's birthday (1706).
- 20 Eve of St. Agnes.
- 26 Foundation day, Australia.
- 27 Feast of St. Chrysostom.
- 28 Festival of St. Charlemagne.
- 31 150th anniversary, birth of Franz Schubert, Austrian composer.

FEBRUARY

- 2 Septuagesima Sunday.
- 2 Candlemas. Purification of the Virgin. Ground-Hog day.
- 11 100th anniversary, birth of Thomas Edison, U.S. inventor.
- 12 Birth of Abraham Lincoln, 1809.
- 14 St. Valentine's day.
- 15 Susan B. Anthony day.
- 16 Quinquagesima Sunday.
- 18 Shrove Tuesday. Mardi Gras.
- 19 Ash Wednesday.
- 22 Washington's birthday, 1732.
- 24 Feast of St. Matthias.

MARCH

- 1 St. David's day, patron saint of Wales.
- 2 Texas Independence day.
- 3 100th anniversary, birth of Alexander Graham Bell, U.S. inventor.
- 12 Girl Scout day, U.S.A.
- 15 Ides of March.
- 17 St. Patrick's day, patron saint of Ireland.
- 21 Equinox (11.13 A.M. Greenwich civil time); beginning of spring.
- 25 Annunciation. Quarter day.
- 30 Palm Sunday.
- 30 Seward day, Alaska.

APRIL

- 1 All Fools' day.
- 1 250th anniversary, birth of Antoine Prévost, French novelist.
- 3 Maundy Thursday.
- 4 Good Friday.
- 5 Jewish Passover; 1st day.
- 6 Easter Sunday.
- 7 Easter Monday. English bank holiday.

THE year 1947 of the Christian Era corresponds to the year 5707-5708 of the Jewish calendar; to the year 1366-1367 of the Mohammedan hejira; to the 171st of the United States; and to the 179th year of the *Encyclopædia Britannica*.

- 10 Arbor day, U.S.A.
- 10 100th anniversary of birth of Joseph Pulitzer, U.S. newspaperman.
- 13 Thomas Jefferson's birthday (1743).
- 14 Pan-American day.
- 19 Primrose day, England.
- 23 St. George's day.
- 25 St. Mark's day.
- 25 Anzac day, Australia and New Zealand.
- 26 Confederate Memorial day (also May 10, May 30, June 3).
- 27 125th anniversary of birth of Ulysses S. Grant, U.S. general.

MAY

- 1 May day. International labour festival.
- 5 Cinco de Mayo, Mexican holiday.
- 7 2nd anniversary, German surrender at Reims, France, ending World War II in Europe.
- 11 Mother's day, U.S.A.
- 11 Rogation Sunday.
- 12 National Hospital day (Florence Nightingale's birthday).
- 15 Ascension day.
- 18 Peace day. World Good-will day.
- 20 Total eclipse of the sun, invisible at Washington.
- 24 Empire day.
- 25 Pentecost (Whitsunday).
- 25 Shebuoth (Jewish Pentecost).
- 26 Whit Monday. English bank holiday.

JUNE

- 1 Trinity Sunday.
- 3 Partial eclipse of the moon, invisible at Washington.
- 4 Derby day, England.
- 5 Corpus Christi.
- 9 Trooping the colour in honour of King George VI's birthday. His majesty was actually born on Dec. 14.
- 11 Kamehameha day (Hawaii).
- 11 Feast of St. Barnabas.
- 14 Flag day, U.S.A.

- 15 Father's day, U.S.A.
- 17 Bunker Hill day, U.S.A.
- 22 Solstice (6.19 A.M. Greenwich civil time); beginning of summer.
- 24 Midsummer day. Quarter day.
- 24 St. John's day.
- 26 Second anniversary of the signing of the United Nations charter.
- 30 St. Paul's day.

JULY

- 1 Canada day.
- 4 Independence day, U.S.A.
- 4 First anniversary of the birth of the Republic of the Philippines.
- 5 Hebrew Fast of Tammuz.
- 9 Feast of St. Thomas More.
- 14 Bastille day.
- 15 St. Swithin's day.
- 22 Feast of St. Mary Magdalene.
- 26 St. Anne's day.
- 26 Hebrew Fast of Av.
- 31 Feast of St. Ignatius Loyola.

AUGUST

- 1 Swiss Independence day.
- 1 Lammas day. English bank holiday.
- 6 Feast of the Transfiguration.
- 10 Feast of St. Lawrence.
- 14 Second anniversary, Japanese surrender note to U.S., Great Britain, U.S.S.R. and China, unofficially ending World War II.
- 15 Assumption of the Blessed Virgin Mary.
- 24 Feast of St. Bartholomew.

SEPTEMBER

- 1 Labor day, U.S.A.
- 1 8th anniversary, beginning of World War II.
- 2 2nd anniversary, formal surrender of Japan ending World War II.
- 6 Lafayette day.
- 15 Rosh Hashanah (Jewish New Year), beginning year 5708.
- 16 Mexican Independence day.
- 17 Constitution day, U.S.A.

- 22 Dominion day, New Zealand.
- 23 Equinox (9.29 P.M. Greenwich civil time); beginning of fall.
- 24 Yom Kippur (Jewish Day of Atonement).
- 29 Succoth (Jewish Feast of Tabernacles), 1st day.
- 29 Michaelmas. Quarter day.
- 30 Feast of St. Jerome.

OCTOBER

- 4 Feast of St. Francis of Assisi.
- 8 Alaska day, Alaska.
- 12 Columbus day.
- 21 Apple Tuesday, U.S.A.
- 21 Trafalgar day.
- 25 St. Crispin and St. Crispinian.
- 27 Navy day, U.S.A.
- 31 Hallow'en.

NOVEMBER

- 1 All Saint's day. All Hallows.
- 5 Guy Fawkes' day.
- 9 Lord Mayor's show, London.
- 10 U.S. Marine Corps day.
- 11 Armistice day.
- 11 Martinmas. Feast of St. Martin.
- 12 Annular eclipse of the sun, visible at Washington.
- 14 Mohammedan year 1367 begins.
- 16 Feast of St. Edmund.
- 22 St. Cecilia's day.
- 30 St. Andrew's day, patron saint of Scotland.
- 30 First Sunday in Advent.

DECEMBER

- 5 U.S.S.R. Constitution day.
- 6 Feast of

CALENDAR OF EVENTS, 1946

For elections and disasters of 1946, see under those headings in the text. For obituaries of prominent persons who died during 1946, see under the entry Obituaries.

JANUARY

1 Emperor Hirohito in broadcast to Japanese people said notion of his divinity was matter of "legends and myths."

Siamese-British peace treaty was signed in Singapore, ending state of war which existed from Jan. 25, 1942.

Maj. Gen. Walter G. Short said failure of war and navy departments to keep him fully informed of developments was responsible for U.S. unpreparedness during Pearl Harbor attack.

3 Pres. Truman called on U.S. people as "most powerful pressure group in the world," to exert their influence with congress to speed up reconversion program.

William Joyce—also known as "Lord Haw Haw"—who was convicted of treason, was hanged in Wandsworth prison, London.

4 U.S. war department announced it would slow demobilization of overseas troops because occupation armies were dangerously under strength.

Congressional committee investigating Pearl Harbor received report of former Sec'y of Navy Knox which placed blame for Pearl Harbor disaster on army and navy commanders in Hawaii.

5 U.S. and Siam resumed diplomatic relations.

7 Kaiser-Frazer corporation and United Automobile Workers (C.I.O.) negotiated wage agreements under which workers received high wage rate and in return guaranteed 90% production and punishment of wildcat strikers.

Dismembered body of Suzanne Degnan, six-year-old girl who had been kidnapped by unidentified slayer who demanded \$20,000 ransom, was found in vicinity of child's home in Chicago.

Sec'y of State Byrnes assured U.S. that "secrets" of atomic bomb would not be divulged prematurely.

Rumanian cabinet, reorganized in line with Moscow conference declarations, was broadened to include two ministers of opposition parties.

8 Telegraph services in New York city area were paralyzed by strike of 7,000 Western Union workers who walked off jobs when their wage demands were not met.

9 King George VI, in welcoming address to United Nations delegates, urged them to place "service to whole community of nations" above national interests.

General Eisenhower ordered overseas commanders to return to U.S. all troops for whom there was no military need, "without delay" and regardless of points.

10 Paul-Henri Spaak of Belgium was elected president of general assembly as delegates of 51 nations opened first United Nations meeting in London.

Chinese Communists and Nationalists agreed to formal truce ending undeclared civil war as Generalissimo Chiang Kai-shek agreed to restore civil liberties, end police abuses and reform voting procedures.

Radar contact with moon was established by U.S. army signal corps; signal sent to moon from laboratory in Belmar, N.J., echoed back to sending station in 2.4 seconds.

11 General Motors Corp. rejected Pres. Truman's fact-finding board's recommendation of 19½-cent wage increase as based on "unsound" assumption.

Haitian militarists staged coup resulting in ouster of President Elie Lescot.

Albania was proclaimed republic by constituent assembly.

Rear Adm. Earl W. Mills was named by Pres. Truman as chairman of U.S. Maritime commission, succeeding Vice-Adm. Emory S. Land.

12 United Nations general assembly elected Brazil, Poland and Australia to security council for two-year terms and Mexico, Egypt and the Netherlands for one-year terms.

Report that industrial reconversion in U.S. was 90% complete, with 52,000,000 employed and only 2,000,000 unemployed, was made by Committee for Economic Development.

14 United Nations general assembly was urged by Sec'y of State Byrnes to adopt Big Four's resolution on atomic energy and have Security council start immediately to define size of military forces required for new world body.

Associated Press was ordered by its board of directors to cease supplying news to state department for free distribution abroad.

15 Estimated 200,000 members of United Electrical, Radio and Machine Workers of America (C.I.O.) in 16 states walked out of jobs after negotiations on wage increases broke down.

Allegation that navy department withheld intercepted information foreshadowing Japanese attack on Pearl Harbor was made by Rear Adm. Husband E. Kimmel in testimony before Congressional Pearl Harbor investigating committee.

Pres. Truman said at press conference that U.S. would insist on being sole trustee of former enemy islands in Pacific captured by U.S. forces.

16 Three-day nation-wide lock-out staged by Argentine businessmen and shopkeepers in protest against government's economic and social policies ended, but government refused to alter its stand.

Two packing house unions, United Packinghouse Workers (C.I.O.) and Amalgamated Meat Cutter and Butcher Workmen's Union (A.F. of L.), whose workers processed bulk of U.S. meat supply, went on strike following failure of federal mediation of wage dispute.

King Farouk of Egypt and King Ibn Sa'ud of Saudi Arabia issued joint statement expressing their belief that Palestine is and should remain Arab country.

17 U.N. general assembly was told by British Foreign Sec'y Bevin that Britain would place mandated territories of Tanganyika, Cameroons and Togoland under U.N. authority and establish Trans-Jordan as independent state.

International Military tribunal sitting at Nuernberg was asked by Francois de Menthon, French chief prosecutor, to pass death sentence on 21 German defendants standing trial as war criminals.

Demonstrations by U.S. soldiers against slowdown of demobilization were banned by Gen. Eisenhower, U.S. army chief of staff.

18 James M. Curley, mayor of Boston and representative of congress, was convicted by a Washington district court jury of using the mails to defraud.

Andrei Gromyko, soviet representative to U.N., branded as "dangerous" charges that U.N. charter was obsolete and needed revision; he appealed to general assembly to support veto power, accept Moscow parley resolution on atomic energy and speed establishment of trusteeships over colonial areas.

Gen. Eisenhower warned in broadcast that U.S. occupation armies would have to be curtailed unless adequate replacements were made available, because every eligible soldier was to be discharged by June 30.

William H. Johnson, superintendent of Chicago schools, was expelled by National Education association on charges that he was guilty of "flagrant violations" of N.E.A.'s code of ethics.

19 Russians were charged by Pope Pius XII with interfering with activities of Catholic Church in Ruthenia.

Iran formally accused soviet union of meddling in Iran's internal affairs and asked U.N.'s security council to investigate dispute.

20 Gen. Charles de Gaulle resigned as president of French provisional government.

21 Pres. Truman, in 25,000-word message on state of union and annual budget, warned that inflation and "national disaster" would result if congress failed to extend legislative safeguards; he said future must be based on "full employment economy" and asked for extension of price controls, food subsidies and war powers; he also recommended statehood for Hawaii and Alaska and aid for economic rehabilitation of Philippines; in budget statement, he estimated expenditures at \$35,860,000,000 with receipts at \$31,513,000,000 and declared deficit would be made up with unprecedented cash balance in treasury without aid of federal borrowing.

Nation-wide shutdown of steel industry started as estimated 750,000 workers walked off jobs, following failure of United Steel Workers of America (C.I.O.) and steel executives to agree on wage demands.

Ebrahim Hakimi resigned as premier of Iran amid indications that his successor would be more favourably disposed toward soviet union.

Accusations that Britain was interfering in Greece and Indonesia were made by Andrei Gromyko, soviet delegate, who

JANUARY—Continued

asked U.N. Security council to investigate; his request was supported by Dmitry Manuisky, chief Ukrainian delegate to U.N.

22 Premier Sutan Sjahrir declared he was opposed to British withdrawal of troops from Indonesia as suggested by soviet delegate to U.N.; Premier Themistocles Sophoulis of Greece said British military forces were in Greece with "full consent of Greek government."

23 British Foreign Sec'y Bevin condemned what he termed "political murders" in Poland and expressed disapproval of Franco regime in Spain.

Felix Gouin was elected by French constituent assembly as president of provisional government.

24 Bikini atoll in Marshall Islands was selected as site for testing effect atomic bombs would have against warships.

Plan to establish commission to study control of atomic energy was adopted unanimously by U.N. security council.

25 Executive council of A.F. of L. unanimously voted to readmit United Mine Workers of America, and John L. Lewis, U.M.W.A. president.

Announcement that Sir Archibald Clark Kerr would succeed Earl of Halifax as British ambassador to Washington was made in London.

Senate committee was told by Chancellor Robert M. Hutchins of University of Chicago that U.S. plans for control of atomic energy must be made in conviction that "we can defeat war and develop atomic energy in world at peace."

26 Ford Motor Co., and Chrysler Corp. negotiated wage agreements with United Automobile Workers (C.I.O.).

United Packinghouse Workers (C.I.O.) voted to resume work in meat packing plants under government operation, but stressed technically they were not calling off strike.

Railroad executives and 18 unions representing estimated 1,250,000 employees agreed to

arbitrate union demands for higher pay; two unions, Brotherhood of Railroad Trainmen and Brotherhood of Locomotive Engineers, rejected settlement and threatened to strike.

Ahmed Ghavam-es-Saltaneh was named premier of Iran by 52-51 vote in Iranian parliament.

Jet-propelled fighter plane travelling at average speed of 584 m.p.h., set nonstop transcontinental speed record, flying 2,470 mi. from Long Beach, Calif., to La Guardia field, New York city in 4 hr. 13 min. and 26 sec.

28 Justice Owen J. Roberts told Congressional Pearl Harbor Investigating committee that his commission's report on Pearl Harbor was complete and that it withheld nothing.

Iran told U.N. Security council that soviet union had destroyed Tehran government's authority by retaining troops on Iran's soil.

William Benton, ass't sec'y of state, protested decision of Associated Press and United Press to withdraw their news services from state department.

Sixty-day state of siege was proclaimed by Chilean government after riots in Santiago between police and demonstrating Chilean union members resulted in four deaths.

29 Lt. Gen. Sir Frederick E. Morgan was cleared of charges of anti-Semitism and restored as chief of U.N.R.R.A. operations in Germany.

President Felix Gouin of provisional government of France received 514 to 51 vote of confidence from constituent assembly.

Sec'y of State Byrnes confirmed that Roosevelt and Churchill had agreed at Yalta conference to return southern half of Sakhalin Island and the Kuriles to soviet union after war.

U.N. Security council agreed to recommend Trygve Lie as secretary general of Security council.

30 Congress was asked by Pres. Truman to vote favourably on Anglo-U.S. trade and financial agreement which he said would be "great contri-

bution" to establishment of "peace and prosperity" in world.

Resumption of Jewish immigration to Palestine at rate of 1,500 persons monthly was announced by British government.

U.N. Security council agreed to permit soviet union and Iran to settle dispute over Azerbaijan by direct negotiation, but insisted on right to pass judgment on final agreements.

31 Maj. Gen. Eurico Gaspar Dutra was sworn in as president of Brazil.

Plans for establishing coalition government for China were unanimously approved by Political Consultation conference in Chungking.

Case bill, which would provide for sweeping control of strikes, was adopted by vote of 258 to 114 in house of representatives.

FEBRUARY

Andrei Vishinsky told U.N. Security council that presence of British troops in Greece was threat to peace and urged their immediate withdrawal; Foreign Sec'y Bevin of British labelled charge as "preposterous" and said Moscow propaganda was greater threat to peace.

Reports that soviet scientists had split atom were made by foreign missions in Moscow.

Discovery of new "dark" star in universe was reported at 74th meeting of American Astronomical society at Columbia university.

Hungary was proclaimed republic and Premier Zoltan Tildy was elected president by new Hungarian national assembly.

2 Pres. Truman approved McMahon bill on atomic energy and urged prompt enactment of legislation for placing atomic energy in hands of civilian-controlled government monopoly.

3 Officials of Danube Steamship Co. were notified by soviet authorities that its assets had been taken over by Russians who thereafter would operate company.

4 Andrei Vishinsky claimed right to invoke veto power after U.N. Security council in-

dictated it would reject soviet union's charge that British troops in Greece were threat to peace.

Gen. Tomoyuki Yamashita's appeal against death sentence pronounced by U.S. military tribunal in Manila was rejected by U.S. supreme court, 6 to 2.

5 Rumanian government was recognized by U.S. state department.

6 Strike of tugboat workers, which cut off fuel supplies, paralyzed city of New York; Mayor O'Dwyer proclaimed state of emergency, ordered closing of schools and "brownout," and established priorities over essential commodities.

British and soviet delegates in U.N. Security council reached compromise when Andrei Vishinsky, soviet delegate, agreed not to press charge on alleged British interference in Greece and Foreign Sec'y Bevin agreed to withdraw demand that council dissolve Britain of Russian charges.

Foreign Minister Molotov denounced "dangerous talk of third World War," which he added was being encouraged in other countries.

15 of world's leading jurists were selected for International Court of Justice in balloting by members of U.N. general assembly and Security council; Judge Green H. Hackworth was designated as U.S. representative.

8 Immediate congressional approval of veterans' housing program, calling for construction of 2,700,000 farm and city dwellings, was asked by Pres. Truman.

9 Premier Stalin announced new five-year plan with huge production boosts, predicted soviet scientists would not only catch up but surpass scientists abroad and set new goals for production of oil, coal, steel and pig iron.

Panamanian resolution condemning Franco regime in Spain

The pictures on this page are, left to right:

TRUMAN.....Jan. 3
SPAARK.....Jan. 10
KERR.....Jan. 25
HUTCHINS.....Jan. 25
BENTON.....Jan. 28



FEBRUARY—Continued

and barring its representation in United Nations was adopted by 45 to 0 vote in U.N. general assembly.

10 Strike of Western Union employees in New York city ended.

Netherlands government offer to establish Indonesian commonwealth with pledge that Indonesians would obtain right of self-determination was disclosed in Batavia by Hubertus J. van Mook, acting governor general.

Demand that U.N. Security council investigate situation in Indonesia was made by Andrei Vishinsky, soviet delegate, who accused Britain and Netherlands of attempting to conceal facts.

11 Transit strike of nearly 10,000 employees paralyzed city transportation in Philadelphia.

Agreement for full and free development of world air transportation was signed by U.S. and Britain after four weeks of negotiation at Hamilton, Bermuda.

Publication of secret agreement made at Yalta revealed that Premier Stalin asked and received concrete economic and territorial advantages as price of soviet union's entry into war against Japan.

U.S. supreme court rejected Gen. Masaharu Homma's plea for intercession against decision of military commission that sentenced him to death for committing atrocities in Philippines.

12 Soviet proposal which would compel displaced persons to be returned to their native lands was defeated in U.N. general assembly; Mrs. Roosevelt led opposition to soviet measure.

Blue Book issued by state department charged Argentine government gave active support to German war effort during war

The pictures on this page are, left to right:

HACKWORTH.....Feb. 6
HARRIMAN.....Feb. 14
MacARTHUR.....March 17
La GUARDIA.....March 21
REUTHER.....March 27

and was still giving haven to nazis.

British authorities proclaimed martial law in Calcutta in effort to quell rioting in which 14 persons were killed and 170 injured.

13 Soviet request for U.N. probe of Indonesian situation was rejected by U.N. Security council.

Harold L. Ickes resigned as secretary of interior after dispute with Pres. Truman over appointment of Edwin W. Pauley as undersec'y of navy; Ickes asserted he refused to remain in administration where he was "expected to commit perjury for sake of party."

Earl Browder was expelled from Communist party for having "betrayed" Marxist-Leninist principles and for "deserting" to side of "American monopoly capitalism."

14 Pres. Truman announced new wage-price formula, permitting limited wage and price increases; to implement new policy Truman named Chester Bowles as director of Office of Economic Stabilization and Paul A. Porter as OPA administrator.

Tugboat strike that crippled harbour activities and paralyzed normal business life in New York city for eight days was ended.

U.N. general assembly adjourned, completing its first session.

Col. Juan D. Perón asserted that Spruille Braden, U.S. assistant secretary of state, headed vast espionage network throughout South America as well as Argentina.

W. Averell Harriman's resignation as U.S. ambassador to soviet union and his replacement by Lt. Gen. Walter Bedell Smith was announced by Pres. Truman.

15 At least 22 persons, who allegedly engaged in espionage harmful to Canada's security, were arrested by royal Canadian mounted police.

16 London session of U.N. Security council ended on note of discord as soviet union vetoed Anglo-French agreement to withdraw their troops from Levant states.

Plan to start building program to provide war veterans

with 183 hospitals equipped with 151,500 beds was announced by Gen. Omar N. Bradley, chief of Veterans' administration.

17 Steel strike was ended when United Steel Workers (C.I.O.) and U.S. Steel corporation reached wage agreement; steel firm agreed to pay increase of 18½ cents hourly; in return steel firms were permitted to increase steel prices \$5 a ton.

New Egyptian cabinet was formed by Ismail Sidky Pasha.

18 Thirty-two new cardinals were created by Pope Pius XII at secret consistory in Vatican City.

Belgian elections resulted in political stalemate with majority won by left-wing coalition in chamber of deputies neutralized by Christian Socialist majority in senate.

19 Sec'y of State Byrnes asserted U.S. still had "exclusive" possession, so far as he knew, of secret of manufacturing atomic bombs and said he did not anticipate any "spy hunt" or arrests similar to those in Canada.

British announced three cabinet ministers—Lord Pethick-Lawrence, Sir Stafford Cripps and A. V. Alexander—would go to India in new effort to reach agreement with Indian leaders on self-government.

20 Soviet union admitted receiving data on atomic energy and radio location from Canada, but said information could have been found in Smyth report and charged it was "ridiculous" to assert that revelation of such information would threaten Canada's security.

Gen. Franco publicly avowed that he was a monarchist and predicted that Spanish people, if consulted on choice of government, would vote for monarchy.

21 Clashes between British troops and anti-British demonstrators in Cairo resulted in estimated 12 dead and scores injured.

Police building in Tel Aviv was rocked by explosion as Palestinian terrorists renewed raids on police headquarters in both Tel Aviv and Haifa.

Former Premier Risto Ryti and seven other former cabinet

members were found guilty of leading Finland to war against U.S.S.R. by special "people's court" in Helsinki; Ryti was sentenced to ten years of hard labour.

22 Prime Minister Stalin said soviet union was entering "new peaceful period" of economic development and stated Red army must make nation's borders "impregnable" while people were rebuilding their country.

23 Gen. Tomoyuki Yamashita, who had been convicted as war criminal, was hanged near Los Banos, Luzon.

U.S. navy high command confirmed verdict of court martial finding Capt. Charles B. McVay III guilty of negligence in loss of cruiser "Indianapolis," but remitted his sentence.

Warning that Allied occupation policies in Germany would bring "ruin not only upon Germany but upon Europe" was voiced by Provisional Committee of World Council of Churches meeting in Geneva, Switzerland.

24 Argentine citizens went to polls to vote for president, with Col. Juan D. Perón as Labour party candidate and Dr. José P. Tamborini as Democratic Union candidate.

25 Formal agreement on military reorganization of China's armies was signed by Chungking and Chinese Communist representatives and Gen. Marshall, U.S. mediator.

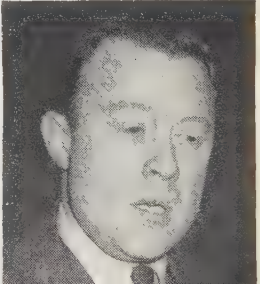
Week-long rioting between Indians and British troops caused deaths of 228 persons and injuries to 1,047 others.

Supreme court ruled by 6 to 2 vote that U.S. military courts established under martial law in Hawaii lacked authority to try civilians.

26 Julius A. Krug was named secretary of interior by Pres. Truman.

Increase of 16 cents hourly in wages for packing house workers and authorized boost of 1½% in meat prices were ordered by U.S. government agencies.

28 U.S. army disclosed it was using captured German V-2 rockets in effort to find measures for defending U.S. against possible atomic bombardment.



FEBRUARY—Continued

Agreement providing for withdrawal of Chinese troops from Indo-China and ending of French extraterritorial rights in China was signed by French and Chinese governments.

France endorsed U.S. proposal for Anglo-French-U.S. declaration on Spain and closed its Spanish frontier.

Mounted police battled with 3,500 C.I.O. demonstrators and smashed picket parade scheduled to pass before main gate of General Electric plant in Philadelphia.

MARCH

Soviet union said it would withdraw some of its troops from Iran by March 2 deadline, but would maintain others there until situation had been "elucidated."

U.S. state department officials said soviet union, whose request of Sept. 1945 for \$1,000,000,000 credit had been "misplaced," was invited to enter negotiations for loan.

Pres. Truman sent congress his policy statement limiting U.S. loans to foreign countries to \$3,250,000,000 until June 30, 1947; proposed credit of \$3,750,000,000 to Britain was excepted by president as "unique" case.

2 Citizens of Greenwich, Conn., voted 5,505 to 2,019 to oppose establishment of permanent U.N. headquarters in their community.

4 U.S., Britain and France in joint statement called on Spanish people to oust Gen. Franco by peaceful means.

Proposals for sweeping reorganization and modernization of both houses of congress were issued by joint senate-house committee.

Field Marshal Mannerheim's resignation as president of Finland was announced by Premier Paasikivi.

5 Winston Churchill advocated Anglo-American "fraternal association" to halt "expansive and proselytizing tendencies" of soviet union in speech at Fulton, Mo.

Atomic bombing of Japan was strongly condemned in report issued by special commission of Federal Council of Churches of Christ in America.

Sec'y of State Byrnes confirmed reports that U.S. had asked Bulgarian government to broaden cabinet by inclusion of two "truly representative" members of opposition parties.

6 Draft of new Japanese constitution included clauses renouncing war "forever," prohibiting maintenance of armed forces, limiting emperor's powers and granting full civil rights.

7 Sec'y of State Byrnes accused soviet union of violating pledge to remove troops from Iran by March 2 deadline and called on Russia to withdraw completely all troops there.

Drastically revised Patman emergency housing bill was adopted by house of representatives by vote of 357 to 24.

N.L.R.B. ruled by 2 to 1 vote that foremen under Wagner act were entitled to organize in rank-and-file unions.

8 U.S. state department disclosed that Georges Bidault, French foreign minister, said France would not agree to continuation of German control of Ruhr, Rhineland or even Saar.

9 Premier Juho K. Paasikivi was elected president of Finland by parliament.

10 Aga Khan was weighed in diamonds at Bombay ceremony celebrating 60th year as spiritual leader of Moslems; proceeds from sale of some 243½ lb. of precious stones corresponding to Khan's exact weight and valued at \$2,200,000 were turned over to Moslem welfare and relief agencies.

11 Sec'y of State Byrnes challenged soviet assertion that U.S. had violated Moscow agreement in urging broadening of Bulgar cabinet and expressed surprise that U.S.S.R. had objected to "so fundamental and simple a proposition."

State department disclosed that U.S. refused to associate itself with French proposal to bring Spanish case before U.N. Security council.

Pres. Truman's Famine Emergency committee asked U.S. citizens to eat 40% less wheat products and 20% less fats in order to increase food shipments to starving peoples abroad.

12 Herbert H. Lehman resigned as director of U.N. R.R.A. on grounds of ill health.

13 Winston Churchill was denounced as warmonger by Premier Stalin who said Churchill's speech at Fulton, Mo., was a "dangerous act" designed to sow discord among wartime allies.

Gen. Draja Mihailovitch, Chetnik leader, was captured in mountain hideout by Yugoslav forces.

Hermann Goering personally admitted he did everything in his power to strengthen nazi movement and assure Hitler of his place as chancellor, in statement from witness stand at Nuernberg trial.

Pres. Truman withdrew nomination of Edwin W. Pauley as undersecretary of navy at latter's request, but said Pauley emerged from "vicious and unwarranted attacks with integrity unscathed... and with honour unsullied."

General Motors corp. strike ended on 113th day of walkout when G.M. agreed to pay wage increase of 18½ cents hourly to United Automobile Workers (C.I.O.).

General Electric strike was settled when company and United Electrical Radio and Machine Workers (C.I.O.) agreed on 18½ cents an hour pay increase.

14 Tass news agency said U.S. state department report on soviet troop movements in Iran did not "correspond to facts."

15 Winston Churchill renewed appeal for "fraternal" Anglo-American co-operation but denied he had ever aimed at war alliance between two countries; he also expressed belief that soviet union did not want war.

Fred Rose, member of parliament, was arrested by Canadian government on charge of acting as intermediary for soviet espionage ring.

Prime Minister Attlee renewed offer of complete independence to India but specified Indians first must agree among themselves on future constitution before Britain would grant freedom.

16 Foreign Sec'y Bevin said his offer to extend Soviet-British alliance to 50 years was "seriously proposed and seriously meant."

Gen. Marshall reported, on return to Washington, that situation in Manchuria was "extremely critical" with Chinese Communists and Nationalists fighting for control of areas evacuated by soviet troops.

Soviet authorities informed Denmark that Red army would evacuate Bornholm Island as soon as Denmark was in position to take it over.

Announcement that U.S. would enter no alliance to maintain its security either with Britain against soviet union or with soviet union against Britain, was made by Sec'y of State Byrnes who added U.S. would

seek "path to enduring peace" in United Nations.

Accusation that obstructionist views of "reactionary few" in building industry were creating bottleneck for veterans' emergency housing plan was made by Chester A. Bowles, stabilization director.

17 Gen. MacArthur's tentative plan for reviving large section of Japanese export trade was approved by U.S. war department.

Progressive party of Wisconsin voted by overwhelming majority to rejoin Republican party.

Assertion that Eire's neutrality in World War II was necessary to assure nation's survival was made by Prime Minister Eamon de Valera.

Moscow broadcast said Uniate Church of Western Ukraine had broken ties with Vatican and decided to return to Russian Orthodox Church.

18 Bernard Baruch was appointed by Pres. Truman to be U.S. member of U.N. atomic energy commission.

19 Iran formally notified U.N. Security council that it had a dispute with soviet union over question of presence of Russian troops on Iranian soil.

Report of 12.4% increase in crime in 2,000 U.S. cities with total population of more than 65,000,000 was made by FBI.

Rationing of food in U.S. and other countries as necessary measure to prevent world famine was urged by Herbert H. Lehman, retiring director, in special report to U.N.R.R.A.

Mikhail I. Kalinin retired as chairman of praesidium of supreme soviet of soviet union and was succeeded by Nikolai M. Shvernik.

Soviet union and Switzerland re-established diplomatic relations after 22-year break.

20 Soviet union asked for postponement of U.N. Security council meeting to April 10 on grounds negotiations were continuing with Iran over troop evacuation.

Starving Germans in Hamburg started food riots, looting food shops and railroad cars.

21 Fiorello H. La Guardia was named director general of U.N.R.R.A., succeeding Herbert H. Lehman.

Statement by Henry L. Stimson to Pearl Harbor Investigating committee said Pres. Roosevelt and cabinet decided nine

MARCH—Continued

days before Pearl Harbor attack that U.S. would fight Japan if latter attacked British Malaya.

22 Premier Stalin affirmed confidence in U.N. as "serious instrument" for preserving peace, declared that no nation wanted war but asserted some "political groups" were sowing seeds of discord and uncertainty throughout world.

Pres. Truman announced that atomic bomb tests at Bikini atoll, scheduled for May 15, had been postponed for six weeks.

Charges that army, navy and state department had made "confused muddle" in sale of surplus war property abroad was made by special senate committee investigating national defense.

23 W. Averell Harriman's appointment as U.S. ambassador to Britain, succeeding John G. Winant, was announced by White House; Winant was appointed U.S. representative to U.N. economic and social council.

Foreign Minister Wang Shih-chieh disclosed that soviet union had notified China that withdrawal of Red army forces from Manchuria would be completed by end of April.

24 Soviet union announced its troops were evacuating Iran and that withdrawal would be complete in six weeks.

25 U.N. Security council holding first session in U.S. heard Pres. Truman pledge full U.S. support and Sec'y of State Byrnes declare no nation had right to treat questions affecting world peace as "questions of honour which cannot be discussed."

Bernard M. Baruch criticized administration's "inflationary" wage policy but appealed to congress to extend price controls for another year.

Dean Acheson, undersecretary of state, declared that plutonium, one of principal elements in atomic bomb, could be "denatured" like alcohol.

26 Argentine government nationalized Central Bank of Argentina.

U.N.R.R.A. voted 25 to 0 to accept principle that occupation armies should not seize land and consume native products required for relief of populace in liberated countries.

Lt. Nicolai G. Redin, soviet officer, was arrested in Portland, Ore., by FBI on espionage charges.

27 Andrei Gromyko, soviet delegate, walked out of U.N. Security council session after delegates rejected by 9 to 2 vote soviet proposal to postpone discussion of Iranian case to April 10.

Walter Reuther was elected president of United Automobile Workers (C.I.O.) defeating R. J. Thomas (incumbent) by narrow margin of votes.

28 Col. Juan D. Perón won sufficient electoral votes in Argentine elections to assure him presidency.

Permanent defense council of ten top generals and admirals was established by Pres. Truman, who said new body would make wartime leadership available in peacetime on consultative basis.

Plan for establishing world atomic development authority which would be sole producer and holder of all fissionable material was advanced by U.S. state department.

30 Some 800 Germans were arrested in U.S. and British zones of Austria and Germany in raid designed to crush attempt of some nazis to revive party.

APRIL

Estimated 400,000 soft coal miners of U.M.W. (A.F. of L.) went on strike after operators and union delegates failed to agree on latter's demands for health and welfare programs and wage increases.

Disclosure that U.S. would give up all bases it had built in Cuba during war was made by Sec'y of State Byrnes.

Rep. B. Carroll Reece of Tennessee was elected chairman of Republican national committee.

4 Soviet union's assurance to evacuate all its troops from Iran by May 6 was accepted by U.N. Security council, which deferred discussion of dispute.

Pope Pius XII said one-quarter of world faced famine and warned that unless adequate food were shipped to hunger areas, political disorders would arise.

5 "Complete agreement" on all Russo-Iranian questions and formation of joint Russo-Iranian oil company was announced in joint communique of Moscow and Tehran governments.

U.S. request that U.S. officers be allowed to testify at trial of Gen. Draja Mihailovitch was refused by Yugoslav government.

6 Pres. Truman warned that intense Anglo-Soviet rivalry in near east could bring war and said U.S. military power would be used to back up United Nations in defending sovereignty of that area from threats of coercion and penetration.

Bill designed to curb "coercive practices" and "exactions" in radio broadcasting was passed by senate by vote of 47 to 3; measure was aimed at restricting power of James C. Petrillo, president of American Federation of Musicians.

Andrei Gromyko, soviet delegate, requested U.N. Security council to remove Iranian dispute from its agenda and questioned legality of its action on Iran measure.

7 Crowd of 10,000 Japanese demonstrated before home of Premier Kijuro Shidehara and demanded his resignation.

8 State department announced U.S. was prepared to join Argentina in hemispheric defense treaty provided latter's government carried out pledges to eliminate "axis influences."

Congress was warned by Gen. Eisenhower that failure to extend selective service after May 15 deadline would represent gamble with nation's safety and world peace.

9 Hugh Dalton, chancellor of exchequer, presented budget which he said was drawn on assumption Britain would get loan from U.S.

George S. Messersmith was named U.S. ambassador to Argentina, and William D. Pawley ambassador to Brazil.

10 Andrei Gromyko was released from duties as soviet ambassador to U.S. to devote all his time to post as delegate to U.N. security council; Nikolai V. Novikov succeeded Gromyko as soviet ambassador to U.S.

Oscar Lange, Polish delegate, formally filed charges before U.N. Security council that Franco Spain was a cause of world friction, was endangering world peace and security and was encouraging research by German scientists developing new war weapons.

Marshal Georgi K. Zhukov's replacement by Gen. Vassily D. Sokolovsky as soviet member of Allied Control council in Berlin was announced in Moscow.

11 World's fair site in Flushing Meadows, New York, and Sperry Gyroscope plant at Lake Success, Long Island, N.Y., were selected as temporary quarters for U.N. general assembly and Security council, respectively.

McMahon bill designed to give federal government complete monopoly over all U.S. atomic energy activities was unanimously approved by special senate committee on atomic energy.

"Lobbying" by navy admirals against his proposal for merger of U.S. armed forces was denounced by Pres. Truman.

Anglo-French-U.S. mission that observed Greek polls said elections represented "true and valid verdict of Greek people."

12 Pres. Truman, in ceremony commemorating first anniversary of Franklin D. Roosevelt's death, pledged self to govern "not for benefit of privileged few but for welfare of all the people."

Poland's charges that Spain was endangering world peace were denied by Madrid government which invited U.N. commission to visit Spain and investigate charges that German scientists were engaged in atomic research.

Japan's two principal conservative parties—liberal and progressive—won control of diet in first general election after end of World War II.

Viscount Alexander of Tunis was sworn in as governor general of Canada.

14 Gen. Chou En-lai, military leader of Chinese Communists, asserted his party did not recognize Chinese National government's right to drive Chinese Communists out of Manchurian areas evacuated by soviet forces.

German Social Democrats in U.S., French and British zones of Berlin joined German Communists to form new party.

Spanish foreign office published official order prohibiting 330 German concerns to engage in capital transactions without prior government permission.

15 Andrei Gromyko, soviet delegate to U.N. Security council, said Anglo-U.S. delegates were attempting to use Iran as "pawn" in battle of power politics and expressed doubt that U.S. or Britain desired peaceful solution of Iran dispute.

Interstate Commerce commission was asked by U.S. railroads to permit 25% increase in freight rates as of May 15.

16 Statement that atomic bomb tests on Bikini atoll were intended for "defensive" rather than for aggressive purposes, was made by Vice-Adm. W. H. P. Blandy.

APRIL—Continued

17 Poland asked U.N. Security council to have all member states rupture diplomatic relations with Franco Spain.

Coalition of Republicans and Democrats in house of representatives amended price control measure; OPA Director Paul Porter said altered bill amounted to "repeal of price control."

18 League of Nations was voted out of existence by delegates of 34 nations at final meeting of body in Geneva; organization willed its physical assets to United Nations.

Legal opinion offered by Sec'y General Trygve Lie that U.N. Security council might lack authority to continue dealing with Iranian dispute after Moscow and Tehran asked for its removal from agenda, was rejected 8-to-3 by council's committee of experts.

Marshal Josip Broz's (Tito's) government in Yugoslavia was accorded full diplomatic recognition by U.S.

Predominantly royalist government in Greece was formed by Constantin Tsaldaris, new premier.

19 Sec'y of State Byrnes disclosed that U.S. had sent new note to soviet union inviting Russians to open discussion for requested \$1,000,000,000 loan.

20 Pope Pius XII exhorted Catholic Action youth delegates in Italy to battle "anti-Christian" forces in politics in what was interpreted as plea to Italian Catholics to vote against Communists in national elections.

Chinese national government spokesman acknowledged fall of Changchun to Chinese Communists.

22 Senator Vandenberg urged senate to approve proposed credit of \$3,750,000-000 to Britain on grounds of "self-interest," declaring failure to extend loan would act to profit of trade practices of totalitarian governments.

Owen J. Roberts, former supreme court justice, belittled U.N. as instrument of peace and urged U.S. to take lead in calling international parley for estab-

lishment of world government to outlaw war and curb armaments.

Democratic party was urged by Sec'y of Commerce Henry Wallace to purge those of its members in congress who failed to support administration.

23 Rejection of plea to remove Iranian dispute from agenda in U.N. Security council led soviet delegate, Andrei Gromyko, to announce that Russian delegation would refuse to participate in any future talks on Iranian controversy.

Theft of body of Benito Mussolini from unmarked pauper's grave was laid by Milan city authorities to "Democratic Fascist party."

24 U.S. state department disclosed that it had concluded agreement to grant \$90,-000,000 credit to Poland provided elections in that country were "free and unfettered."

More rigid discipline among U.S. army troops in Europe was ordered by Gen. Joseph T. McNarney, who said black market activities and drunkenness had caused loss of respect for U.S. soldiers.

Proposed U.S. loan to Britain was attacked by Sen. Taft who claimed that it violated "all sound principles" of fiscal policy and proposed as alternative outright gift of \$1,250,000,000.

25 Conference of foreign ministers of U.S., soviet union, Great Britain and France opened in Paris.

26 Federal seizure of grain needed to stave off threat of famine in many parts of world was urged by Dean Acheson, undersecretary of state.

27 Manuel A. Roxas, who was elected president of Philippines, said he proposed policy of co-operation with U.S. in far east and with United Nations.

Plan to limit future size of Italian fleet was agreed upon by foreign ministers of U.S., soviet union, Britain and France in their Paris conference.

Nineteen-point labour program, including statement that Communists would be barred from international pay roll of United Automobile Workers

(C.I.O.), was issued by Walter Reuther, U.A.W. president.

U.S. army disclosed that secret XB-35 bomber ("Flying Bat") could take off with 60 tons of bombs and fly 10,000 mi. with "substantial" bomb load.

28 Manchurian rail hub of Tsitsihar was reported captured by Chinese Communist armies.

U.S. military and civilian experts under army-navy supervision were ordered to survey country's caverns for possible military use and as havens for war production facilities in event of atomic war.

29 Sec'y of State Byrnes at meeting of foreign ministers in Paris proposed four-power treaty which would guarantee disarmament of Germany for 25-year period.

Resolution expressing moral condemnation of Franco regime in Spain was voted unanimously by ten members of U.N. Security council, with soviet union abstaining.

Gen. Hideki Tojo and 27 other members of Japanese militarist clique were formally indicted by Allied court in Tokyo on 55 counts, including charges of having committed war crimes.

30 Premier Stalin asserted soviet union would be true to policy of peace and security but stated "international reaction" was "hatching plans for new war."

Recommendation that 100,-000 Jews be permitted entry into Palestine as soon as possible was contained in report issued by Anglo-American committee of inquiry into problem of Jews in Europe and Palestine; report urged virtual abrogation of 1939 British White Paper and suggested continuation of mandate until country could be put under United Nations trusteeship.

Dr. Hjalmar Schacht told International Military Tribunal sitting at Nuernberg that Adolf Hitler had "deceived world, Germany and me" and implied that history would remember him (Schacht) as "ardent German pacifist."

Construction of new atom smasher, known as synchrotron, which would accelerate electrons

to energies of 300,000,000 volts was underway at University of California, Prof. Ernest Orlando Lawrence disclosed.

MAY

1 Sec'y of State Byrnes proposed and Foreign Minister Molotov rejected cut of occupation armies of four powers in Austria to 15,000 men each at foreign ministers' conference in Paris.

Hugh Dalton, chancellor of exchequer, was appointed by British cabinet as a governor of International Monetary fund and bank.

3 War crimes trial of Gen. Hideki Tojo, former premier, and 27 other Japanese defendants before International military court started in Tokyo.

United Nations security council was formally notified by France and Britain that all their troops had been withdrawn from Syria 15 days ahead of schedule.

Vice-premier Edward Kardelj told Paris council of foreign ministers Yugoslavia would reject any solution of frontier dispute with Italy that would put Slavic minority under Italian rule.

Sec'y of State Byrnes' proposal for four-power pact to rule Germany was criticized by Tass, official soviet news agency, as potential screen behind which U.S. could retreat from its Potsdam commitments.

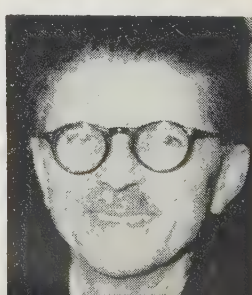
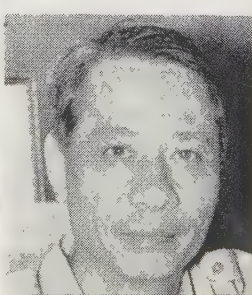
Ichiro Hatoyama, president of Japan's Liberal party, was banned from taking seat in imperial diet by order of Gen. MacArthur.

4 Revolt of convicts in Alcatraz federal prison was quelled with aid of U.S. marines after two-day battle; three convict ringleaders and two guards were killed and 14 other persons wounded.

5 New French constitution sponsored by Socialist and Communist parties was rejected

The pictures on this page are, left to right:

GROMYKO April 6
BLANDY April 16
TAFT April 24
ROXAS April 27
ALA May 6



MAY—Continued

in referendum by more than 1,000,000 votes.

Mariano Ospina Pérez, Conservative party candidate, was elected president of Bolivia.

Representatives of Hindu Congress party, Moslem League and British officials opened Simla parleys designed to find agreement on basic issue of unified India.

6 Program under which U.S. would arm, train, organize and equip armies of other western hemispheric states was outlined by Pres. Truman in message to congress.

Hussein Ala, Iranian envoy to U.S., told U.N. Security council soviet refusal to permit observers in Azerbaijan province prevented Iran government from ascertaining whether all Red army troops had evacuated the province.

7 British delegation in Cairo proposed evacuation of all British armed forces from Egypt in return for mutual aid alliance with Egyptian government to become operative in event of war.

Cession of Transylvania to Rumania was unanimously approved by Big Four's council of foreign ministers at Paris.

8 U.S.-Soviet conference in Seoul (Keijo) to establish interim government for Korea broke down.

9 Pres. Truman denounced walkout of coal miners as nearing status of strike against government.

Victor Emmanuel III abdicated as king of Italy in favour of his son, Crown Prince Humbert.

10 Coal operators accepted two-week truce in soft coal strike offered by John L. Lewis, president of United Mine Workers.

Soviet occupation authorities agreed to sharp reduction of their occupation costs and to provide U.N.R.R.A. with oil for its Austrian program.

U.S. state department received sharp note from Arab league which demanded right to be consulted on future of Palestine.

Huge 14-ton German V-2 rocket climbed almost 75 mi. in test of missile at White Sands proving grounds in New Mexico.

12 Simla parleys ended in failure when Hindu and Moslem parties were unable to reach common ground on plans for independent unified India.

13 Allied military government of Germany ordered destruction by Jan. 1 of all German military and nazi memorials and confiscation of all books glorifying nazism or militarism.

Fifty-eight operators of Mauthausen concentration camp were convicted by U.S. military court in Dachau for torture and murder of thousands of imprisoned victims, and were sentenced to die on gallows.

Disclosure that atomic bombs which would be used in Bikini atoll tests were no more powerful than atomic missile dropped on Nagasaki was made by joint army-navy task force 1.

Demand for 7% levy on coal industry's annual \$1,000,000,000 pay roll for health and welfare fund was made by John L. Lewis, president of U.M.W.

Gen. Ho Ying-chin resigned as chief of staff of China's Nationalist army.

14 Pres. Truman signed bill to extend selective service act to Sept. 1; this act banned induction of fathers and 18 and 19-year-old youths.

15 Soviet delegate to Allied council for Japan was advised by George Atcheson, Jr., U.S. delegate, that U.S. does not favour communism "in United States or Japan."

Continued disagreement on virtually all fundamental issues resulted in adjournment of Paris conference of foreign ministers to June 15.

Gen. MacArthur was accused by Lt. Gen. Kuzma Derevyanko,

soviet member of Allied control council for Japan, of failing to carry out Moscow conference terms by refusing to give council adequate notification on his directives.

Joint letter drafted by Sen. David I. Walsh and Rep. Carl Vinson, chairmen of senate and house naval affairs committees, respectively, to Sec'y of Navy Forrestal, said congress would not approve a single department of common defense.

16 British White Paper rejecting Moslem and Congress party plans for Indian government, set forth six-point plan as basis for constitution to be drafted by Indians, but rejected Moslem demand for Pakistan (separate state).

Pres. Truman denounced draft measure as "bad legislation"; he also authorized induction into armed forces of childless men between 26 and 29 years.

Pres. Truman's proposal that coal operators and miners submit their dispute to arbitration was rejected by both parties.

Plans for extensive reorganization of government and recommendation for substantial enlargement of Federal Security agency and its eventual elevation to department status were given to congress by Pres. Truman.

Foreign Minister Shigeru Yoshida succeeded Baron Kijuro Shidehara as Japan's premier; Yoshida retained foreign ministry portfolio.

17 Railways of U.S. were seized by Pres. Truman as emergency measure after railway unions refused to call off strike scheduled for May 18.

A.F. of L. pledged full support to its affiliate U.M.W. in labour dispute with coal operators.

News dispatches from Washington suggested U.S. proposed that Canada join two-nation defense agreement for protection of North America, with special emphasis on Arctic frontiers.

Documentary evidence branding Franco Spain as cause of international friction and as constant threat to world peace was made public by special U.N. subcommittee.

U.S. people were called on by Herbert Hoover to make great sacrifices to help save 800,000,000 people of world from "grim-mest spectre of famine" in history.

British cabinet mission's proposals for India union were approved by Mohandas K. Gandhi who said scheme was "seed to convert this land of sorrow into one without sorrow and suffering."

18 Railway unions postponed nation-wide strike for five days at behest of Pres. Truman.

19 Manila dispatches disclosed that Hukbalahap organization was conducting small-scale civil war against Philippine army's military police.

Warning that Spain would not permit itself to be "Frenchified" and an appeal to people to throw out "foreign influences" were made by Gen. Franco in speech at Oviedo.

British foreign office confirmed reports that Gen. Wladyslaw Anders' Polish army in Italy would be sent to Britain for demobilization.

20 Declaration that U.S. would submit problem of world peace settlements to U.N. general assembly unless Big Four convoked peace conference in summer of 1946, was made by Sec'y of State Byrnes.

Premier Ghavam-es-Saltaneh of Iran admitted breakout of fighting between Iranian government army and Azerbaijan forces.

Proposal that new world food agency be established, that U.N.R.R.A. cease its work by Sept. 1 and that "normal" world trade in food and farming supplies be restored were made by Herbert Hoover.

21 Sec'y of Interior Julius A. Krug was ordered by Pres. Truman to seize soft coal mines; Vice-Adm. Ben Moreell was placed in charge of administering mines for government.

U.N. Security council was officially notified by Hussein Ala, Iranian ambassador to U.S., that Red army troops had evacuated all of Iran by May 6.

Sen. Vandenberg hailed what he termed positive, constructive and bipartisan U.S. foreign pol-

The pictures on this page are, left to right:

LEWIS.....May 10
VINSON.....June 6
MIKHAILOVITCH.....June 11
HUMBERT II.....June 13
HUSSEINI.....June 19



MAY—Continued

icy that emerged from Big Four meetings of foreign ministers in Paris.

372 Danube river ships flying flags of many nations were seized by U.S. constabulary in U.S. zone of Germany.

22 Railway management and 18 of 20 railroad unions accepted Pres. Truman's suggested compromise of 18½ cents increase per hour in wages; leaders of trainmen's and engineers' unions rejected proposal.

Soviet-Iranian controversy was kept on agenda of U.N. Security council after majority announced they were not satisfied as to whether Red army evacuation of Iran had been completed.

23 Nation-wide railroad strike began after heads of trainmen's and engineers' unions rejected Pres. Truman's request they remain on job until arbitration settled differences.

24 Iran was officially notified by soviet ambassador at Tehran, Ivan C. Sadchikov, that Red army had completed its evacuation by May 9.

Pres. Truman threatened to call out army if railroad strikers did not return to jobs by 4 P.M. E.S.T., May 25.

25 Pres. Truman appeared before joint session of congress and asked for temporary emergency powers to break strikes against federal government in any specified industry; he also requested authority to draft strikers into armed services and urged congress to formulate long-range labour policy designed to cut down work stoppages; acting on president's speech, house of representatives passed requested strike curbs by vote of 306 to 13; senate side-tracked measure which met strong opposition from both labour and conservative elements.

48-hour national railroad strike was settled, with unions accepting Pres. Truman's proposed wage increase of 18½ cents an hour.

Addressing first session of U.N. economic and social council in U.S., Pres. Truman said its task was to achieve "freedom from want . . . to assure higher standards of living . . . and to promote fuller recognition of dignity and worth of human person."

Emir Abdullah became King Abdullah Ibn Hussein of Trans-Jordan in ceremonies at Amman, capital of new middle east kingdom.

26 Left-wing parties emerged victorious in Czechoslovak general elections, with Commu-

nists receiving twice as many votes as any other single party.

A. F. Whitney, president of Brotherhood of Railroad Trainmen, denounced Pres. Truman as "political accident" and said his union had authorized him to spend \$2,500,000 to defeat every member of congress who voted for president's restrictive labour legislation.

27 Blunt charges that Anglo-U.S. "bloc" was waging offensive against soviet union at Paris conference of foreign ministers were made by soviet Foreign Minister Molotov.

U.S. bakers were ordered by department of agriculture to reduce size of bread loaves and rolls by 10% on June 1.

28 Agreement whereby U.S. would grant France credits totalling about \$1,400,000,000 was signed in Washington by Sec'y of State Byrnes and Léon Blum, special French emissary.

Gen. Eisenhower and Adm. Nimitz urged congress to pass legislation permitting close military and economic collaboration among western hemisphere nations.

Siam's appeal to U.N. for assistance in halting French invasion and occupation of strip of Siamese territory on Indo-China frontier was made public by U.N. Security council.

Sec'y of State Byrnes denied soviet Foreign Minister Molotov's assertion that there was any Anglo-U.S. bloc and declared that U.S. invited British and soviet co-operation.

29 Case strike control bill was approved by house of representatives by vote of 230 to 106 and sent to Pres. Truman for signature.

45-day coal strike ended when John L. Lewis signed contract with U.S. government under which U.M.W. was granted 18½ cents hourly wage increase and establishment of welfare and retirement fund financed by operators by payment of five cents per ton.

Hussein Ala, Iranian ambassador to Washington, was ordered by his government to refrain from making statements before U.N. Security council on Soviet-Iran dispute.

House foreign affairs committee was told by Sec'y of State Byrnes that U.S. foreign policy would be directed toward reduction of world armaments to level consonant with maintenance of internal order and external peace and security.

30 Georgia's legal department was ordered by Gov. Ellis Arnall to take action to re-

voke state charter of Ku Klux Klan.

Appeal to both Chinese Communists and Nationalists to lay down arms was issued by Gen. George C. Marshall, special U.S. emissary, who warned China was on verge of "even greater calamity than World War II."

Leaders of seven Arab League states announced their unanimous rejection of further Jewish immigration to Palestine.

31 Disclosure that Premier Stalin had rejected on grounds of ill health two presidential invitations to visit U.S., was made by Pres. Truman.

U.S. and Britain sent parallel notes to Rumania asking government to promulgate new electoral law, set date for elections and assure fair and free vote.

JUNE

McMahon bill for national civilian control of atomic energy was passed by senate in voice vote.

Pope Pius XII, on eve of French and Italian general elections, appealed for voting against "state absolutism" and "wreckers of Christian civilization."

U.N. subcommittee, declaring that Franco regime was potential menace to world peace, proposed that U.N. general assembly direct collective break in diplomatic relations with Spain unless Franco government were withdrawn and Spanish people freed by September.

French foreign office asked U.S. and Britain to advise Siam that its government had not returned territories acquired from Laos and Cambodia in 1941.

Gen. Ion Antonescu, former dictator, and three other Rumanian officials, convicted as war criminals by Rumanian People's court, were executed.

2 Popular Republican party won majority of seats in French elections for new constituent assembly, with Communist and Socialist parties second and third respectively.

Gen. Eisenhower branded as "vicious" talk as to where, how and why next war would be fought.

Statement attributed to Allied source in Nuernberg said soviet union already had demobilized more than 10,000,000 men from its armed services and planned to reduce them further from 6,000,000 to 4,500,000 men.

Majority of Italians voted for republic to replace monarchy in nation-wide referendum; official

figures were 12,182,855 votes for republic and 10,362,709 votes for monarchy.

3 Supreme court unanimously overruled convictions for contempt of court obtained against Miami newspaper for having criticized Florida judicial procedures.

Resignation of Edward R. Stettinius, Jr., as U.S. representative on U.N. Security council was accepted by Pres. Truman.

4 Juan Domingo Perón was installed as 29th president of Argentina.

Eugene Meyer, publisher, was elected first president of International Bank for Reconstruction and Development.

5 Winston Churchill, in house of commons debate, supported Labour government's foreign policy and charged that seeds of World War III were being sown in Russian-occupied Europe.

Spanish government, in communiqué to U.N. diplomats, challenged security council's authority and termed subcommittee's report condemning Franco regime "offensive."

Sen. Warren R. Austin of Vermont was named U.S. representative on U.N. Security council, succeeding Edward R. Stettinius, Jr.

Pres. Truman was urged by Protestant church delegation to recall Myron C. Taylor as his personal representative to Vatican on grounds that his mission there was "contrary to historic American principle of separation of Church and State."

6 Fred M. Vinson was named by Pres. Truman as chief justice of U.S. supreme court; John W. Snyder was named secretary of treasury.

Trygve Lie, secretary general of U.N. Security council, was given extraordinary powers to intervene in council debates.

Argentina and soviet union resumed diplomatic relations after 28-year lapse.

7 Rumania answered U.S. state department note on voting with assertion nation was "eager" to hold elections, and implied U.S. note was influenced by foreign propaganda.

8 Breakdown in Dutch-Indonesian negotiations was implied as President Soekarno of Indonesian republic broadcast appeal to his followers to mobilize against Dutch.

10 Justice Robert H. Jackson at Nuernberg news conference attacked Justice Hugo

JUNE—Continued

Black for participating in decisions affecting former law partner and warned continuation of such practices would bring U.S. supreme court into disrepute.

U.S. supreme court affirmed conviction of three leading U.S. tobacco companies for violation of antitrust act.

Case Labor Disputes bill was vetoed by Pres. Truman, who charged measure struck only at symptoms, not underlying causes, of industrial strife and would not halt strikes; presidential veto was sustained when house of representatives failed to get necessary two-thirds majority to override it.

Gen. Draja Mikhailovitch at his trial for treason in Belgrade court admitted he had contact with Germans and Yugoslav puppet government in 1941, but insisted he was trying to lure Quislings to join his forces.

British Labour party conference at Bournemouth gave overwhelming support to Foreign Secretary Ernest Bevin's foreign policy; Bevin asserted Russians rebuffed his earnest efforts at friendliness, and implied rejection of Anglo-U.S. committee's Palestine report, stating that he would have to put another division in Holy Land to safeguard 100,000 Jewish immigrants.

King Humbert left Italy after reign of only 35 days; results of Italian elections, which favoured democracy over monarchy, forced his departure.

U.N. subcommittee's compromise plan on Franco Spain was rejected and branded as cowardice by Andrei A. Gromyko, soviet delegate to Security council.

War department disclosed radioactive isotopes produced from atomic pile at Oak Ridge, Tenn., would be made available for medical and biological research.

U.S. atomic program outlined by Bernard M. Baruch, chief U.S. delegate, at first meeting of U.N. atomic energy commission, contained formal offer to surrender store of atomic bombs and to turn over all atomic secrets to world Atomic Development authority under which no nation would have veto power.

U.S., Britain and France accepted soviet frontier with Rumania at Big Four meeting of foreign ministers in Paris.

Pres. Truman said U.S. would have no official representative at Vatican after completion of peace treaties.

Paul V. McNutt was designated first U.S. ambassador to new Philippine republic.

Pres. Truman continued OWMR and appointed John R. Steelman as its director.

Twelve-point program for merging armed forces in single department of national defense was submitted to congress by Pres. Truman.

Fred Rose, Communist member of Canadian parliament, was convicted in Montreal court on charge of plotting to communicate wartime secrets to Moscow.

Viscount Wavell, viceroy of India, announced breakdown of negotiations for formation of Indian interim government and invited 14 representative Indian leaders to form new government on parity basis.

Sale of government's \$200,000,000 steel plant at Geneva, Utah, to U.S. Steel Corp. for \$47,500,000 was approved by Attorney General Tom Clark.

Joseph B. Keenan, chief U.S. prosecutor in Japanese war crimes trials, disclosed that decision had been made on "high political levels" not to try Emperor Hirohito as war criminal.

Broad program for improving medical care, pensions and rehabilitation of war veterans was authorized by Pres. Truman.

Soviet union exercised veto to block U.N. Security council's decision to refer question of Franco regime to general assembly.

Soviet plan for atomic energy control was submitted by Andrei Gromyko, soviet representative on U.N. atomic energy commission; soviet proposal would outlaw atomic bombs by international agreement and permit all five major powers on security council to retain veto powers.

Egyptian communiqué disclosed that Haj Amin el Husseini, exiled grand mufti of Jerusalem, had fled to Egypt where it was reported he would receive asylum.

New constituent assembly of France elected Georges Bidault president of provisional government.

Joe Louis knocked out Billy Conn in 8th round of scheduled 15-round bout for world's heavyweight boxing championship.

Peacetime U.S. army budget of \$7,091,034,700 for coming fiscal year was submitted to congress by subcommittee of house appropriations committee.

Disclosure that U.S. had offered to share control over Japan with soviet union, Britain and China for 25-year period, after current occupation, to keep Japan permanently disarmed, was made by state department.

Dr. Oscar Lange, Polish ambassador to U.S., said his country no longer was interested in proposed \$90,000,000 U.S. credit because it had received generous loan terms from soviet union.

India lodged complaint with United Nations general assembly that South Africa's discriminations against its 250,000 Indian residents would harm relations between two countries.

Polish proposal that U.N. members break diplomatic relations with Franco regime in Spain was rejected by 7 to 4 vote in U.N. Security council.

Viscount Wavell's proposals for interim government pending drafting of Indian constitution were rejected by Congress party.

U.S. agreement to release more than \$600,000,000 in frozen funds to Argentina was disclosed by Foreign Minister Juan Bramuglia.

Mongolian People's republic applied to United Nations for membership.

Soviet union invoked veto three times during debate in U.N. Security council on Spanish issue; Sir Alexander Cadogan, British delegate, sharply criticized soviet use of veto power as "unjustified."

Dodecanese islands were awarded to Greece, and Tenda and Briga area of northwest Italy to France, by Council of Foreign Ministers meeting in Paris.

Canadian Finance Minister J. L. Hsley announced Canada planned to meet nearly 90% of expenditures from revenue and to reduce personal and corporate income taxes.

Britain announced that bread would be rationed on basis of 9 oz. daily per adult as of July 21.

Chester A. Bowles resigned as director of Economic Stabilization and appealed to Pres. Truman to veto compromise legislation extending OPA, which he termed an attempt to "legalize inflation."

Pres. Truman's plans for reorganization of federal government were rejected in house of representatives.

Statement that 20,000 U.S. marines would remain in China to guard supply lines from coal mines to coastal cities was issued

by Dean Acheson, acting secretary of state.

Enrico de Nicola was elected provisional president of new Italian republic.

Amended OPA bill was vetoed by Pres. Truman who declared measure presented choice "between inflation with a statute and inflation without one"; president in radio broadcast urged people to advise congressmen of their determination to retain price controls; house of representatives sustained presidential veto.

Fair Employment Practices committee expired after congress refused its extension.

JULY

Superfortress dropped Nagasaki-type atomic bomb from height of 30,000 ft. over 73 vessels anchored in target area off Bikini atoll; five ships were sunk, nine craft were heavily damaged and at least 45 other ships suffered varying degrees of damage.

Tentative agreement on Yugoslavia's western frontier on basis of French compromise was reached by Big Four's foreign ministers in Paris.

House of commons was told by Prime Minister Attlee that British government could not accept any policy for Palestine that had to be enforced by arms.

Charges that grave irregularities occurred in Polish national referendum were made by Stanislaw Mikolajczyk, Polish opposition leader.

U.N.R.R.A. halted shipment of tractors to White Russian and Ukrainian republics because soviet union allegedly was exporting tractors to Argentina.

Hobbs bill aimed at curbing "racketeering" by labour unions was signed by Pres. Truman.

Sharp rise in butter prices resulted after U.S. government ended its subsidy of 15 cents per lb.

Allegations that Illinois munitions combine had brought pressure on Sec'y of War Patterson, through Representative May's intercession, were made by Senate War Investigating committee.

British Food Minister John Strachey told commons that Britain introduced bread rationing because of fear that U.S. labour troubles and end of OPA would stop promised wheat exports.

JULY—Continued

4 Philippine republic was born in ceremonies at Manila and sovereignty over islands was transferred by U.S. to Filipino people; recognition of independence of Philippine republic was proclaimed by Pres. Truman.

Big Four's foreign ministers agreed to open 21-nation peace conference on July 29.

At least 39 Jews and four Poles were killed in Kielce, in worst anti-Jewish pogrom in Poland after country's liberation.

Bikini dispatches said 90% of test animals on board ships affected by atomic bomb explosion showed falling blood count as result of exposure to radioactive rays.

5 Canadian government pegged its currency unit at parity with U.S. dollar to ease "inflationary pressures."

U.N. secretariat disclosed that kingdom of Afghanistan had asked for membership in United Nations.

6 Polish government asked death penalty for persons responsible for Kielce pogrom.

Austrian government was ordered by soviet occupation authorities to surrender all former German property in eastern Austria.

Chairman May of house military affairs committee denied there was anything "out of line" in his relations during war with lumber company as alleged by Senate war investigating committee.

Jawaharlal Nehru was formally inducted as president of India's Congress party.

7 Deportation from Austria of all Germans of non-Austrian descent was ordered by soviet occupation authorities.

Arab Higher committee accused Pres. Truman of "irresponsible" statements, urging him to admit Jews to U.S. if his sympathy for plight of Jews in Europe was genuine.

Mother Cabrini, who died in Chicago in 1917, was canonized by Pope Pius XII.

8 Establishment of world atomic control agency that would license and inspect atomic

energy activities without submission to veto was proposed by Herbert V. Evatt, Australian delegate to U.N. atomic energy subcommittee.

9 Three hundred U.N.R.R.A. employees in Shanghai cabled Director LaGuardia to complain of Chinese government's "persistent misuse" of U.N.R.R.A. materials.

Foreign Minister Molotov urged drastic revision of Sec'y of State Byrnes's proposal for a four-power guarantee of Germany's disarmament and asked for \$10,000,000,000 in reparations from reich.

Dr. J. Leighton Stuart was named by Pres. Truman as U.S. ambassador to China; Robert Butler was named U.S. ambassador to Australia.

10 Pres. Truman informed Gen. Mark W. Clark that U.S. would not recognize any definition of "German assets" that failed to conform with tripartite Moscow declaration of 1943; Truman statement was regarded as challenge to Russian demand for Austrian surrender of former German assets.

French claims for separation of Ruhr were flatly rejected by Foreign Minister Molotov who also opposed federalization of reich.

U.N. Health assembly voted 35 to 4 to give extraordinary powers to World Health organization.

11 Two official reports to Pres. Truman said atomic bomb test at Bikini had damaged more ships than had ever before been hurt in single explosion and said redesign of superstructure of naval vessels would be necessary to minimize atomic bomb effects.

Sec'y of State Byrnes and Foreign Sec'y Bevin declared U.S. and Britain would organize their zones in Germany as single economic unit, unless Big Four reached accord for economic merger of all four German zones.

Plan submitted by H. V. Evatt, Australian delegate to United Nations, for atomic control was opposed by Andrei Gromyko, soviet delegate.

12 Italian cabinet composed of representatives of Christian Democratic, Communist, Socialist and Republican parties

was formed by Premier Alcide de Gasperi.

13 Bernard Baruch urged five great powers to renounce voluntarily veto power on punishment of nations that violated proposed pact to prohibit manufacture or use of atomic weapons.

House of representatives approved loan of \$3,750,000,000 to British by 219 to 155 vote and sent it to Pres. Truman for signature.

National Commission of Higher Education, with George F. Zook as chairman, was appointed by Pres. Truman to "re-examine" U.S. system of higher education.

14 Assertion that U.S. must be prepared to revise materially its reparation plans unless U.S.S.R. changed its attitude, was made by Edwin Pauley, presidential representative on reparations.

15 Sec'y Byrnes said soviet "hostility" to U.S. plan for guaranteeing reich disarmament had raised "doubts and suspicions" in minds of friendly nations.

Bill approving loan to Britain was signed by Pres. Truman.

Pres. Truman's plan for single housing agency was rejected in senate by 45 to 31 vote.

Majority report on Pearl Harbor inquiry commended diplomatic efforts of Pres. Roosevelt and Cordell Hull to avert war and placed blame for disaster on army and navy commands in Hawaii.

16 Pres. Truman ordered that only men between ages of 19 to 29 be called up in September draft.

Sen. Vandenberg asserted that no nation has "moral right to veto peace" in report on progress of Paris foreign ministers' parley.

43 German S.S. (Elite Guard) troops were convicted of slaying 900 U.S. prisoners and Belgian civilians during the 1944 battle of the Bulge and were sentenced to die.

17 Gen. Draja Mikhailovich and eight other Yugoslavs, convicted of treason and collaboration with Germans, were executed by firing squad.

Lt. Nicolai Redin of soviet navy was cleared of espionage charges by federal court jury in Seattle.

Mitsui family, one of Japan's most powerful financial and industrial oligarchies, voted its own dissolution.

18 Sen. Warren R. Austin of Vermont was named by Pres. Truman to represent U.S. at U.N. general assembly; others named by Truman to U.N. posts were Senators Connally and Vandenberg; Rep. Sol Bloom of N.Y., and Mrs. Eleanor Roosevelt.

House of representatives altered character of civilian commission for control of atomic energy by making compulsory appointment of at least one military member to body.

Rationing of bread in Britain was approved by 305 to 182 vote in house of commons.

Four-power arrangement under which Sweden agreed to turn over to U.S., Britain and France \$77,000,000 in German assets, was announced.

19 Soviet delegate Gromyko told U.N. atomic energy commission's scientific and technical committee that U.S.S.R. agreed with the United States intention not to reveal atomic secrets.

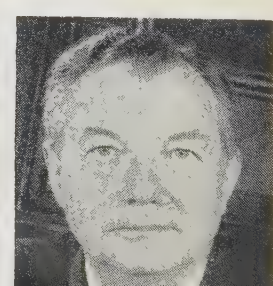
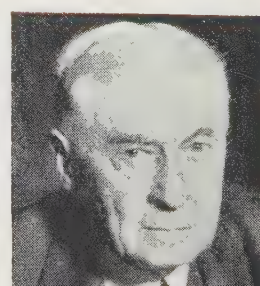
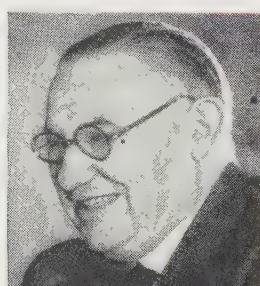
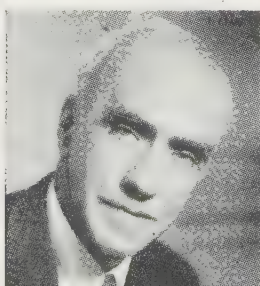
20 Pres. Roosevelt was found blameless for Pearl Harbor disaster by 8 to 2 vote of members of Congressional Pearl Harbor Investigating committee.

House of representatives approved McMahon bill to create domestic atomic energy commission, by 265-79 vote; original measure was drastically revised and included provisions for military participation in developing atomic energy and making of atomic bombs.

21 Revolt in Bolivia resulted in assassination of Pres. Gualberto Villarroel, whose body was hung from lamp post in La Paz public square.

The pictures on this page are, left to right:

NEHRU July 6
STUART July 9
BEVIN July 11
BARUCH July 13
JACKSON July 26



JULY—Continued

22 Chairman May of house military affairs committee refused to appear before senate war investigating committee probing his connection with several munitions firms that allegedly made excessive war profits; May said he was too busy.

Nestor Guillen, head of Bolivia's supreme court, was installed as provisional president after ouster of old regime by student and worker revolutionaries.

Mme. Sun Yat-sen said U.S. and Chinese "reactionaries" were deliberately fanning Chinese civil strife in hope of starting Soviet-U.S. war.

At least 76 persons were killed and 29 others were missing in explosion that wrecked King David hotel in Jerusalem; Jewish terrorists were believed to have been responsible for bomb blast.

James Clement Dunn was named U.S. ambassador to Italy, succeeding Alexander C. Kirk.

23 Irgun Zvai Leumi, anti-British Zionist organization in Tel Aviv, acknowledged responsibility for bombing of King David hotel, but asserted "British tyrants" brought it upon themselves by ignoring phone warnings that hotel was to be bombed.

Bill authorizing U.S. to "stockpile" strategic and critical materials was signed by Pres. Truman, who objected, however, to "Buy American" provisions of measure.

24 U.S. plan for establishment of semi-autonomous world atomic control agency was flatly rejected by Andrei Gromyko, soviet delegate to U.N. Security council, who warned that attempt to undermine veto would be "dangerous and maybe fatal."

25 Revised OPA bill was "reluctantly" signed by Pres.

Truman, who said it failed to assure maintenance of stable prices.

Proclamation re-establishing all rent controls as of June 30 was issued by OPA.

Jesus T. Pinero was named governor of Puerto Rico by Pres. Truman.

Explosion of underwater atomic bomb in second Bikini test sank 10 ships, including battleship "Arkansas" and carrier "Saratoga," and damaged six other craft.

26 OPA resumed functioning after 24-day lapse and issued scores of orders revising price ceilings on many commodities and items.

Senate approved without opposition house-accepted measure to reorganize and streamline congress and sent bill to Pres. Truman for signature.

Soviet union was accused by U.S. of stripping Hungary of vital food supplies and industrial materials in state department note delivered to Foreign Minister Molotov.

U.S. Prosecutor Robert H. Jackson demanded conviction of 22 top nazis on trial at Nuernberg as war criminals, charging they were just as guilty as Hitler because they put "loaded gun in his eager hands."

27 Pres. Truman declared U.S. supported Sec'y Byrnes in his efforts to get "just peace for world," as secretary of state departed for Paris peace parley.

Chinese Communist proposal for unconditional cessation of Chinese civil war was rejected by Nanking government.

"Aggressive and comprehensive" program to develop Alaska's economic potentialities was disclosed by Sec'y of Interior Krug.

House of representatives passed measures giving states clear title to tidelands oil and extending powers of Reconstruction Finance corporation.

Three-man decontrol board which was to have final authority in determining what items and commodities were to stay under OPA price control was named by Pres. Truman; members were Roy L. Thompson (chairman), Daniel W. Bell and George H. Mead.

28 Proposal that France and Britain join in alliance to offset world dominated by U.S.S.R. and U.S. was made by Gen. de Gaulle.

29 H. V. Evatt, Australian delegate, announced at opening of 21-nation peace parley in Paris that he would fight any procedural rules that would limit voice of smaller nations.

Acceptance in principle of U.S. proposal for closer economic ties between U.S. and British zones in Germany was announced by British government.

30 Drafts of Allied peace treaties with Italy, Finland, Rumania, Bulgaria and Hungary were published at Paris peace conference.

Disposal to overseas countries of \$3,612,177,000 worth of war materials for more than \$1,000,000,000 was announced by Thomas B. McCabe, foreign liquidation commissioner.

31 Delegates at Paris peace parley were told by Foreign Minister Molotov that U.S.S.R. opposes any outside interference in economic life of former German satellites.

Pope Pius XII appealed to peace conferees in Paris to make a "just and durable" peace for Italy.

active by-product of atomic bomb plants—to private hospital for use in cancer research.

Retail price of bread in U.S. was increased by one cent on two-lb. loaf by OPA.

After six-hour battle, started by dispute over vote count, U.S. veterans of World War II, equipped with arms, took over town of Athens, Tenn.

British Imperial troops from India were dispatched to Basra, in Iraq, presumably to protect British and Indian oil interests in southern Iran.

3 Drastic economy program was ordered by Pres. Truman, who directed his cabinet to reduce departmental expenditures by \$2,200,000,000.

Eire and Portugal submitted applications for membership to United Nations.

4 Recep Peker was asked to form new Turkish government after resignation of Premier Shukru Saracoglu and his cabinet.

Proposal that church leaders meet to discuss grave east-west tensions was stressed by John Foster Dulles in speech to parley sponsored by World Council of Churches in Cambridge, England.

Iceland formally applied for membership in United Nations.

AUGUST

Big Four's proposal for solution of Trieste issue and Italo-Yugoslav frontiers was flatly rejected by Edward Kardelj, Yugoslav vice-premier.

Soviet union officially branded as "completely groundless" U.S. charge that soviet authorities were stripping Hungary of its economic power.

2 Seventy-ninth congress adjourned after adopting Morse resolution under which U.S. would accept compulsory jurisdiction of Court of International Justice.

Warning that Bikini tests indicated future atomic wars "may well destroy nations and change present standard of civilization" was issued by Pres. Truman's special evaluation commission.

U.S. government sold for \$400 a millicurie of carbon 14—radio-

5 Western powers were sharply criticized by soviet Foreign Minister Molotov, who charged U.S. and Britain sought simple majority vote at Paris peace parley because they controlled enough votes to insure passage of their proposals.

56-day moratorium on new federal construction was ordered by Director John R. Steelman of OWMR in effort to curb inflation.

6 China urged U.N. to postpone consideration of application of Mongolian People's republic for membership for at least a year.

8 Bill appropriating \$2,431,708,000 for G.I. terminal leave pay was signed by Pres. Truman.

XB-36, world's largest land-based bomber, made successful

The pictures on this page are, left to right:

ACHESON.....Aug. 20
MANUILSKY.....Aug. 22
GEORGE II.....Sept. 1
CONNALLY.....Sept. 16
WALLACE.....Sept. 22



AUGUST—Continued

test flight; new aircraft, powered by six huge engines, has 30-ton bomb-carrying capacity.

9 British foreign office spokesman said Britain was prepared to act without consulting U.N. if British oil interests in Iran were threatened.

Bill giving G.I.s right to collect terminal leave pay was signed by Pres. Truman.

10 Joint statement declaring settlement between Kuomintang and Chinese Communists in China appeared "impossible" was issued by Gen. Marshall and J. Leighton Stuart.

Premier de Gasperi of Italy, found unacceptable Paris peace parley's decisions on Trieste, Italian colonies and navy, and certain economic clauses.

11 Nine white persons were held in custody on charges of "unlawful assembly" after wild race rioting in Athens, Ala.; authorities were compelled to call out state guard to restore order.

Numerous missiles believed to be rocket bombs streaked over Stockholm, Sweden; areas from which they were launched were not known.

12 British government announced halt on all illegal immigration of Jews to Palestine and said would-be immigrants were to be interned in "Cyprus and elsewhere" until their fate was determined.

Formal opposition to admission of Trans-Jordan and Eire as members of United Nations was expressed by soviet union.

Milan police stated body of Benito Mussolini, spirited away by Italian nationalists, was found near Pavia monastery.

13 Measure reorganizing state department's foreign service and boosting pay of high ranking envoys from \$17,500 to \$25,000 annually was signed by Pres. Truman.

France and soviet union opposed admission of Siam to United Nations while soviet union objected to Portugal's plea for admission.

14 Robert M. LaFollette, Jr., was defeated in Wisconsin's Republican primaries for U.S. senate.

OPA authorized increase of from 10 to 13 cents per lb. of coffee.

Plan to admit 1,000 Norwegian "quislings" to Argentina, as part of program to invite emigration of "best racial types," was an-

nounced by Dr. Santiago M. Peralta, Argentine director of migration.

Chiang Kai-shek vowed to end one-party rule in China and set up constitutional government "without delay despite all obstacles."

15 Soviet attacks on U.S. foreign policy were denounced by Sec'y Byrnes, who said U.S. did not have to apologize for its efforts to include "principles of justice, freedom and equality" in peace treaties.

17 Eight volumes of official documents released by U.S. government contained evidence that Hitler contemplated war against U.S. as early as Oct. 1940.

19 Chinese Communist regime ordered all-out mobilization of estimated 130,000,000 people in area under its control to "shatter" offensive launched by Nationalist armies.

At least 3,000 persons were killed and many more were injured in four-day rioting between Hindus and Moslems in Calcutta.

20 Restoration of ceilings on meat, soy beans and cottonseed was ordered by Price Decontrol board.

Lt. Gen. Sir Frederick Morgan, who had been under fire on charges of anti-Semitism, was "released" from his post as U.N.R.R.A. top official in Germany by Director Fiorello H. LaGuardia.

British and U.S. notes sent to Poland complained Warsaw government was repressing democratic activities and charged serious irregularities in counting of ballots in national referendum.

Shooting down by Yugoslav fighter aircraft of U.S. transport plane flying over Yugoslavia was branded "outrageous performance" by Dean Acheson, undersecretary of state; Marshal Josip Broz (Tito) said flight was merely one of many U.S. plane violations of Yugoslav territory, adding Yugoslavia wanted peace, but not "at any price."

21 U.S. state department sent ultimatum to Yugoslav government, giving latter 48 hours to give satisfaction on shooting down of U.S. aircraft over Yugoslavia in which five U.S. fliers were killed, and warning that failure to give prompt satisfaction would lead U.S. to place issue before U.N. Security council.

Yugoslav envoy to Greece was recalled in protest against alleged slanderous attacks on Marshal Tito by Greek press.

U.S. disapproval over soviet note to Turkey requesting that Turks share control of Dardanelles with U.S.S.R. was voiced in state department note that contended U.N. was proper authority to handle question.

22 Marshal Tito's promise to give satisfaction to U.S. over shooting down of U.S. planes was reported by Richard C. Patterson, U.S. ambassador to Belgrade.

Greece was denounced as threat to peace by Dmitry Manuilsky, Ukrainian foreign minister, at Paris peace conference.

23 United Nations received Yugoslav request for return of 167 Danube river boats seized by Allied military authorities; Yugoslavs asserted seizure threatened country's economic life.

Release of Maxim Litvinov as deputy minister of foreign affairs was disclosed by Moscow radio.

Britain announced it would not relinquish \$16,000,000 in Polish gold in its possession until Warsaw government fulfilled assurances that general elections would be "free."

24 U.S. state department said Yugoslavia seemingly had complied with ultimatum demanding satisfaction for shooting down aircraft, but reserved right to take case before U.N.; Marshal Tito charged U.S. airmen were engaged in reconnoitering Yugoslav zone of Venezia Giulia.

Greece was accused by Dmitry Manuilsky, Ukrainian delegate to U.N. security council, of trying to foment war in Balkans with British aid.

Jawaharlal Nehru was named by Viscount Wavell to head India's new "caretaker government."

Turkey rejected soviet request for participation in defense of Dardanelles, declaring that U.N. would be adequate guarantee of strait's security.

Japanese government was ordered by Supreme Allied command to set aside 505 large plants in eight basic industries as potential war reparations.

Sir Shafaat Ahmad Khan, Indian Moslem, was stabbed by two unidentified assailants five hours after he accepted post in Indian cabinet.

26 Attorney general's office ruled that War Assets administration could transfer, legally and without cost, surplus real estate property to states.

27 Vice-Adm. Bernard H. Beiri, chief of U.S. naval forces in Mediterranean, disclosed seven U.S. warships were ordered to stop at Greek ports in September on "courtesy" visit.

U.S. note charging electoral irregularities was criticized by Polish government as infringement of Poland's internal rights.

War department disclosure that premature explosion of defective shells caused deaths of 38 U.S. soldiers was made at sessions of Senate war investigating committee.

29 Sweden, Afghanistan and Iceland were unanimously approved by Security council to become members of U.N., but applications of Albania, Eire, Mongolian People's republic and Portugal were rejected.

U.N. Security council was asked by soviet union to order every country with troops in non-enemy states to report on number of troops and location within two weeks.

British authorities in Palestine disclosed death sentences passed on 18 Zionist members of Sternist organization were commuted.

30 U.S. and Britain were accused by Foreign Minister Molotov of interfering in Greek elections to insure return of monarchy.

Bendix trophy air race was won by Paul Mantz, whose average speed over 2,648-mi. course from California to Cleveland was 435.604 m.p.h.

31 Price controls were removed from all fresh fruits and vegetables—except oranges and bananas—by Sec'y of Agriculture Anderson.

Chinese government purchased for about one-fifth of cost U.S. surplus goods originally valued at \$800,000,000.

OPA barred increase in residential rents on grounds that current income from rentals exceeded figures for 1939-40 era.

20 of 22 nazi defendants on trial at Nuernberg for war crimes protested their innocence in final pleas; Hans Frank publicly confessed blame for atrocities laid to him; Martin Bormann was being tried *in absentia*.

SEPTEMBER

Majority of Greek people voted for return of King George II in plebiscite on restoration of monarchy.

Marshal Tito formally apologized to U.S. for death of five

SEPTEMBER—Continued

U.S. airmen shot down over Yugoslavia.

2 Gen. MacArthur warned in summary of first year of Allied occupation of Japan that country was torn between leftist and rightist ideologies.

3 Truck strike opened in New York, curtailing shipments of food to metropolis.

Selling wave on New York stock exchange resulted in losses averaging from 2 to 17 points in sharpest slump in 15 years.

4 British troops in Greece and rightist Greek government were jointly blamed by Dmitry Manuilsky, Ukrainian foreign minister, for "terrorism" in that country.

Companies headed by Henry M. Garsson were absolved in war department report of charge of having manufactured defective shells that caused casualties among U.S. troops during World War II.

Four-day rioting between Hindus and Moslems in Bombay area resulted in 146 deaths and 557 wounded.

Late revised reports on two Bikini atomic bombings disclosed that only 9 of 92 ships in target area escaped sinking, damage or contamination by radioactivity.

5 Ukrainian charges that Britain and Greek government were responsible for terrorism in Greece were called "unbridled propaganda" by Sir Alexander Cadogan, British representative on U.N. Security council.

Shipping traffic in number of U.S. seaports was tied up by nation-wide strike of A.F. of L. maritime workers.

6 Early establishment of provisional centralized German government was urged by Sec'y of State Byrnes in Stuttgart speech.

7 Report that it would be currently possible to build atomic power plant at operating cost only one-fifth higher than equivalent coal plant was issued by scientific advisers to U.S. delegate on U.N. atomic energy commission.

Third Bikini atomic bomb test was postponed indefinitely by Pres. Truman.

Crews of 3,500 tugboat and harbour craft in New York city joined shipping strike.

8 Bulgarian electorate voted in favour of republic in national referendum.

9 Ukrainian complaint that British and rightist Greek government were fomenting terrorism in Greece was rejected by U.S. and Australian delegates to U.N. Security council.

11 Visits of U.S. warships to Greek port and continued stay of British troops in country were termed "insult to Greek people" by Andrei Gromyko, soviet delegate to U.N. Security council.

12 Sec'y of Commerce Henry A. Wallace warned in speech at Madison Square Garden, New York, that "get-tough" policy with Russia would not prevent war and declared that British policy in near east combined with soviet retaliation would lead U.S. into war unless nation had clearly defined foreign policy; in Washington, Pres. Truman said he had read and approved Wallace's speech.

14 Pres. Truman announced full support of Sec'y Byrnes and said there had been "no change in established foreign policy" of U.S.; president said that in approving Wallace's earlier speech, he had merely approved Wallace's right to deliver it.

15 Federal Security agency revealed that divorces granted in 1945 totalled 502,000 or 25% more than previous year.

Very Rev. John Baptist Janssens, Belgian Jesuit, was unanimously elected general of Society of Jesus in Rome ceremony.

16 U.N. Security council was asked by Andrei Gromyko, soviet delegate, to denounce "aggressive Greek monarchists" and criticize Britain for not having withdrawn troops after elections of March 1946.

Sen. Connally in statement at Paris peace conference insisted that in interests of world peace Trieste be made completely independent of both Italy and Yugoslavia.

Soviet Foreign Minister Molotov rejected Sec'y Byrnes' contention that final German-Polish frontier remained to be fixed, declaring borders were definitely established at Potsdam and were not subject to change.

17 Trucking strike ended in New York city when majority of operators agreed to wage increases and shorter work week.

Sec'y Wallace released private letter he had written to Pres. Truman July 23 in which Wallace urged president to seek an accord with soviet union as means of heading off atomic arms race.

18 Archbishop Aloysius Stepinac, Catholic primate of Yugoslavia, was formally arrested by Yugoslav government and held for trial on charges of "crimes against the people."

Development of powerful poison of which a single ounce could kill every person in U.S. and Canada was announced by U.S. chemical warfare service.

International monetary fund was informed by U.S. that par value of U.S. dollar would remain at \$35 per oz. of gold.

19 Proposal for world trade charter, which embraced new world trade body and common code of international commercial practices, was made public by state department.

20 Pres. Truman removed Henry A. Wallace as secretary of commerce because latter's views conflicted with administration's foreign policy; Sec'y Wallace said "winning the peace is more important than high public office."

U.S. state department disclosed all army and navy personnel would be removed from Iceland within 180 days, but that U.S. civilian personnel would be retained at Keflavik aerodrome to maintain communication with U.S. armed forces in Germany.

Charges that Greek government policy in Balkans threatened world peace and security were dropped by U.N. Security council.

National Maritime union (C.I.O.) called off east coast shipping strike.

21 Strike of west coast maritime unions ended after 17-day walkout.

22 W. Averell Harriman was named secretary of commerce, replacing Henry A. Wallace.

23 U.S. abandoned its claim to full compensation for damages from Rumania at Paris peace parley.

Maritime commission disclosed that 19 corporations operating government-built shipyards made "estimated profits" of \$356,006,612 for investments totalling only \$22,979,275 during war.

24 Soviet request that U.N. members report exact number and location of their armed forces in all but former enemy states was rejected by 7 to 2 vote in security council.

Premier Stalin said he did not believe in real danger of "new

war" and said power of atomic bombs would not determine outcome of future war.

U.S. government was asked by Yugoslav government to close its information service in Belgrade on grounds it was distributing propaganda inciting Yugoslavs to "open treason."

27 Fine of \$175,000 was imposed on New York Great Atlantic & Pacific Tea company, 15 individuals and 9 of its subsidiaries by federal judge in Danville, Ill., who found defendants guilty of conspiring to monopolize large part of nation's food business.

28 Warning that it would be difficult to prevent diversion of atomic energy products to war purposes unless "appropriate safeguards" were taken at each stage of atomic manufacture was made by scientific and technical committee of U.N. atomic energy commission.

King George II returned to Athens to resume role as monarch of Greece.

Turkey was warned by U.S.S.R. that if it organized military measures in Dardanelles area with any power not on Black Sea, soviet union would regard such action as threatening security of other Black sea nations.

29 Gen. de Gaulle in speech at Epinal denounced new French constitution draft as "compromise unworthy of republic," because it made no provisions to make France strong.

30 Sec'y of Navy Forrestal said U.S. naval forces in Mediterranean and eastern Atlantic were there to support U.S. foreign policy.

OCTOBER

1 Twelve nazi defendants convicted of war crimes were sentenced to death on gallows by International Military tribunal at Nuernberg; three received life imprisonment, four were given lighter sentences and three—Franz von Papen, Hjalmar Schacht and Hans Fritzsche—were acquitted.

U.S. navy plane "Truculent Turtle" set record for nonstop long distance flight, completing 11,236-mi. trip from Perth, Australia, to Columbus, O., in 55 hr. 15 min.

2 U.S. war department asked for yearly draft of 726,000 men between ages of 18 and 20 to serve for six months in army training program.

OCTOBER—Continued

3 Sec'y of State Byrnes voiced hope that Premier Stalin's statement that there was no danger of immediate war would end "unwarranted charges" that U.S. was using atomic weapon as threat against soviet union.

4 Pres. Truman reiterated request to Prime Minister Attlee of Britain to open Palestine "at once" to permit "substantial" immigration of displaced Jews.

British Labour government announced formation of new ministry of defense intended to co-ordinate army, navy and air services, with Albert V. Alexander as its head.

23 of 25 Negroes accused of participating in race disorders at Columbia, Tenn., were acquitted by all-white jury in trial at Lawrenceburg, Tenn.

5 Agreement with U.S. permitting Americans to use Keflavik aerodrome was ratified by 32 to 19 vote in Iceland parliament.

6 U.S. Superfortress, "Pacusan Dreamboat," completed 9,500-mile flight from Hawaii to Cairo, Egypt, in 39 hr. 33 min.

7 Justice Robert H. Jackson told Pres. Truman in letter that "large numbers" of Germans whose crimes and guilt were equal to those of convicted nazis still remained unpunished.

8 Bernard M. Baruch, U.S. delegate to U.N. atomic energy commission, said in New York speech that U.S. would not destroy existing atomic bombs until world atomic control plan was operating effectively.

9 Indemnity of \$150,000 for lives of five U.S. pilots killed when their plane was shot down over Yugoslavia was paid to U.S. by Yugoslav government, state department disclosed.

State department reiterated its support of Turkey in Dardanelles controversy in note delivered to soviet foreign office.

10 Draft of Rumanian treaty, which included provisions for free navigation on Danube and equal trade opportunities in Danubian nations, was approved at Paris peace parley.

Pres. Truman flatly declared that Great Britain did not have any atomic bombs, in denial of reports that Britain was stockpiling atomic weapons.

Kuomintang's standing committee extended Chiang Kai-shek's tenure as president for another three years.

11 Capture of Communist base of Kalgan in North China by Chinese Nationalist armies was announced by Chinese government source.

Draft of Bulgarian peace treaty was approved by conferees at Paris peace parley.

Yugoslav court in Zagreb sentenced Archbishop Stepinac to 16 years in prison on charges of having actively collaborated with axis powers during war.

12 Announcement that U.S. would pay Italy \$50,000,000 for lire furnished to U.S. army for purchasing supplies in Italy was made by Sec'y of State Byrnes.

13 Draft of new constitution was approved by French electorate by majority of about 1,000,000 votes.

Draft of Hungarian peace treaty was approved by conferees at Paris peace parley.

14 Adoption of draft of Finnish peace treaty terminated work of Paris peace parley; Vyacheslav Molotov, soviet foreign minister, termed as "unsatisfactory" some of results of conference.

All price controls on livestock and meat were removed, effective Oct. 15, by Pres. Truman who blamed meat shortage on "reckless group of selfish men" whom he charged with having encouraged (for political ends) meat sellers to gamble on end of price control.

15 Paris peace conference closed after 11 weeks and 2 days of sessions in Luxembourg palace.

St. Louis Cardinals defeated Boston Red Sox 4-3, in seventh and deciding game of baseball's annual world series.

16 Ten leading nazis, who had been convicted of crimes against humanity by International War Crimes tribunal,

were hanged in prison gymnasium at Nuernberg; Hermann Goering committed suicide by swallowing poison less than two hours before he was slated to hang.

U.S. state department stopped remaining \$40,000,000 of \$50,000,000 credit granted Czechoslovakia for purchasing surplus army equipment and asked Export-Import bank to stop negotiations for another \$50,000,000 credit, charging Czechoslovakia had resold some material to Rumania at profit.

Chiang Kai-shek issued eight-point peace bid to Chinese Communists, declaring he would promptly give cease-fire order if Communists accepted his procedure for resuming peace parleys.

17 King Ibn Sa'ud of Saudi Arabia wrote Pres. Truman that his request to open Palestine immediately to Jewish immigration violated "previous promises" made to Arabs.

18 State department charged that Yugoslav government held individuals in forced labour and urged prompt "remedial" measures.

20 Yugoslav government branded U.S. charge that Yugoslavs were holding many individuals in "slave labour" as "untrue, invented and malicious statement."

Moscow radio attacked U.S. congress as tool of "reactionary" interests and expressed hope that voters at Nov. 5 elections would elect "progressive" candidates.

21 1,400 pilots and copilots of Transcontinental and Western Air, Inc., staged first strike in air line history.

John L. Lewis accused government of violating contract with soft coal miners and demanded reopening of contract for new negotiations on wages.

Social Democratic party emerged as strongest political party in Berlin's municipal elections receiving about 49% of votes cast; Christian Democratic Union was second and Socialist Unity party, sponsored by Russians, was third.

U.S. request that Big Three take measures to guarantee free elections in Bulgaria was re-

jected by soviet union, state department disclosed.

22 Argentine action in halting nearly all food exports to Bolivia was linked with Peron government's displeasure with ouster of Villarroel dictatorship and establishment of democratic regime by Bolivia.

23 Pres. Truman, opening first session of U.N. general assembly in New York, said elimination of fear of war is world's principal need, warning that world disaster would follow if U.N. should be split into "irreconcilable parts" by conflicting ideologies.

All foods and beverages, except sugar, rice, molasses and sirups, were removed from price controls by OPA.

24 U.N. general assembly was told by Secretary General Trygve Lie that Franco regime in Spain would be constant source of mistrust among U.N. members so long as it remained in power.

25 Pres. Truman proclaimed existence of emergency in order to lift duties on imports of lumber and lumber products needed for Federal Emergency Housing program.

27 Government sponsored Fatherland Front bloc won overwhelming majority in Bulgarian national elections; party gained 364 seats to 101 for opposition.

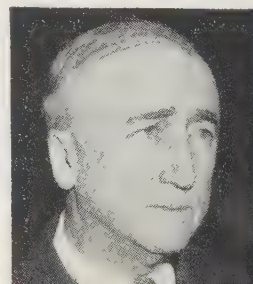
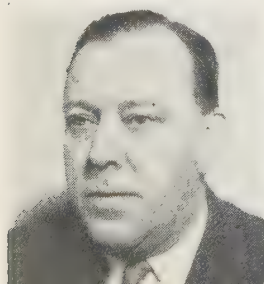
28 Premier Stalin, in interview with U.S. correspondent, said soviet union did not have secret of atomic bomb.

U.S. and Britain were accused by Kuzma Kisselev, White Russian delegate to U.N., of violating U.N. charter by maintaining armies in nonenemy countries.

Rumania was accused by U.S. state department of using methods that would prevent free and fair elections scheduled for Nov. 19.

The pictures on this page are, left to right:

LIE.....	Oct. 24
LILIENTHAL.....	Oct. 28
AUSTIN.....	Oct. 30
BYRNES.....	Nov. 5
BYRD.....	Nov. 12



OCTOBER—Continued

Pres. Truman named five civilians to head U.S. atomic energy commission, with David E. Lilienthal as chairman of new body.

29 U.S. plan for world control of atomic energy was rejected by soviet Foreign Minister Molotov who urged U.N. to take prompt action to reduce armaments and ban atomic missiles.

30 Soviet proposal for worldwide reduction of armaments was endorsed by Warren R. Austin, U.S. delegate on U.N. general assembly, who added, however, it would require effective enforcement provisions.

31 President-elect Gabriel González Videla of Chile appointed three Communists to his cabinet.

Prof. Herman J. Muller of Indiana university was awarded Nobel prize for 1946 for his work in medicine and physiology.

NOVEMBER

Big Four powers were asked permission by Belgium, Netherlands and Luxembourg to sit in on discussions of German peace treaty.

3 New Japanese constitution was formally promulgated by Emperor Hirohito.

5 G.O.P. won control of congress in national elections; Republicans gained 12 seats in senate giving them 51 to 45 for Democrats; Republicans also gained 57 seats in house of representatives giving them 249 seats to 185 for Democrats and one for American Labor party.

Sec'y of State Byrnes was accused by Foreign Minister Molotov of trying to coerce Yugoslavia into signing Italian peace treaty by threatening to withhold reparations if it failed to do so.

The pictures on this page are, left to right:

ALEMÁN.....Dec. 1
PETRILLO.....Dec. 2
GOLDSBOROUGH.....Dec. 4
BLUM.....Dec. 12
McNARNEY.....Dec. 24

6 U.S. proposal under which strategic Pacific islands would be placed under U.N. trusteeship provided U.S. remained sole administering authority was disclosed by Pres. Truman.

7 John Foster Dulles, U.S. delegate, notified U.N. that if it failed to accept U.S. trusteeship proposals for control of Pacific islands, U.S. would continue de facto control of strategic areas.

Sen. Robert A. Taft predicted possibility of reducing federal budget to \$25,000,000,000 level within two years.

8 Declaration that U.S., regardless of political party in power, would continue to support U.N. as instrument to keep world peace, was given U.N. by Sen. Vandenberg (Rep.).

U.S. mission to Albania was withdrawn on charges that Premier Enver Hoxha's regime was unwilling to recognize validity of existing treaties.

9 Pres. Truman announced government was ending all controls on prices, wages and salaries, but saving curbs on rent and sugar.

10 French Communist party won greatest number of seats in elections for the first national assembly under new constitution; Popular Republican Movement was second and Socialist party third.

11 Pres. Truman acknowledged that Republican control of legislative branch of government and Democratic control of executive would result in inevitable division but said difficulties could be avoided if nation's interest was put ahead of party politics.

New compromise attitudes in council of foreign ministers were reflected in Sec'y Byrnes's announcement that U.S. ordered return of Danubian ships and barges to owner states and Foreign Minister Molotov's disclosure that U.S.S.R. had restored identifiable property within soviet zones to foreign owners.

12 Disclosure that Rear Adm. Richard E. Byrd would head U.S. expedition to Antarctica involving 4,000 men and dozen vessels was made in Washington.

Reorganization of naval operating forces with establishment

of "task fleets" in both Atlantic and Pacific was announced by U.S. navy department.

13 Field Marshal Smuts warned that if U.N. failed to approve Union of South Africa's proposal to annex South-West Africa mandate, South Africa would continue to administer mandate anyway.

14 Premier Enver Hoxha of Albania charged U.S. used issue of treaty validity to obstruct resumption of U.S.-Albanian relations.

Nobel Peace prize for 1946 was won by Dr. John R. Mott and Prof. Emily Greene Balch of U.S.; chemistry award went to Professors James Batcheller Sumner, Wendell M. Stanley and John Howard Northrop of U.S.; physics award to Prof. Percy Williams Bridgman of U.S.; the literature prize was awarded Herman Hesse, Swiss novelist.

15 John L. Lewis, president of U.M.W.A., formally notified government that union's coal pact with federal government would be terminated Nov. 20; Sec'y of Interior Krug declared U.M.W.A. did not have authority to end agreement by unilateral action.

Draft plan for recognition of de facto authority of Indonesian republic over islands of Java, Sumatra and Madura and establishment within two years of United States of Indonesia under co-equal Netherlands-Indonesian union was initialled in Batavia by Netherlands and Indonesian delegations.

16 Full-dress inquiry into Bilbo's fitness to hold seat in senate was voted by senate campaign investigating committee.

18 U.S. government obtained restraining order to prevent John L. Lewis and United Mine Workers from starting strike in alleged violation of government contract.

19 Radio broadcasting by foreign correspondents was formally abolished by soviet government.

20 John L. Lewis and U.M.W.A. defied federal injunction restraining them from cancelling government contract as coal miners began scheduled strike.

21 Federal judge in Washington, D.C., ordered John L. Lewis and U.M.W.A. to appear before court to show cause why they should not be held in contempt for ignoring government injunction against coal strike.

Britain's readiness to accept soviet proposal for census of all armed forces outside its own border, provided it was linked to general disarmament plan, was announced before U.N. by Foreign Sec'y Bevin.

24 French Communists won largest number of votes in national balloting for selection of electoral college for Council of the Republic.

12 U.S. army personnel and civilians, who were stranded by plane crash on Gauli glacier in Switzerland, were rescued by two Swiss pilots in ski-equipped planes.

26 Request that information on manufacture of atomic weapons be included in any future disarmament conference was submitted to U.N. by Foreign Minister Molotov.

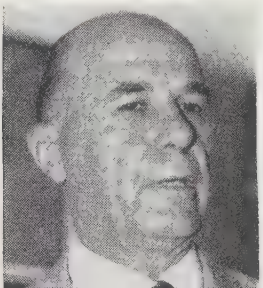
27 Council of Foreign Ministers reached agreement on status of Trieste.

Resolution that would require all 54 U.N. member states to submit reports on total of armed forces, both at home and abroad, by Jan. 1, 1947, was adopted by U.N. political and security committee; soviet proposal to include information on armaments, including atomic bombs and rocket weapons, was defeated.

28 Principle of world inspection and control as means of checking compliance with proposed plan for general disarmament was accepted by Foreign Minister Molotov.

Subcommittee of U.N. general assembly upheld by 10 to 5 vote right of administering states to establish military bases in territory held under trusteeships with approval of Security council.

29 Andrei Y. Vishinsky, deputy foreign minister, told political and security committee of U.N. general assembly that U.S.S.R. did not intend to renounce principle of "unanimity" of great powers; he also insisted that general disarmament start with world ban on manufacture of atomic bombs which he described as "sword of Damocles"



NOVEMBER—Continued

suspended over our heads by single thread."

30 Col. Gen. Eberhard von Mackensen and Lt. Gen. Kurt Maelzer were found guilty and sentenced to death by British military court in Rome for having caused death in March 1944 of 336 Italian civilian hostages in Ardeatine caves.

DECEMBER

Miguel Alemán Valdes was inaugurated as president of Mexico.

Hitherto suppressed report of senate war investigating committee on conditions in U.S. zone of Germany was published; it charged U.S. forces in reich with widespread misconduct, alarmingly high venereal disease rate and flagrant miscegenation.

2 Anglo-U.S. pact for economic merger of respective zones in reich was signed by Sec'y of State Byrnes and Foreign Minister Bevin.

Lea act was ruled unconstitutional by Walter J. La Buy, federal judge in Chicago, who dismissed criminal charges under its provisions against Pres. James C. Petrillo of American Federation of Musicians (A.F. of L.).

United Nations was urged in U.S. proposal to call on Spanish people to overthrow their "Franco Fascist government" if it refused to quit voluntarily.

3 Oliver Max Gardner, undersecretary of treasury, was named U.S. ambassador to Great Britain.

4 John L. Lewis was personally fined \$10,000 and United Mine Workers of America \$3,500,000 for contempt of court by Judge T. Alan Goldsborough of federal court in District of Columbia; criminal contempt proceedings against Lewis were dropped at government's request; Goldsborough said strike was "monstrous" and "threat to democratic government"; counsel for Lewis said verdict was part of government's "political program" to break union by draining its treasury.

Foreign Minister Molotov speaking before U.N. political and security committee clarified veto issue on arms inspection proposal, declaring U.S.S.R. did not intend that security council should have veto over actual control activities.

6 Indian conference in London ended in failure over Pakistan issue; British Labour government clearly indicated it would not accept any constitu-

tion for India that was not drafted with help of Moslems.

Interstate Commerce commission authorized increases in rail and water carrier freight rates and charges averaging 17.6%.

U.N. Security council was informed by Hussein Ala, Iranian ambassador to U.S., that Iran had decided to send troops into Azerbaijan province despite "friendly" soviet advice that this might result in disturbances in area close to soviet border.

7 John L. Lewis called off coal strike, ordering miners to continue working until April 1, 1947.

8 U.N. general assembly, overriding British and U.S. objections, adopted by 32 to 15 vote resolution supporting India's charges that South Africa practised racial discrimination against Indian nationals living there.

9 U.S. supreme court granted justice department's petition to decide appeal in case of John L. Lewis and U.M.W.A. convicted on contempt charges.

Council of foreign ministers agreed to hold next session in Moscow beginning March 10, 1947, to draft peace settlements for Germany and Austria.

Legal committee of U.N. general assembly ruled that crime of genocide is violation of international law for which even "private individuals" could be punished.

10 Immediate establishment of inspection body exempt from veto to check on both armaments and armed forces was proposed by Britain in U.N. general assembly.

12 U.N. general assembly approved by 34 to 6 vote resolution requesting member states to withdraw diplomatic missions from Spain and bar Franco from future participation in U.N.

Léon Blum was named premier of France, receiving 575 out of 590 votes in national assembly.

13 Sec'y of State Byrnes disclosed that U.S. had 550,000 troops abroad, declaring most of them were in Germany, Japan, Korea, Austria and Venezia Giulia.

Charge that Manchurian industries had suffered "appalling" damage during soviet occupation was made by Edwin W. Pauley, U.S. reparations representative, in report to Pres. Truman.

Agreement on Austrian denazification law, food distribution and purge of universities

was reached by Allied council in Vienna.

14 Pres. Truman removed numerous restrictions on housing and relaxed other building curbs in announcing "vigorous" federal housing program for 1947.

Trusteeship council was completed by U.N. general assembly.

U.N. general assembly voted 46 to 7 to accept Rockefeller offer of site in New York city as permanent headquarters.

Ernest Bevin, British foreign secretary, on departure for England after close of sessions of council of foreign ministers in New York, said Big Four had "cleared away good deal of debris of misunderstanding and conflict"; Vyacheslav Molotov, soviet foreign minister, agreed results satisfied soviet delegates.

World disarmament resolution was voted by U.N. general assembly, but soviet request for troop census was deleted from bill; assembly rejected South African request to annex South-West Africa mandate.

15 Siam became 55th member of U.N., receiving unanimous vote in U.N. general assembly.

16 French cabinet composed solely of Socialists was formed by Léon Blum.

17 Declaration that he was "not a candidate" for president was made by Sen. Vandenberg; Harold Stassen formally announced his candidacy for G.O.P. presidential nomination, declaring his immediate aim would be to move "our Republican party along path of true liberalism."

19 Board of inquiry scheduled to go to Balkans and probe causes of border troubles was established by U.N. Security council.

20 Severe fighting broke out between French forces and troops of Viet Nam republic at outskirts of Hanoi.

Prime Minister Attlee told house of commons that Britain would offer Burma independence on same terms as India; Churchill attacked proposal, declaring it signified another step in "decline and fall of British empire."

21 Announcement that Sir Victor Mallet, British ambassador, had been instructed to leave Madrid "at earliest possible moment" was made by British foreign office.

Polish government advised Britain it would not engage in "further debates" about forthcoming elections and accused

Britain of failing to live up to Yalta and Potsdam declarations "in deed or spirit."

22 Barter agreement for first quarter of 1947 between British and soviet occupation zones of reich was announced by military occupation authorities of two governments.

23 French move in setting up customs barrier between Saar and rest of Germany was denounced by Gen. Clay as unilateral action taken without prior consultation of Allied control council.

24 Establishment by Pres. Truman of informal advisory board on labour problems was disclosed in Washington; group included Secretaries Schwelienbach, Clark and Harman; John R. Steelman, reconversion director, Paul M. Herzog, NLRB chairman, and Clark Clifford, special counsel to president.

More than 800,000 Germans in lower income brackets who were subject to denazification trials were amnestied by Gen. Joseph T. McNarney.

25 Permanent constitution was voted by Chinese National assembly in Nanking; Chinese Communists who boycotted assembly said they would not recognize new charter.

27 Announcement that Polish assets and gold frozen in U.S. would be released was made by state department.

Congress was told by Pres. Truman that 70% of U.S. lend-lease aid to wartime allies was considered repaid.

28 Demand that U.N. Security council appoint 11-nation commission to draft world arms reduction plan within at least three months was made by Andrei Gromyko, soviet delegate.

Gen. de Gaulle announced he would not be candidate for presidency of new French Fourth republic because of dissatisfaction with new constitution which he said deprived president of real power.

30 Plan for world control of atomic energy conforming with original Baruch proposals was adopted by 10 to 0 vote in U.N. atomic energy commission; soviet union and Poland abstained from voting.

31 Pres. Truman ended state of hostilities in World War II, but emphasized that state of war and states of emergency proclaimed by Pres. Roosevelt in 1939 and 1941 were still in force; Truman's proclamation terminated 18 wartime statutes.



BOOK OF THE YEAR

Abrasives. The salient production data on abrasives in the U.S. are presented in the accompanying table, supplemented by brief notes on general conditions with respect to individual commodities.

United States Production of Abrasives
(In short tons, or as indicated)

	1942	1943	1944	1945
Aluminous Abrasives				
Corundum*	4,739	5,686	6,402	6,244
Emery	5,277	6,666	6,940	7,856
Carbon Abrasives				
Industrial diamonds, carats*	11,207,103	12,175,430	12,656,835	10,793,285
Silica Abrasives				
Quartz	65,878	99,445	82,379	57,764
Sand (abrasive)	806,878	837,662	897,983	642,511
Sand and sandstone (ground).	527,886	541,350	558,606	533,656
Tripoli	17,536	14,912	18,425	18,247
Silica Stone Abrasives				
Grindstones	12,763	10,732	9,373	10,033
Millstones (value).	\$10,391	\$9,240	\$9,700	\$15,018
Pulpstones	1,918	1,891	?	?
Tube mill liners	2,576	2,585	2,063	1,982
Grinding pebbles	15,487	9,924	8,012	8,615
Silicate Abrasives				
Garnet	4,357	5,935	?	6,306
Pumice	126,522	85,150	88,757	157,011
Artificial Abrasives				
Silicon carbide†	61,681	69,706	56,291	53,733
Aluminum oxide†	183,633	217,425	185,573	147,016
Metallic abrasives†	106,442	124,954	144,550	146,771

*Imports; no domestic production. †Includes Canada also.

Corundum.—Wartime attempts failed to develop a domestic output in the U.S. and imports, mainly from South Africa, continued in 1946 to supply the demand. Import figures for the war years are shown above.

Diamonds, Industrial.—Figures include bort, carbonado, bal-las and dust; see under DIAMONDS for further discussion.

Diatomite.—While diatomite is extensively used as an abra-sive it has so many other uses that the subject is covered sep-arately, under its own name.

Emery.—Production in the Peekskill, N.Y., area continued to increase, to the highest figure after 1918.

Garnet.—Output was the highest from 1925.

Silica Abrasives.—All types of silica abrasives showed de-

clines, from 1% for tripoli to 30% for quartz.

Stone Abrasives.—Output of tube mill liners decreased, but grindstones, millstones and grinding pebbles all increased mod-erately, and pumice rose 75%.

Artificial Abrasives.—Metallic abrasives increased moderately, but silicon carbide and aluminum oxide abrasives declined 5% and 21% respectively.

Foreign Trade.—Total value of import of abrasives declined from \$23,533,638 in 1944 to \$13,493,381 in 1945. Exports of domestic abrasive materials were valued at \$2,087,598 in 1945, as compared with \$2,091,675 in 1944 and \$6,684,352 in 1942.

Canada.—There is only a minor output of abrasives in Canada outside of the forms of silica, chiefly quartz and sand. Ontario reported 1,330 short tons of corundum in 1945, com-pared with 173 tons in 1944, and New Brunswick reported 158 tons of grindstones, compared with 225 tons in 1944. Quartz declined from 1,740,262 tons in 1944 to 1,458,847 tons in 1945. (G. A. Ro.)

Abyssinia: see ETHIOPIA.

Academy of Arts and Letters, American: see SOCIETIES AND ASSOCIATIONS.

Academy of Political and Social Science, American: see SOCIETIES AND ASSOCIATIONS.

Accident Insurance: see INSURANCE.

Accidents. Accidental deaths in the United States during the first 9 months of 1946 totalled 73,400, a 5% increase over 1945.

The 9-month motor vehicle death total was 24,400 or 5,950 more than in 1945.

Occupational accidental deaths through September totalled 12,300, an increase of 200 from 1945.

Public nonmotor vehicle accidents accounted for 1,100 deaths during the first 9 months of 1946, which was only 100 less than



INADEQUACY OF RAILROAD SAFETY SYSTEMS in 1946 was the theme of "Tickets, Please!" cartoon by Daniel Bishop of the *St. Louis Star-Times*

1945's 9-month total.

Home accidents were responsible for 24,600 deaths during the 9-month period, about 500 more than the 1945 figure.

Safety work throughout the nation continued to expand during 1946. Activities of the National Safety council and its affiliated state and community organizations were intensified, along with the accident prevention efforts of industry, schools and governments, and private agencies of many kinds.

A National Safety congress, omitted in 1945 because of travel restrictions, was held in 1946. The 10,000 delegates attending represented every phase of safety in every part of the country.

A Highway Safety conference was called by Pres. Truman in May 1946. About 2,000 safety leaders approved a comprehensive program calling for vigorous and concerted action in every state and city, with national co-ordination through three committees. (See also DEATH STATISTICS; INDUSTRIAL HEALTH.)

(R. L. Fo.)

Traffic Accidents.—The epoch-making Action Program developed by the president's Highway Safety conference held at Washington, D.C., in May 1946 and a sudden drop in the motor vehicle fatality rate to the lowest point on record established a double claim for 1946 as an outstanding year in traffic safety.

On the whole, however, the accident outlook was none too heartening. Millions of overage vehicles, in poor mechanical condition, helped to pile up a huge mileage approaching the all-time peak of 1941. The traffic situation was further endangered by war-neglected roads and inadequate control forces. As in the case of highway construction, the installation and maintenance of signs, signals and highway markings were seriously handicapped by lack of materials, equipment and personnel.

January and Feb. 1946 each recorded 52% more fatalities than the corresponding months of the previous year. The March total was 46% above that of March 1945 and those of April and May both 39% higher than their comparable months.

In June the death toll was 22% above its corresponding month; July, 23%; August, 17%; and September, 4%. October, with 5% less deaths than Oct. 1945, was the first month to show a favourable change in relation to the previous year.

The year's traffic toll was 33,500 deaths and 1,150,000 injuries, with a property damage bill of \$750,000,000. The 1945 death toll was 28,076.

From the standpoint of fatality rate, which takes into account the amount of travel on the highways, 1946 presented a brighter aspect. In 1943, for example, the rate per 100,000,000 mi. was 11.1. In Jan. 1946 it stood at 12.6. By May the figure had dropped to 8 and in July it declined to 7.8, the lowest point in history.

While no single factor can be given exclusive credit for this improvement, the president's conference and the unprecedented activity which it set in motion doubtless exerted a tremendous influence.

The conference Action Program provided the U.S. with a master plan, based on sound educational, enforcement and engineering techniques, by which states and communities could achieve maximum safety and efficiency in highway transportation. Following up on the conference, 28 governors scheduled state conferences to develop ways and means of putting the Action Program recommendations into effect, and more meetings were to be held in other states.

Assisting and stimulating states and local communities to fulfil the highway safety objectives endorsed by the conference was the principal aim of the National Committee for Traffic Safety, which formerly functioned as a clearing house and co-ordinating agency for 48 national organizations, and which was being expanded in 1946 to include all nonofficial groups interested in safety.

The public education programs of the National Safety council and other groups figured prominently in 1946 safety progress. Grand award winners of the Council's National Traffic Safety contest for 1945 were Iowa in the state section and Wichita, Kan., which placed first among cities with 100,000 to 250,000 population. Other cities winning in their respective population groups were Buffalo, N.Y. (500,000 and more); Oakland, Calif. (250,000-500,000); Evanston, Ill. (50,000-100,000); Lynchburg, Va. (25,000-50,000), and Stillwater, Okla. (10,000-25,000).

Entries in the National Pedestrian Protection contest sponsored by the American Automobile association represented all 48 states and 1,246 cities. Detroit, which placed first among cities of 500,000 or more, won the annual grand award. First-place interstate winner was Kansas. Other first-place winners among cities were Wichita (100,000-500,000); Berkeley, Calif. (50,000-100,000); Wauwatosa, Wis. (25,000-50,000); University Park, Tex. (10,000-25,000), and Little Falls, Minn. (fewer than 10,000).

The leading project of the National Commission on Safety of the National Education association was the completion of a guide to aid school boards, school administrators and teachers to develop high school driving programs. By the end of 1946 approximately 7,000 of the nation's 25,000 high schools had instituted courses in driver training.

To the American Legion went the annual trophy for producing the best traffic safety film of the year, *Teach Them to Drive*. The award is given by the National Committee on Films for Safety.

Northwestern University Traffic institute finished its tenth year of training city and state police in specialized traffic control. Regional traffic training, discontinued during World War II, was re-established. An extension division was started to provide post-graduate service to institute alumni.

The Traffic Division of the International Association of Chiefs of Police completed training of personnel and installation of approved techniques at Oakland, Calif., Jamestown, N.Y., and Montgomery county, Md. Follow-up work was carried on in a score of cities, including Detroit, San Francisco, Stockton,

Indianapolis, Louisville and Cincinnati. Police officers also received instruction at the National Police academy of the Federal Bureau of Investigation.

Thirty colleges and universities throughout the nation held training courses for motor vehicle fleet supervisors, sponsored by the Institute of Public Safety of the Pennsylvania State college. After the national program was expanded in 1945, nearly 700 fleet supervisors had been trained.

The American Association of Motor Vehicle Administrators conducted examiner training schools in several states. The A.A.M.V.A. also carried on a broad survey to define the legislative action necessary to establish interstate reciprocity.

To help states and cities in achieving greater uniformity of traffic laws and ordinances, the Automotive Safety foundation created a Uniform Laws division. On the request of public officials, it provides services in the study of local statutes and ordinances to determine their conformity with recommended uniform codes.

Increasing importance attached to the co-operative work of the American Bar association and the National Safety council designed to raise the level of traffic court administration. State traffic court committees had been organized in 28 states, and state and district court conferences held in 42 states.

Meanwhile, because of shortages and prohibitive prices, the states were forced to drastic reorientation of their road-building programs. Many were limiting projects to urgently needed replacement. Consequently, the schedule of construction contemplated in the Federal Aid Highway act of 1944 was far behind. Accomplishment during the 1946 construction season was only about 40% of expectations, both from the viewpoint of contracts awarded and work put in place.

Under the act, with federal and state funds provided on a 50-50 basis, a potential \$2,000,000,000 program was fixed for the fiscal years 1945 and 1946. To the end of 1946, however, a total of only \$1,146,584,000 had been programmed or authorized. Actually under way at year's end were projects amounting

to a scant \$332,000,000, representing 8,522 mi. of construction.

Faced with increased traffic on inadequate arteries, many cities launched stringent measures to alleviate the acute parking problem. The American Retail federation prepared and widely distributed *Keep Customers Coming*, a pamphlet setting forth remedial steps successfully taken in a number of representative cities. The American Automobile association published a new parking manual.

Origin and destination studies being carried on by state highway departments in co-operation with cities were completed in 57 metropolitan areas. These were resulting in 1946 in publication of comprehensive reports, on which would be based not only the planning and design of modern express highways, but measures to improve the day-to-day efficiency of existing streets and roads.

On the press at the end of the year was a report by Yale university's Bureau of Highway Traffic based on traffic behaviour at urban intersections, which was expected to afford better understanding of traffic planning, design and control methods. In 1946 the bureau gave short in-service courses to 700 public officials in fundamental principles for correcting traffic deficiencies. Regular sessions in traffic engineering for graduate engineers were also held.

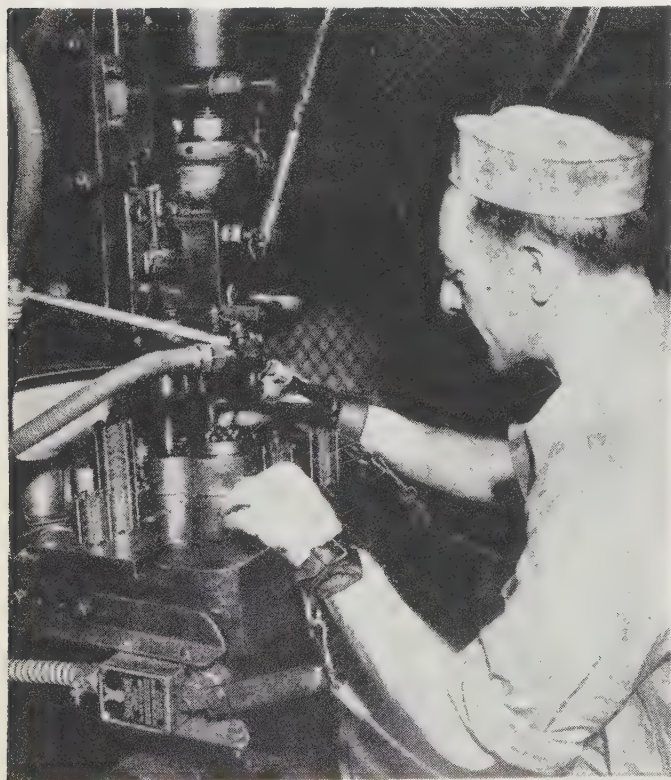
High among noteworthy achievements was the engineering report prepared for the Collier Committee of the California Legislature and the International Association of Chiefs of Police Traffic division study of the traffic law enforcement legislative and administrative needs for the senate Interim committee on governmental reorganization. (F. M. K.)

Great Britain.—The number of road accidents in Great Britain continued to rise in 1946, although fatalities showed a decrease against 1945. The increase in accidents was due in part to the greatly increased number of vehicles using the roads after the cessation of hostilities. For the first nine months of 1946 the total number of persons killed and injured was 117,588, including killed 3,599, injured 113,989; the corresponding figures for 1945 were: killed 3,708, injured 94,022. The number of deaths for August (always a peak month) was 446, as against 488 for Aug. 1945, and 618 for Aug. 1939. Children continued to form a considerable proportion of the victims, child pedestrians killed numbering 636 and child cyclists 139 during the first 9 months of the year. The greatest percentage of deaths came from accidents in which private cars were involved. The ministry of transport, in conjunction with the Royal Society for the Prevention of Accidents and accident committees set up under local authorities, continued to campaign strenuously for the reduction of death on the roads. In October a copy of the new *Highway Code* was distributed to all householders in the country.

Although there were serious railway accidents during the year, the number of fatalities was comparatively small. The year was also singularly free from industrial and mining accidents.

During the first 9 months of the year a total of 270,000 passengers were flown a total of 24,000,000 mi. by British-operated civil aircraft; four accidents resulted in the deaths of 29 passengers and 11 crew, and serious injury to 1 passenger and 2 crew. (See also DISASTERS; FEDERAL WORKS AGENCY.)

(J. LN.)



SAFETY DEVICE ATTACHED TO WRISTS of a punch press operator in a Pennsylvania plant in 1946 automatically pulls them out of the way of the descending press

Acheson, Dean Gooderham (1893—), U.S. government official, was born April 11, in Middletown, Conn. He graduated from Yale university, 1915, and received a law degree from Harvard three years later. He served as a naval ensign in World War I, and later became private secretary to Louis D. Brandeis, associate justice of the U.S. supreme court. He then engaged in law practice. In Feb. 1941 he was appointed assistant secretary of

state, and with the formation of the United Nations Relief and Rehabilitation administration in 1943, Acheson became the U.S. member of its council. After the resignation of Joseph C. Grew, Acheson was named (Aug. 16, 1945) to succeed him as under-secretary of state.

In 1946 Acheson supported the U.S. loan to Great Britain declaring (Jan. 12) that it would prevent division of the world into "warring economic blocs," and favoured (June 18) a U.S.-Argentine defense pact provided Argentina eliminated its "axis influences." He warned (Dec. 8) that no nation would receive "free relief" from the U.S. after disbandment of U.N.R.R.A. The expedition of Adm. Richard E. Byrd to the antarctic which again focused attention on ownership over the south pole regions brought from Acheson the statement (Dec. 27) that the U.S. had not recognized claims of other countries in antarctica.

Actors and Acting: *see* THEATRE.

Aden. A British colony, seaport and territory in southwest Arabia, including Perim island in the strait of Bab-el-Mandeb between Africa and Arabia. Area: 80 sq.mi.; pop. (est. 1939) 48,192. Aden protectorate, including Socotra in the Indian ocean, 112,000 sq.mi.; pop. (est.) 600,000. Language: English and Arabic; religion: predominantly Mohammedan. Governor and commander in chief: Sir Reginald S. Champion.

History.—The crown prince of the Yemen visited Aden in April and May 1946. On June 28 Aden ceased to be a full naval base. Plans of the development committee envisaged a large civil hospital, new schools, public works and an irrigation scheme for the protectorate. (J. RA.)

Finance.—Revenue (est. 1945-46) Rs.9,289,790; expenditure (est. 1945-46) Rs.7,512,930. Currency: Rs.1=1s.6d. or 30.16 U.S. cents in 1946.

Trade and Communication.—External trade, 1944 (merchandise and treasure on private account): imports Rs.204,395,944; exports Rs.115,857,087. Communication: shipping (1944), 2,741 merchant vessels (1,447 British) entered the port of Aden; total tonnage (net) 10,707,745; motor vehicles registered (Sept. 30, 1939) 733 cars, 207 commercial vehicles.

Production.—In 1938-39, tobacco (approx. value of crop) Rs.547,810; salt (export) 273,622 short tons; coffee (export 1939-40) 6,160 short tons.

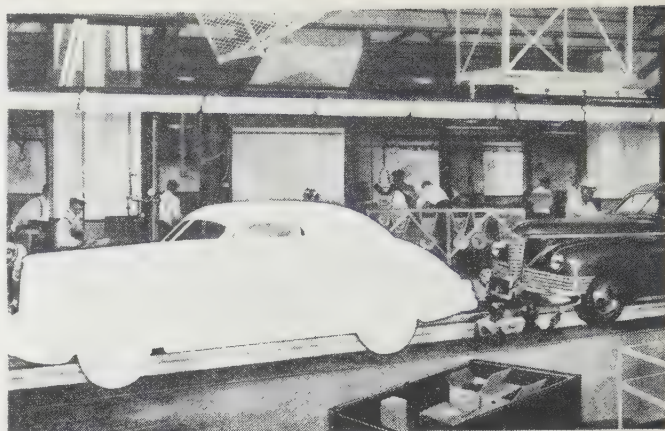
Adjusted Compensation: *see* VETERANS' ADMINISTRATION.
Adult Education: *see* EDUCATION.

Advertising. In spite of pains of reconversion suffered by business in the United States in 1946, the volume of advertising made substantial gains. Figures for 1946 and 1945 are as follows:

Advertising Expenditures
(Millions of Dollars)

	1946	1945
Newspapers	\$964	\$660
Radio	489	400
Magazines	430	330
Direct mail	279	270
Trade and business papers	178	107
Outdoor	86	90
Farm papers	36	29
Miscellaneous	520	500
Total	\$2,982	\$2,386

Advertising was promoted during the year by the general prosperity of the United States, but was hampered by strikes, shortages, rising prices and other maladjustments. According to the department of commerce, consumers in 1946 spent \$127,000,000,000 for goods and services, an all-time record even when these figures are adjusted for price advances. This amount



The extra Packard Clipper
we could have built—but didn't

The extra Packard Clipper we could have built—but didn't—was a car that was never built. It was a car that was designed to be built, but the war had ended before it could be built. The car was designed to be built in 1946, but the war had ended in 1945. The car was designed to be built in 1946, but the war had ended in 1945. The car was designed to be built in 1946, but the war had ended in 1945.



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PACKARD
FOR THE MAN WHO DOES THE

DIFFICULTIES of achieving full production, that marked the year 1946, were reflected in this Packard motorcar advertisement. It explained that some productive facilities were used for manufacturing new parts for old cars instead of new automobiles.

was 20% higher than for 1945.

Advertising was hampered by strikes. In the case of New York city newspapers, for example, advertising was completely eliminated for some days because of a newsprint shortage caused by a trucking strike. During the year there were some \$10,000,000 of cancellations of advertising contracts by radio advertisers, who felt that interruptions to production made it unprofitable to advertise.

Another problem was the rising cost of advertising. Students of advertising concluded that while there had been a decided rise in the rates of most media, there had not been an increase in relative cost because of the increases in sizes of audiences reached. For example, the cost to reach 1,000 readers of an average magazine was 16% less in 1945 than it was in 1935, although the actual cost of advertising space had increased 10% during those years. In radio, the growth of the audience had reduced relative cost by 9% from 1935, although cost of time was 55% higher. Factors that did represent positive increases in advertising costs were rises in mechanical preparation costs and in radio talent.

Content of advertising was marked by a return to selling copy. This was in contrast to the institutional or public relations copy that had been employed so extensively during World War II.

There was still a considerable amount of public relations copy used, however, but for different reasons. One was the struggle between management and labour which characterized the year, and in which both sides frequently stated their cases in large advertisements. There was also the feeling on the part of many leaders, especially the Association of National Advertisers, that advertising should be used to promote the system of free enter-

prise as well as to sell goods.

The Advertising council reported at the end of 1946 that during the year more than 100 advertising agencies had served as volunteers on more than 170 public service campaigns sponsored by the council, in co-operation with government and private organizations. It was estimated that U.S. business had contributed more than \$100,000,000 in the year through its advertising time, space and services to the realization of council projects such as those concerning atomic energy, safety, world trade, intergroup and interfaith understanding.

During the year the Lanham Trade Mark act was passed, to take effect July 5, 1947. It gives protection to trade-mark values.

Ralph Starr Butler, vice-president of General Foods corporation, received the gold medal of the Annual Advertising Awards for distinguished service to advertising.

Newspapers.—The bureau of the census released in the autumn of 1946 its special 1945 census of printing and publishing, revealing that gross receipts of newspaper publishers had increased 47% between 1939 and 1945. It was also announced by the American Newspaper Publishers association that 51,000,000 persons in the United States and Canada bought newspapers every weekday, putting newspaper circulation at an all-time high.

An analysis by the A.N.P.A. revealed that of 1,748 daily newspapers in the United States, 251 had increased prices of their copies in the first part of 1946, while only four had lowered their rates. Only one newspaper in the United States, the *Mechanicsburg* (Ohio) *Telegram*, continued to sell for one cent. Only 42 newspapers sold for two cents, whereas in 1943 there were 84.

As newspaper circulations continued to climb to all-time highs and advertising rates remained relatively constant, advertising costs to reach each individual reader were diminishing. The A.N.P.A. estimated a 5,000-line campaign in 1,735 weekday newspapers in the United States would cost \$690,994 or \$.01478 a reader or impression.

Many surveys and market studies were conducted by individual newspapers or groups. The Advertising Research foundation summarized the Continuing Study of Newspaper Reading, covering seven years' measurements of the reading of more than 3,000 newspaper pages. It showed that whereas readership of advertising increased from prewar days, that of such items as financial news, radio news, sports and comics declined.

American Newspaper Advertising Network was formed during the year, its purpose being to demonstrate to advertisers the value of the daily newspaper medium and to show that the network provided a means to use such newspapers economically.

Great Britain's national newspapers issued six-page editions in Oct. 1946 for the first time in more than five years. The extra pages were used for features and human interest stories with no appreciable difference in length of overseas reporting.

During most of the year the big nationals were still limited to four pages, because the end of the war did not remove paper rationing in Great Britain, as it did in the United States. Advertisements were restricted to space three inches deep by two columns wide, and this small space was forcing the advertiser to get his message into 35 or 50 words and the art director to achieve distinctive appearance and good visibility in spite of the small space at his disposal. Frequency of insertions also had to be cut, so drastically that most publications soon limited insertions to one a month. Often they were not able to allow this much. (See also NEWSPAPERS AND MAGAZINES.)

Radio.—Radio was affected by rising costs no less than other media. Increased time costs were more than offset by the larger audiences reached.

Radio research saw interesting developments. One was the

FOOD FACTS



DON'T TAKE IT IF YOU DON'T WANT IT

*Join the crusade
against waste
of bread*

WE MUST NOT WASTE WHILE OTHERS WANT

THE MINISTRY OF FOOD, LONDON, W.1. FOOD FACTS No. 302
ADVERTISEMENT issued by the British ministry of food in April 1946, to explain why bread should not be wasted

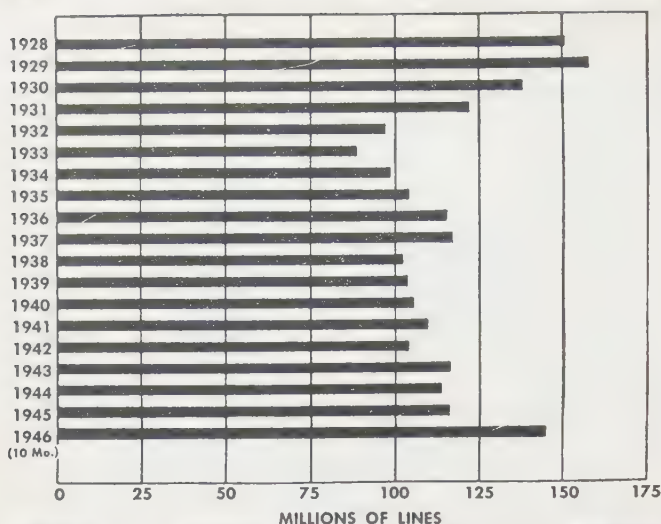
suspension of the co-operative analysis of broadcasting's service on radio program rating.

In the early autumn the Broadcast Measurement bureau issued its first report on radio station and network audiences for which it had been preparing nearly two years. B.M.B. is a co-operative enterprise supported by the American Association of Advertising agencies, the Association of National Advertisers and the National Association of Broadcasters.

Radio continued during the year to receive criticism. Early in 1946 the Federal Communications commission criticized "advertising excesses," and stated that the amount of time devoted to advertising matter should bear a reasonable relationship to the time devoted to programs. At the convention of the National Association of Broadcasters in the autumn, leaders in radio admitted so-called excesses of radio advertising and urged that they be corrected. A survey taken at the end of the year showed that 70% of the nation's stations were applying stricter standards controlling length or content of commercials.

Resumption of commercial broadcasting in the Union of South Africa probably in June 1947 was announced by the broadcasting board of the union. The South African radio, like the British Broadcasting corporation, is government controlled and commercial radio has been banned from 1936. It was believed that the general level of broadcasting in the union would be improved by the competition of commercial programs.

In the middle of 1946 it was announced that there would be built in the New York metropolitan area a \$60,000,000 television motion picture production centre for networks, radio and telecasting stations, national advertisers, advertising agencies and independent producers.



NEWSPAPER ADVERTISING (total linage in 52 cities of the United States): average per month. Compiled by Media Records, Inc.

The question of colour television was debated during the year, between producers who wished to use colour immediately and those who felt it would be desirable to wait till the technique was further advanced. (See also RADIO.)

Magazines.—General magazines continued to prosper in 1946. The year also saw an accentuation of the trend toward increased price per copy. Over late years there had been spectacular gains in circulation, with the ratio of subscription to newsstand purchases almost reversed. In 1935 the ratio was 70 to 30 in favour of subscriptions, while in 1945 it was 40 to 60 in favour of newsstand sales. It was estimated that in the previous decade, 1935-45, magazine circulations had increased so that the unit cost of advertising in them was 16% lower.

During the year the bureau of the census reported that gross receipts of magazine publishers doubled between 1939 and 1945. The summary showed that 792 publishers who did 49.4% of the magazine business in 1939 had gross receipts of \$402,847,000 in 1945, up 99.2% from the base year.

An analysis of net paid magazine circulation and subscription production was released in July 1946 by the Association of National Advertisers. It showed that the average net paid circulation of 21 of the nation's leading magazines increased 12% between 1941 and 1945, this in addition to an increase of 29% in circulation between 1930 and 1940.

One of the outstanding developments continued to be comic books. The first of these had appeared in 1933, but they had a rapid growth during World War II, and by the end of 1946 one publisher alone, with 26 books or titles, boasted circulation of 26,340,000.

An interesting phase of magazine publishing was the growth of foreign editions of United States magazines. The *Reader's Digest* increased its foreign editions by five: French language editions in France and Canada, and Australian, Danish and Japanese editions, giving it 12 foreign editions published in nine languages. All of these editions took advertising except the British. *Life International*, the world-wide edition of *Life* magazine, also began publication in 1946.

Direct Mail.—A survey taken in 1946 by the Direct Mail Advertisers association among 876 members and other advertisers, showed that 776 reported a total of \$133,376,578 as their expenditure for all advertising in that year, and that of this,

28.5% or \$38,013,000 went for direct advertising. By direct advertising was meant direct mail, plus all unmailed printed promotion-product literature, dealer helps, printed point-of-sale material, house organs, catalogues, printed public relations materials, annual reports, package inserts, calendars, letters.

These companies reported the percentage of their gross sales appropriated to advertising was 7.26%, compared with 5.76% in 1941. More than half of the companies said they fixed their advertising budgets by appropriating definite estimated amounts to accomplish given ends, and 54% said they established their budgets in the months of November, December, January. There were 57% who said that they used market research before planning their direct advertising. Respondents reported direct mailing lists of 78,666,098, and most respondents said that present customers receive the highest percentage of their mailings, with new customers next, then inactive accounts.

Outdoor Advertising.—Volume of expenditures for outdoor advertising in 1946 showed an increase over 1945 of 22.9%, and volume already booked as of Dec. 31, 1946, for 1947 was 13.7% higher than for the past year. Greatest gain was in the food classification, which was 137.8% higher in 1946 than in 1941.

Copy showed a trend to a more prominent display of packages and trade names, the former because of the rapid growth in super markets and self-service stores, where the consumer makes a visual selection of desired products, and name advertising to feature new products or re-establish old ones that had been temporarily missing during the war.

A new poster panel design, created by Raymond Loewy associates, was adopted as a standard. It is 12 ft. 2 in. by 24 ft. 6 in., with a poster display surface of approximately 9 ft. by 21 ft. 4 in. It permits use of a 26-sheet poster as well as the traditional 24-sheet. Erected on three uprights, without apron or platform base, it permits of appropriate ground treatment.

The Traffic Audit bureau launched a program during the year to find new measurements for the values of outdoor advertising. Ft. Wayne, Ind., was set up as a test pilot city. Numerous facts were gathered as to where people go outdoors, routes they follow, what time of day they go outdoors, and what panels they had an opportunity to pass. A study was also made on readership, showing effect of posters and relating readership to circulation.

Business and Trade Papers.—In an effort to predict advertising activities in 1947, the Associated Business Papers questioned 800 agencies, found that 43% said 1947 advertising appropriations would be larger than in 1946; 45% said the same; 8% said smaller; 4% didn't know.

Reporting on the business paper advertising situation, *Industrial Marketing*, in its September issue, stated that although advertisers generally were planning record budgets for 1947, they were concerned over rapidly rising space and graphic costs. Business paper publishing costs rose approximately 33% after 1939, while rates (on a per 1,000 circulation basis) increased only 8.6%. Although rates had increased about 47% in this period, circulations had increased more than 35%.

Copy and Layout.—Advertising continued to gain from research. Daniel Starch reported that after 15 years of studies of effectiveness of magazine advertising he had concluded that thorough readership had increased 24%. He issued another study showing that of 583 advertisements, among those having the same readership the ones containing helpful information sold twice as much goods as those which did not contain such information. This demand for more information in advertising was echoed by the Federal Trade commission and others.

Advertisers sought to increase their results by use of colour. The Newspaper Advertising Executives association published a

booklet urging use of colour, in which it quoted a previous study by Daniel Starch showing that on the basis of 5,000,000 inquiries from 3,500 advertisements of 163 firms, colour advertisements brought 53% greater returns than black and white.

Consumers.—Many consumer studies were made during the year. One made by the Brand Names foundation reported that public credence in advertising had been damaged after 1936, stating that 45.5% of those interviewed discount advertising only slightly; 28.1% considerably; 16.5% greatly; and 9.8% totally. Also, 30.5% discount advertising more than they did ten years ago; 49.4% about the same, and 20% less.

Foreign.—In France in 1946 the press was only beginning to come back into its own; there were about 30 dailies and the number was increasing. Circulations of the chief papers ranged from 300,000 to 500,000. Milline rates were high, and yet there was little advertising space available. Because newsprint was still severely rationed, most newspapers were restricted to single sheets. There were 113 general and women's magazines published weekly or monthly.

In Belgium daily newspapers were from four- to six-page issues, and advertising rates were approximately three times those of prewar years. There were nine important national papers appearing, with a total circulation of more than 1,000,000. There was a great demand for publicity films in Belgium. Advertising in the Netherlands continued to be hampered by shortages of newsprint and materials.

In Sweden there were 272 dailies, 45 magazines, 299 trade journals. Many U.S. firms, during World War II continued to advertise in the Swedish press. Advertising films were widely used. Sale of English and U.S. newspapers and magazines was restricted in Spain. Advertisers had use of a wide range of Spanish publications, however, with circulations from 1,500 to 350,000.

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Aerial Photography: see PHOTOGRAPHY.

Aeronautics: see AVIATION, CIVIL; AVIATION, MILITARY.

Afghanistan. A Moslem kingdom lying between India and Iran. Area: c. 270,000 sq.mi.; pop. (est. 1946): 12,000,000. Chief towns (pop. est. 1946): Kabul (cap., 206,200); Kandahar (77,200); Herat (75,600); Mazar (41,900). Language: Persian, Pashtu; religion: Mohammedan. Ruler: Mohammad Zahir Shah; prime minister: Sardar Shah Mahmud.

History.—On June 13, 1946, an agreement was signed in Moscow by Vyacheslav Molotov and Sultan Ahmad Khan, Afghan ambassador, re-establishing the frontier which had existed between Afghanistan and imperial Russia; the new treaty concerned the frontier line along the Penj and Oxus rivers and provided for the incorporation in the U.S.S.R. of the Kashka district, ceded to Afghanistan in 1921.

Application for membership of the United Nations was made on June 5 and approved on Aug. 29; Afghanistan was admitted as a member by the assembly on Nov. 9.

Sardar Shah Mahmud succeeded Sardar Mohammad Hashim as prime minister in May.

Education.—1946: schools 369, pupils c. 100,000; the University of Kabul was extended to five faculties.

Finance.—1946: currency, Rs. 3.95 (Afghan)=Rs. 1 (Indian)=30.23 U.S. cents.

Trade and Communication.—Foreign trade: exports (1945-46) Rs. 718,431,373; exports to Great Britain (1945) Rs. 105,300; imports from Great Britain (1945) Rs. 737,100. Roads

(1945): motor roads 5,950 mi., caravan roads c. 7,000 mi. At the beginning of 1941 there were five wireless stations in the country.

Agriculture.—By 1945 one-fifth of the soil was under cultivation. Production for export, 1945-46 (in short tons): dried fruit 44,000; wool 7,700; cotton 4,400; karakuls 2,400,000 skins.

A. F. of L.: see AMERICAN FEDERATION OF LABOR.

Africa: see BRITISH EAST AFRICA; BRITISH SOUTH AFRICAN PROTECTORATES; BRITISH WEST AFRICA; FRENCH COLONIAL EMPIRE; ITALIAN COLONIAL EMPIRE; MANDATES; PORTUGUESE COLONIAL EMPIRE; SOUTH AFRICA, THE UNION OF; SPANISH COLONIAL EMPIRE, etc.

Agricultural and Industrial Chemistry, Bureau of: see AGRICULTURAL RESEARCH ADMINISTRATION.

Agricultural Machinery: see AGRICULTURE.

Agricultural Research Administration.

An agency of the United States department of agriculture established in 1941 to direct and co-ordinate research in the department, the ARA comprises seven bureaus whose functions are for the most part the conduct of research. These are: bureau of agricultural and industrial chemistry, bureau of animal industry, bureau of dairy industry, bureau of entomology and plant quarantine, bureau of human nutrition and home economics, bureau of plant industry, soils, and agricultural engineering and office of experiment stations.

During the years of World War II food consumed by U.S. civilians contained more calcium, iron, B vitamins, vitamin A and vitamin C (ascorbic acid) than at any time from 1909. This fact was brought out in a study of the nutritive value of the nation's food supply covering the period 1909-45, made in 1946 by the bureau of human nutrition and home economics. Important factors in bringing about these wartime nutritional gains were increased consumption of milk, eggs, vegetables and fruit, and the enrichment of white bread and flour. Calorie and protein consumption during World War II was somewhat higher than in the 1930s, but not above that in 1910-20.

Over the course of the whole period, there was a steady increase in calcium, vitamins A and C, and riboflavin in the B-vitamin group. The rise in calcium and riboflavin was caused largely by greater consumption of milk, the rise in vitamins A and C by increased use of fruits and vegetables. Accounting in large measure for this increase in vitamin C was the more-than-four-fold increase of citrus fruits after 1909.

Thiamin and niacin hit all-time lows in 1935, coincident with a sharp fall in meat supply, especially pork. From that time, these values were on the upgrade, associated in part with high meat consumption, in part with enrichment of a large proportion of the flour, bread and cereal.

A study such as this, revealing trends in national food habits over a long period, furnishes perspective against which to appraise current supplies, probable effect of food emergencies and the nutritive value of the food of various nations.

Public demand for increased supplies of meat and other livestock products emphasized the need for the development of superior and more efficient types of livestock and more economical methods of feeding. An illustration of research directed toward satisfying this demand was the bureau of animal industry's work in developing superior strains of swine from various crosses involving the Danish Landrace, the Large Black and the breeds already common in the U.S.

A co-ordinated federal-state research program directed toward the suppression of the highly infectious poultry malady, Newcastle disease, was begun in 1946. The program covered

five main fields of study. One was to determine the losses caused by the disease in various states and the efficacy of field control methods. The disease was positively diagnosed in 29 states. A second field of research was to develop accurate and rapid diagnostic methods. A third was to determine the efficacy of various physical and chemical agents for destroying the virus which causes Newcastle disease. A fourth dealt with obtaining more information on the manner in which the disease spreads. The fifth field of study was the preparation and testing of more effective vaccines.

This five-point program supplemented research work already being conducted in the laboratories of the states and the federal bureau of animal industry. A national committee on Newcastle disease reported an urgent need for the development and application of practical control measures. Besides being highly infective, Newcastle disease has a grim history of high mortality in growing chicks and reduced egg production in many affected flocks.

Among the more significant results of research reported in 1946 by the bureau of dairy industry was a summary of a long-time experiment in cross-breeding of dairy cattle, begun in 1939.

Four dairy breeds were used in making the crosses. These were Holstein, Guernsey, Jersey and Red Danish. All animals used in the original crosses were purebred. The sires were all proved at Beltsville, Md., at the agricultural research centre. (A proved sire is one whose ability to transmit capacity for high production has been measured by comparing the milk and butterfat production of five of his daughters with that of their mothers.)

One question to be answered by this crossbreeding experiment was whether hybrid vigour would be developed, as is often the case with plants and some other livestock. The plan of the experiment differs from the usual pattern of crossbreeding, often

employed by dairymen, in that it calls for continuous introduction of new genes (units of inheritance) through the use of proved sires of the respective breeds.

For example, the females resulting from the mating of any two of the breeds, such as Holsteins and Jerseys, are mated to the Red Danish sire for a three-breed cross. Then the resulting three-breed females are mated to either a Jersey or a Holstein proved sire in the third round of the three breeds involved.

Production ability of the females is determined in the first lactation period under uniform barn-feeding and dry-lot environment, with pasture. All cows are milked thrice daily for a 365-day lactation period and bred about four and one-half months after calving.

Large-scale tests in 1946 showed that losses estimated at \$100,000,000 a year could be prevented by controlling blood-sucking flies on cattle. These demonstrations were an outgrowth of experimental work by entomologists of the department and co-operating state agencies.

Cattle sprayed with water-dispersable DDT gained an average of 50 lb. per animal over untreated stock during midsummer, when flies were most troublesome. Other tests showed that gains in milk production ranging from 10% to 15% could be expected during the same period by spraying milk cows with DDT.

One pound of DDT is sufficient to treat 40 animals during the fly season. At the rate of gain indicated in the tests, cattlemen may expect as much as 2,000 lb. of beef for each pound of DDT used.

Other work in the bureau of entomology and plant quarantine during the year covered a broad attack on insect enemies. This attack included various methods of biological insect control with parasites and diseases, testing and evaluating many new insecticides, further work with DDT to determine its effects upon soil, plants and animals, further improvements in methods of dispersing insecticides and large-scale operations against insects such as the gypsy moth, that are now confined to a relatively

SPRAYING CORN WITH DDT in experimental attack on corn borers in 1946. Tractor sprayer has high seats to keep operators above the mist



small area.

Research on production of synthetic liquid motor fuels from farm residues moved another step toward evaluation during 1946, when the bureau of agricultural and industrial chemistry started operation of a new semi-works plant at the Northern Regional Research laboratory, at Peoria, Ill. The new plant was designed to produce 500 gal. of alcohol daily and was part of the general research program, authorized by congress in 1944, to study possibilities of producing liquid motor fuels from non-petroleum sources, such as oil-bearing shales, coal, gas and agricultural products.

The experimental work was planned to show maximum yields of alcohols, butanol and acetone from a given tonnage of various agricultural residues and to provide a basis for computing costs and determining the feasibility of commercial production. If experimental laboratory results were borne out in the semi-works operation, from 90 to 95 gal. of liquid motor fuels would be obtained from each ton of residues, about half in the form of ethyl alcohol. The ultimate aim is not to supplant gasoline as a motor fuel but to test the possibilities of making these fuels cheap enough for use as a blending agent.

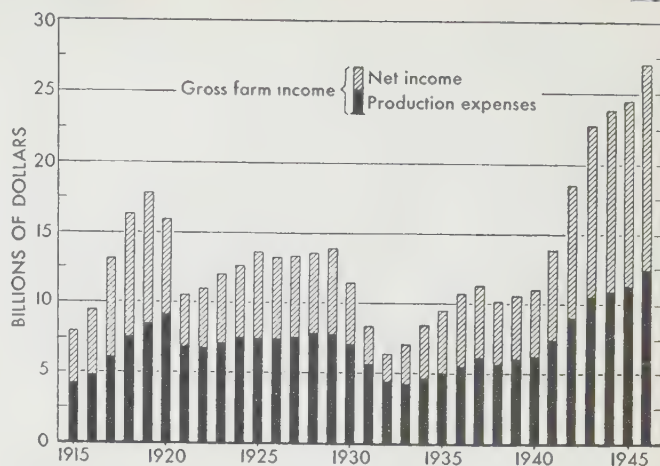
This and other work of the bureau is aimed at finding new uses for crops which at times may be in surplus, and the utilization of residues which are available in fairly constant quantity each year. These include corncobs, sugar cane bagasse, peanut shells, flax shives, and the hulls of oats, cottonseed and rice. Cereal straws, cornstalks and the like can also be used in the process. Agricultural residues are estimated at 200,000,000 tons a year.

Research on the production and utilization of cotton emphasized the advantages of growing improved varieties that are more uniform in fibre length and quality. Production of large commercial lots of uniform quality is possible only when growers of an area agree to standardize their crop by growing the variety best suited. The bureau of plant industry, soils, and agricultural engineering had co-operated with cotton-growing states for many years in helping farmers to organize one-variety communities so that they could get the maximum benefits from state and federal research.

One of the biggest factors in U.S. cotton production has been the steady expansion in the number of one-variety communities throughout the cotton belt. In 1946 these organized communities had 40% of the acreage and grew 45% of the entire U.S. cotton crop. Until a few years before about 500 varieties of cotton were being grown. Now most of the acreage in one-variety communities is devoted to four variety types, and cotton specialists of the department believe that all requirements could be met with fewer than ten varieties. During 1946 increased income to growers in one-variety communities, because of larger yields and premiums for the better quality of their product, was estimated to be \$62,000,000.

(W. V. L.)

Agriculture. U.S. agriculture as an industry enjoyed the most prosperous year in its history in 1946. It became a \$100,000,000,000 industry as the U.S. department of agriculture estimated the value of agriculture as a composite business to be \$101,522,000,000 on Jan. 1, 1946, with equities of \$93,185,000,000. When the gains from the record year 1946 were added the total was well over the \$100,000,000,000 mark. Bumper crops, surpassing all previous records, high prices and a strong buying power of consumers were the features of the year. This fine crop year followed a period of eight years of generally favourable weather, and with the high production of the four previous years reached a total beyond all forecasts. Farm people found themselves in a strong financial position with debts reduced to the lowest level in a generation and assets of



GROSS FARM INCOME: net income and production expenses of U.S. farm operators, 1915-46, including government payments beginning in 1933. Compiled by the U.S. bureau of agricultural economics. 1946 data are tentative estimates

more than \$20,000,000,000. Only those older farmers who remembered the depression that followed World War I had any misgivings regarding the future. They noted the decline in foreign markets and wondered if surpluses would again accumulate to stimulate a demand for governmental intervention.

The parity price guarantees that had been carried through the war period were expected to continue through 1947 and 1948. If high employment continued through 1947 as it had in 1946, consumer buying was likely to keep consumption of farm products at the high level of 1946. World food production was still 8% to 10% below minimum needs and the surplus was not likely to be serious until 1948.

The year 1946 with its high production marked a turning point in several branches of agriculture. The livestock cycle, which turned downward in 1945, continued with only a slight hesitation. While the government urged that a 3% larger acreage be planted for 1947, few authorities expected that this would follow. Cotton production appeared to have reached the limit of its era of high prices and low production. Government policies continued with little change through the year, but the attention of organized farmers was directed toward the future and the probable price decline. The rapid mechanization of agriculture was increasing the output per worker as well as per acre. Production per worker rose more than 35% after 1937 and the number employed in agriculture declined 10%. In 1946 crop production exceeded the previous record of 1942 when the weather was not so good; consequently the gain is attributed to better methods and more machinery.

Crop Production.—The grand total of crop production in 1946 was the largest in U.S. history. A favourable growing season which assured high yields on a large acreage was the principal factor in attaining this remarkable record. The total

Table I.—Index Numbers of the Volume of Agricultural Production through Two War Periods* (1935-39=100)

	1915	1920	1925	1930	1935	1940	1942	1943	1944	1945	1946
Crops											
Food grains	147	126	95	109	81	110	139	116	148	156	158
Feed grains and hay . .	126	149	128	83	91	114	129	125	153	145	165
Cotton	86	100	122	105	81	95	98	87	94	68	70
Tobacco	80	104	95	113	89	101	97	97	135	138	151
Truck crops											
(vegetables)	35	51	74	91	92	110	129	124	137	142	155
Fruits and nuts	73	76	74	89	95	110	117	107	123	112	128
Sugar crops	73	98	73	85	89	104	110	81	82	94	108
Total crops	95	102	99	96	89	107	121	114	128	123	130
Livestock											
Meat animals	92	99	107	100	90	118	132	150	155	145	145
Poultry and eggs . . .	78	78	93	106	92	109	131	152	153	155	144
Dairy products	70	72	85	94	98	105	114	113	115	120	116
Total livestock	81	85	96	99	93	112	126	137	141	138	124
Grand total	86	92	97	98	91	110	125	128	136	132	135

*Estimates by the U.S. department of agriculture.

volume of crops was estimated by the U.S. department of agriculture at 7 points on the index above the total of 1945, 2 points above the previous record in 1942 and 26 points above the 1923-32 average. Quality as well as quantity of nearly all crops was high due to the favourable harvesting season in late summer and fall.

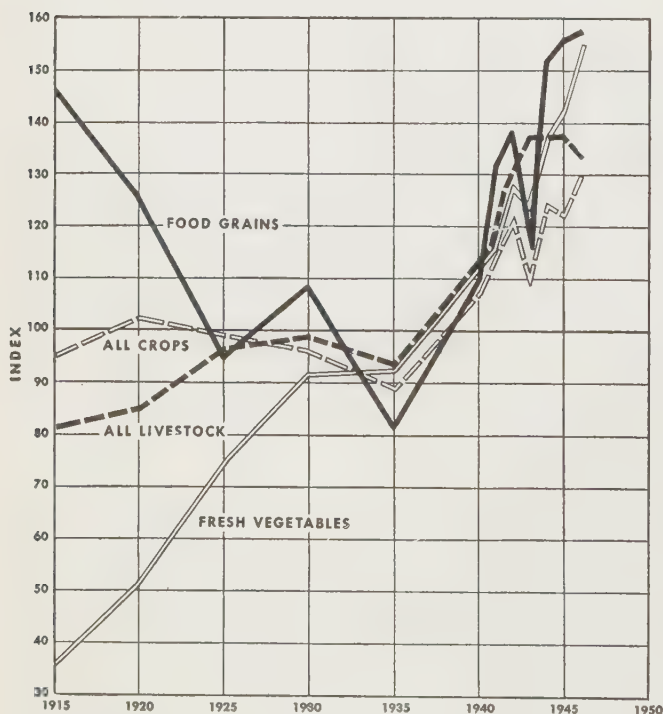
The crops making new high records of total production were: wheat, corn, rice, potatoes, tobacco, soybeans, peaches, pears, plums, cherries and truck crops. Near-record crops were harvested of oats, peanuts, grapes and hay. A few of the former leading crops were smaller than average. Cotton was the smallest crop after 1895 except the one year 1921. Barley, rye, beans, flax and several minor crops returned low total crops.

Table II.—Production of Principal U.S. Crops, 1933-46

Year	(In thousands)							
	Corn bu.	Oats bu.	Wheat bu.	Cotton bales	Timothy hay tons	Rice bu.	Tobacco lb.	Potatoes bu.
1933	2,399,632	733,166	551,683	13,049	66,530	37,651	1,371,131	342,306
1934	1,461,123	542,306	524,393	9,636	55,270	39,047	1,081,629	406,105
1935	2,303,747	1,194,902	626,344	10,638	78,138	38,784	1,297,155	386,380
1936	1,507,089	785,506	626,766	12,399	63,536	49,002	1,154,131	331,918
1937	2,644,995	1,146,258	873,993	18,946	73,785	53,364	1,553,405	393,289
1938	2,542,238	1,053,839	930,801	11,943	80,299	52,303	1,378,534	371,617
1939	2,619,137	937,215	754,971	11,817	75,726	52,306	1,848,654	364,016
1940	2,449,200	1,235,628	816,698	12,566	86,312	52,754	1,451,966	397,722
1941	2,672,541	1,176,107	945,937	10,744	82,358	54,028	1,261,364	357,783
1942	3,175,154	1,358,730	981,327	12,824	92,245	66,363	1,412,437	371,150
1943	3,034,354	1,137,504	841,023	11,427	87,244	64,843	1,402,988	464,999
1944	3,203,310	1,154,666	1,072,177	12,230	84,076	68,161	1,956,022	383,134
1945	2,880,933	1,535,676	1,108,224	9,015	95,289	68,150	1,993,837	418,020
1946	3,287,927	1,509,867	1,155,715	8,482	89,330	71,520	2,235,328	474,609

The acreage of the 52 principal crops was 345,773,000 ac., slightly less than the three previous years but larger than any year in the period 1933-42. This area was below the acreage cultivated during the 1929-32 period. Low prices usually lead to expansion as does the stimulation of war demand. The South Atlantic region harvested the smallest acreage in 18 years, which reflected the restriction of cotton growing.

The central and western regions planted record large areas. The large acreage was made possible by the favourable spring planting season and also the relatively small abandonment which required little replanting. This amounted to only 2.7% of the planted area.



UNITED STATES food production, as measured by index numbers, maintained a record high level in 1945 and 1946, after the end of World War II. Livestock declined slightly in 1946 while food grains advanced to a new high record.

Table III.—U.S. Production and Yield Per Acre, 1946 and 1945

Field Crops	1946		1945	
	Yield	Production in thousands	Yield	Production in thousands
Corn, bu.	37.1	3,287,927	32.7	2,880,933
Wheat, bu.	17.2	1,155,715	17.	1,108,224
Oats, bu.	34.6	1,509,867	36.6	1,535,676
Barley, bu.	25.1	263,350	25.5	226,833
Rye, bu.	11.7	18,685	12.9	23,953
Flaxseed, bu.	9.4	22,962	9.1	34,557
Rice, bu.	45.6	71,520	45.6	68,150
Hay, all, tons	1.36	100,860	1.41	108,539
Beans, bags	9.77	15,797	8.81	13,083
Soybeans, bu.	20.5	196,725	18.0	192,076
Peanuts, lb.	655.0	2,075,880	646.0	2,042,235
Potatoes, bu.	184.1	474,609	155.0	418,020
Sweet Potatoes, bu.	98.3	66,807	96.3	64,665
Tobacco, lb.	1,095.0	2,235,328	952.0	1,993,837
Sugar beets, tons	13.	10,666	12.1	8,626
Cotton, bales (yield in lb.)	230.7	8,482	1,253.6	9,015
Fruit Crops				
Apples, bu. . . . .	...	121,520	...	68,042
Peaches, bu. . . . .	...	86,448	...	81,564
Pears, bu. . . . .	...	35,488	...	34,011
Grapes, tons . . . . .	...	2,857	...	2,792
Oranges, boxes . . . . .	...	125,430	...	104,520
Grapefruit, crates . . . . .	...	67,320	...	63,550

The reconversion of farm plans from the wartime economy was not yet evident. The large demand for food and feed and government guarantees for continued price support for two years encouraged farmers to continue large-scale production. The labour supply was larger and machinery somewhat easier to buy.

Yields of principal crops were at high levels in 1946. Corn, potatoes and tobacco made new records and the majority of crops were better than the average. The yields of 28 crops were 134.2% of the 1923-32 average, exceeded only in 1942 when the acreage was smaller. The average for 10 fruit crops was 163.8% of the base, nearly 25 points above any previous crop. The feed crops, hay, feed grains and pastures also yielded at a high level. Oilseed crops were 3% smaller than in 1945 but 13% above the 1935-44 average. The deficit was in cottonseed and flaxseed, which was partly offset by big crops of soybeans and peanuts. Fruits as a group returned the largest volume ever harvested. Apples recovered from the short crop of 1945 and citrus advanced to new high levels. The total of truck crops was nearly 10% above any previous record for both fresh market and processing. Of 11 vegetables the total was 18% above 1945, 8% above the high year 1942 and nearly 50% above the prewar average. Seed crops of all grasses and legumes were large at the time of great demand for reseeding after the war period and for relief shipment.

Corn, the nation's most valuable crop, made a new record in yield per ac. and total production on a relatively small acreage. The advances in seed corn breeding were shown more strikingly in this crop than ever before. In only five years after 1896 had the total acreage been smaller, but the record yield of 37.1 bu. per ac. offset the smaller area. Hybrid seed was planted on 67.5% of the total area and on 91% of the corn belt lands. The long growing season was an important factor in increasing the yield, however.

The 1,156,000,000 bu. wheat crop was 4% above the record of 1945 and was the third 1,000,000,000 bu. crop. The only record not broken was that of spring wheat, which made its record in 1915. The 1946 crop was due largely to the large area of winter wheat sown in the fall of 1945, small winter losses and a good growing season in the spring. This large seeding of winter wheat followed the government's appeal for grain for relief needs in 1946. Durum wheat did not yield so well in the Dakotas because of drought.

Of the feed grains, oats returned a second 1,500,000,000 crop, almost up to the record of 1945. Barley and rye declined, the latter returning the smallest crop from 1934. The total hay crop was 14% above the 10-year average, and alfalfa 6% above average. Peanuts and soybeans were large while cowpeas declined for the sixth year in succession. Buckwheat was also a



COMBINES harvesting a wheat crop in Nebraska, in 1946

short crop. Maple products were also the smallest on record except for the almost complete failure in 1945.

Tobacco continued to grow in importance, particularly in the south where it had taken the place of cotton on many farms. The 2,235,000,000 lb. crop at current prices made the crop one of the most valuable. All types were grown on expanded acreage. Cotton production declined, particularly because of the reduced acreage and a yield of lint the lowest after 1936. The total crop, estimated in Dec. at 8,482,000 bales, was 5.9% below the crop of 1945 and the smallest total after 1895 except for the one crop of 1921. This was a steady decline from the high record of 18,946,000 bales produced in 1937.

The steady increase in fruit production was shown by the record crops of citrus, both oranges and grapefruit, peaches, pears, grapes and plums. The Pacific coast states, Florida, Texas and Arizona were developing highly commercial fruit areas steadily. Both fresh fruit and processed supplies were finding ready markets. California became more important than ever in grape production with 93% of the total, over half the citrus fruit and a large share of peaches, pears, prunes, apricots, olives and many other fruits and nuts.

Potatoes harvested in 1946 amounted to the record total of 474,609,000 bu., 2% above the record crop of 1943. The remarkable fact was the high yield per ac., 184 bu. compared with 155 bu. in 1945. The supply of potatoes glutted the markets and some government purchases spoiled before they could be used even for feed. The output of truck crops included high record production of lettuce, onions, tomatoes, celery, peppers, cauliflower and eggplant.

Livestock Production.—The declining cycle of livestock numbers was checked in 1945 and revised estimates of the num-

ber on farms on Jan. 1, 1946, showed a total of 146,555,000 animal units compared with 146,187,000 units a year earlier. All classes of livestock declined in numbers except hogs and poultry. The strong demand for meat and the abundant supplies of feed checked the trend. The cattle feeding industry received a great boost when meats were decontrolled and the movement of cattle to feedlots increased. The large corn crop was also a favourable factor. The confusion over price control, black markets and the public clamour for more of the better grades of beef led farmers to feed hogs to larger sizes and to finish cattle as heavy as possible.

Hog numbers on Jan. 1, 1946, were estimated at 62,344,000 head compared with 59,759,000 head a year earlier. The pig crops, spring and fall, totalled 52,324,000 head, which was about the average 1941-45. With the large corn crop the goal for 1947 was set at 58,000,000 head. Hog prices responded as other livestock prices when price control lapsed in July and rose to \$20.90 per 100 lb. and then rose again to an average of \$22.70 in December.

Cattle slaughter was lower in the first half of 1946 than a year earlier but increased quickly when price control lapsed in July. The markets were glutted. Prices advanced to a top of more than \$30 per 100 lb. at Chicago, Ill. The average price to farmers for the country as a whole rose from \$14.10 per 100 lb. in June to \$17 in Aug., \$18.10 in Oct. and \$17.40 in Dec. The large supplies of feed were expected to be reflected in a larger supply of winter-fed beef. Sheep continued to decline in numbers and lamb feeding was limited by the smaller number of lambs raised. The meat supply, not including poultry, was estimated at only slightly less than that of 1945 when consumption was 137 lb. per capita. Civilians were expected to have about 145 lb. per capita, however, because of reduced requirements for the military forces and for export.

The dairy industry declined about 4% in number of milk cows kept but produced within 2% of as much milk as in 1945. The production per cow was higher because of the culling of some of the poorer cows. Butter production, though still low, was beginning to recover by the last quarter of 1946. More cheese was available for domestic consumption as export demands declined. Per capita milk consumption was expected to be about 813 lb. which is about the same as the prewar average 1935-39.

The poultry industry declined slightly from the level of 1945 in egg production. This was because of the high price of feed grains during the first half of the year. The commercial broiler business steadily increased, however, providing a supply of meat about 15% below that of 1945. Turkey production was high but not equal to the big crop of 1945.

The decline in horses and mules continued and shipments of animals to Europe for replacements accelerated the change; over 100,000 head of mares were shipped, mostly to eastern Europe. The slaughter of horses continued large. The prices of mules were maintained at near the prewar level, almost entirely in the southeastern states.

Food Stocks.—The record production of foodstuffs in the United States during 1945 and 1946, with the decreasing military and lend-lease requirements, made larger amounts available for consumption. The public clamour about meat shortage, etc., was in general without justification except during short periods when price control and other government intervention had disturbed the normal flow of supplies. Estimates by the U.S. department of agriculture to midyear 1946 indicated that total food production, compared with an average of 1935-39 as a base of 100, equalled 133 in 1943; 138 in 1944; 136 in 1945 and 134 in 1946. Since there was a considerable increase in 1946 production after July, production in 1946 was probably equal to the record of 1944. The supplies available to civilians for consumption increased steadily from 1943 on as military and other requirements declined. Measured in another way, of the total U.S. food supply for 1945-46, 83.8% was available to civilians, 12.2% was exported and the remaining 4.0% was used by the military services. In terms of food energy the exports from the United States in 1945-46, July to July, were sufficient to provide 250,000,000 people with 500 calories per day for 1 year. These additional supplies were to supplement the less than 2,200 calories regarded as necessary to prevent serious hunger. Exports did not deprive the U.S. consumer of supplies except of some foods that could be replaced by others. The food energy of the average U.S. civilian was maintained at 3,300 calories per capita which was the same as in the prewar period 1935-39.

Flour for domestic consumption was limited to 75% of the amount used in 1945 during the spring months of 1946. Large quantities of rice were exported to the far east. Corn products were scarce because of the heavy demands for many uses. Dairy products were needed for relief and about one-fourth of the cheese production, one-third of the condensed milk and 40% of the dried milk was exported. Only about 6% of the meat supply was exported. Canned fish and dried beans were large items in the list of exports. Fats and oils exports amounted to about 12% of the supply. Sugar continued to be short to the end of the year with not much prospect of larger supplies until well into 1947. (See FOOD SUPPLY OF THE WORLD.)

Farm Prices.—The demand for farm products in 1946 exceeded expectations at the beginning of the year. It was not thought probable that the large production could be continued at the time of shrinking need for war purposes without causing at least a slight decline in the price level. Inflation was feared but price control was expected to check that tendency. But the general price advance from July on exceeded anything ever be-

fore experienced by U.S. farmers. Livestock and crops were rushed to market to catch the top prices withheld through several weeks and did not show a general decline until the end of the year, when the decline from Oct. to Nov. was 10 points. At this time all farm prices were at a point more than 80% higher than when the United States entered World War II in 1941, and 29% higher than at the end of hostilities with Japan.

Table IV.—Farmers' Average Prices, Certain U.S. Crops, on Selected Dates
(in cents per unit)

	Wheat per bu.	Corn per bu.	Oats per bu.	Barley per bu.	Rye per bu.	Buck- wheat per bu.	Pota- toes per bu.	Eggs per doz.	Cot- ton per lb.
Oct. average, 1909-13	88.1	64.8	38.4	60.5	72.0	71.1	65.0	23.8	12.10
Oct. 15, 1936	106.8	97.9	43.1	84.2	80.4	78.3	97.9	27.6	12.23
Oct. 15, 1937	88.7	58.9	28.8	52.0	63.8	62.4	48.5	25.2	8.10
Oct. 15, 1938	52.2	41.9	22.1	36.1	32.9	54.5	51.0	27.1	8.53
Oct. 15, 1939	70.3	47.6	30.3	42.2	45.1	62.7	66.4	22.9	8.73
Oct. 15, 1940	68.2	59.4	28.3	38.2	40.5	54.4	52.0	23.7	9.35
Oct. 15, 1941	91.0	64.9	38.9	49.1	51.3	64.3	67.2	31.8	16.55
Oct. 15, 1942	103.5	77.5	43.2	57.6	52.9	77.0	102.5	37.4	18.87
Oct. 15, 1943	135.0	107.0	77.4	103.0	101.0	110.0	128.0	45.2	20.28
Oct. 15, 1944	142.0	113.0	65.9	95.4	108.0	102.0	142.0	38.8	21.25
Oct. 15, 1945	151.0	113.0	62.8	101.0	138.0	106.0	126.0	42.6	22.30
Oct. 15, 1946	188.0	171.0	79.9	135.0	199.0	144.0	122.0	51.5	37.69

Prices of all farm crops and livestock to farmers moved up steadily in 1946 from an index of 202 average for the year 1945 (Aug. 1909-July 1914 equals 100) to a peak of 273 in Oct. and then declined to 264 in Dec. 1946. All groups of farm products did not move alike. Livestock prices advanced from an index of 203 for 1945 to 294 in Dec. 1946; all crops from 201 to 232; dairy products from 197 to 312 in Dec.; and food grains from 172 to 224 in Dec. Smaller advances were recorded for truck crops, which averaged 224 in 1945, advanced to 283 by March 1946 and then declined to 166 by Dec. Fruit prices followed a similar curve, being lower in late 1946 than a year earlier. Cotton made a startling advance from 171 average for 1945 to 304 in Oct. 1946, only to drop to 242 by Dec. The averages for 1946, when available, were expected probably to show a general advance of about 30% in the second half of 1946.

When price control lapsed in July and again later when it was finally ended, the price advances were reflected chiefly in the retail markets and to a less degree in prices to producers. During the lapse period prices advanced about 15% to a level above that reached following World War I. Warnings of the probable decline of prices for farm products in 1947 were based on the facts of the very high production; shrinking foreign markets, except for relief purposes; a very high rate of domestic consumption which might not continue. The prospect was regarded as good for 1947 with lower prices in 1948 if the U.S. and world crop production should again be large.



WHEAT being shipped in open freight cars during 1946 as elevators were too full to hold the record crop; much of this grain was sent abroad for the relief of the hungry in war-devastated lands

Farm Income.—Gross farm income reached the grand total of about \$27,000,000,000 for 1946. This "gross" income included the estimated cash receipts for products sold from farms, government payments, the value of farm products used in the household and the rental value of the farm dwelling. The "realized net income" is derived by subtracting "total expenses" from the gross income. For 1946 the total expenses were estimated at \$12,300,000,000, leaving a net income for farm operators of \$14,700,000,000. This income of agriculture was the result of a combination of high production and prices, and more the latter than increase in production. This high record, which was expected to be the peak of the decade, compares with the peak of World War I, which was \$17,500,000,000 gross income in 1929. Then income remained above \$15,000,000,000 only three years while in World War II the total had been above \$15,000,000,000 for five years. The decline after 1920 was to the low point of \$6,200,000,000 in 1932.

Table V.—U.S. Farm Income from Cash Sales and Government Payments, 1945 and 1946
Jan. to Oct.
(In millions of dollars)

	1946	1945
All Crops	8,305	7,034
Food grains	1,542	1,091
Feed grains	1,294	1,123
Cotton (lint and seed)	1,093	628
Oil-bearing crops	463	391
Tobacco	753	743
Vegetables	1,421	1,407
Fruit and nuts	1,235	1,151
Other	504	500
All livestock and products	10,265	9,577
Meat animals	5,157	4,681
Dairy products	2,883	2,617
Poultry and eggs	2,036	2,074
Other	189	205
Government payments	780	715
Total—10 months (without govt. payments)	18,570	16,611

Analysis of these totals would not be made until mid-1947; consequently the best comparative analysis is in the estimates for 1945. The total gross income in 1945 was \$24,751,000,000, production expenses \$11,509,000,000, leaving a realized net income of \$13,242,000,000 for the whole United States. When divided by states and averaged among the farms of each state the variations of farm income by regions is apparent. In 1945 the average net income per farm ranged from \$6,051 in California to \$896 in West Virginia. Eleven states in the south and New England averaged below \$1,500. Eleven states exceeded \$3,500, mostly in the west but including Delaware and Florida. In the middle west Iowa led with an average farm income of \$4,209; Illinois, \$3,464; and Minnesota, \$3,145. All of the mountain states were high because the number of ranches was small and they were of large size. These are also farms with large cash sales in relation to purchases.

The average of government payments was \$117 per farm for the whole country ranging from a top of \$370 in Wisconsin to a minimum of \$31 per farm in North Carolina. States of large production where the payments were substantial were California, \$255; Wisconsin, \$370; Minnesota \$198; Michigan \$152; New York \$300 and New Jersey \$275. The total government payments in 1943 were \$590,339,000; 1944, \$715,161,000 and 1945, \$687,056,000.

Production expenses increased 5% in 1945 in the country as a whole. Labour costs were 5% higher in 1945 than in 1944, livestock purchased 31% higher, maintenance of machinery, etc., 6% higher while feed cost 4% less. Taxes advanced while farm mortgage interest declined as debts were reduced. The total bill for hired labour advanced from \$1,928,000,000 in 1943 to \$2,209,000,000 in 1945.

The total farm population of the United States was estimated to be 25,990,000 on Jan. 1, 1946, compared with 25,190,000 a year earlier. This indicated an increasing trend after the war,



SURPLUS POTATOES being dumped on the abandoned landing strip at Thunderbird field, Glendale, Ariz. The U.S. government purchased the potatoes and sold them to a distillery to convert into alcohol

since on Jan. 1944 the total number was put at 25,520,000. An increase of farm population was believed to have occurred in 1946 from the return of veterans and workers who left the farms to go to war industries. Reports on farm labour indicated an increase in both family labour and hired hands. Surveys of bank deposits and security holdings indicated that the agricultural population had more cash resources than ever before in the history of the U.S. farm. While the costs of production advanced during the war years, the high yields at high market prices increased income faster than costs on the more efficient farms.

Land Values.—The steady accumulation of money for investment with the advancing prices of farm products continued to stimulate land buying. Land values advanced steadily at the rate of about 1% a month from 1941 and continued through 1946 at this rate. By July the index was 73% above 1941, 77% above the 1935-39 level and only 14% below the peak in 1920 which was followed by the depression. Values had already exceeded the peak in three sections of the country, New England, the east south central states and Pacific coast states. In the Pacific states values were 30% above the peak in mid-1946. Repeated warnings by government and other economists failed to check the trend and at the end of the year the situation was very like that in 1920 with the exception that farmers held large cash balances and had reduced mortgage debt to the lowest amount in several years. More than half of all farm sales during 1945 were for cash and for those sold on credit the debt averaged about 60% of the sales price. Values advanced in 1946 faster than net returns. The rate of return on operated and rented farm lands continued above other investments, including government bonds which farmers usually purchase with their savings.

A million World War II veterans were working on farms by June 1946, out of the 10,000,000 veterans discharged after Aug. 1945. Some of these men with families purchased farms to operate as a business and also to solve the problem of finding a house to live in. The G.I. educational program attracted many young farm boys to enrol in agricultural schools with a view to becoming farm operators later. The "back-to-the-farm" movement did not develop as it did following previous wars,

partly because of the warnings issued by government agents. Only those with successful farm experience and training were encouraged to start farming.

Farm Taxes.—As an item in the fixed expense of agriculture taxes have increased steadily. The estimated tax bill of U.S. farmers was put at \$458,320,000 in 1943; \$475,342,000 in 1944 and \$525,291,000 in 1945. Estimates for 1946, available in the spring of 1947, were expected to show further increase. Formerly farmers paid taxes only on real estate and personal property. Income taxes affected few farmers at first but in 1946 were estimated to total \$600,000,000 per year, more than the whole farm land tax bill. A few states had income tax laws that reach farmers in the years of high income. Because of the use of automobiles, trucks and tractors farmers paid large amounts in gasoline taxes, licence fees, drivers' permits. This bill was estimated to be about \$200,000,000. Sales taxes were in effect in about half the states and the farmers' share was estimated at \$50,000,000.

Mortgage Debts and Interest.—The decline in farm mortgage indebtedness which had been under way since 1922 came to an end in 1945 and the debt began to increase. In 1945, 20 states showed an increase in debt compared with only 8 states the year before. Total farm mortgage debt declined from \$6,586,000,000 in 1940 to \$5,081,000,000 on Jan. 1, 1946. In the first six months of 1946 the total increased \$80,000,000. This gain was in loans by commercial banks, individuals, etc., since the loans by government agencies and life insurance companies continued to decline.

The total liabilities of farmers declined during the same years from \$10,022,000,000 to \$8,337,000,000, which was even more significant. The farm mortgage interest bill declined from \$295,000,000 in 1940 to \$248,000,000 in 1945. This was not so important as the increase in rents paid to landlords not living on farms.

Farm Labour.—The record farm production was achieved in 1946 with a minimum of labour difficulties. In contrast to the situation during the war years the supply of labour was mostly adequate and in some cases requests for help were cancelled by farmers. The return of war veterans was an important factor, some of them returning to farms, others claiming their former

jobs, thereby releasing workers who had come from farms to return to farm work. The total number of persons employed on farms averaged 10,012,000 persons in 1946 compared with 9,844,000 in 1945 and a prewar average of 10,920,000 in 1935-39. The number of family workers averaged about the same through the war years and through 1946, 7,864,000 in 1946; 7,810,000 in 1944 compared with 8,353,000 in 1935-39. The number of hired workers was also smaller during the war and in 1946 than earlier; 2,148,000 in 1946; 2,227,000 in 1944 and 2,568,000 in 1935-39. The more extensive use of power machinery by family workers had replaced the hired help. Shortages of trained dairy and fruit farm workers were reported from many areas, however. Fewer foreign workers were employed in 1946; 58,000 in July 1, 1946, compared with 78,000 foreign workers and 70,000 prisoners of war on July 1, 1945. The prisoners had all been removed from farms by July 1946.

Wage rates for farm labour advanced steadily through the war period and reached new high levels in 1946. Daily wages without board averaged \$1.55 in 1935-39; \$4.39 in Oct. 1945 and \$4.94 in Oct. 1946. Monthly wages without board rose from \$34.90 in 1935-39 to \$95.00 in Oct. 1945 and \$104 in Oct. 1946. The index for all farm wages rose from 118 for 1935-39 to 378 in Oct. 1946 while the level of prices received by farmers for agricultural products rose from 107 to 258. Wage rates were varied more than in earlier years since the use of more farm machinery requires more skill on the part of the farm helper. All controls of farm labour and wages were terminated Nov. 9, 1946, by presidential order.

Efforts to organize farm workers into unions appeared from time to time but no general movement was evident. In the case of highly specialized workers in the fruit industry some organization progress was reported.

Marketing.—Rail transportation shortages and marine shipping strikes were serious handicaps to marketing farm products in 1946. Box cars, refrigerator cars and other railroad equipment were very short of requirements. Motor truck facilities improved steadily. First experiments in air transport of fruits and vegetables were tried on a commercial scale with promise of continuing as rates decline. Supplies of crates of wood and paper were short and both paper and burlap bags were limited in quantity. The packaging of fresh fruits and vegetables at the point of production on a farm to be sold to the consumer was developed on a considerable scale in 1945 and 1946 and was expected to be expanded as packaging materials became available.

The quick freezing processes were expanded rapidly during the year and freezing space in public warehouses as well as cold storage space was scarce.

The farmers' share of the consumers' dollar spent for food reached the high point of 54% average in 1945 and advanced to 55% during the first three months of 1946. Then followed a decline to an average of 53% for the whole year. This compares with a prewar average of 40% in 1935-39 and 46% in the World War I period 1913-15. This estimate is based on the annual food purchases of a family of three average consumers. This market basket cost \$340 per year in 1935-39; \$459 in 1945 and \$500 for the first nine months of 1946. The marketing costs declined during World War II from a prewar average of 59% to an average of 50% in 1945 and 48% in the mid-1946 period. In general terms the prices to farmers advanced faster than retail prices and the distributors' margin remained about the same. This estimate did not take into account that part sold through the black market.

The demand for farm supplies such as lumber and fencing increased rapidly in 1946 as farmers turned to replacing the depleted buildings, fences, etc., that had had little attention during the war period. Lumber was very scarce in many regions. The national supply of lumber in March 1946 was estimated at the very low amount of 875,000,000 bd.ft., compared with 36,500,000,000 bd.ft. production in 1941 before the emergency building began. Even the greatest activity of lumber cutters early in 1946 did not relieve the situation and at the end of the year many lumber yards were entirely without supplies. The simple wire nail became a scarce article. Hay bale wire scarcity prevented many farmers from using their balers. Wooden boxes and baskets for shipping were selling at a premium in many fruit growing regions. Spray materials for pests and plant diseases were available, but at higher prices. Several new insecticides came into use, DDT being one of the most popular. Other new types were used on a small scale and larger production was promised for the next year.

The rapid trend of agriculture to become a highly mechanized industry continued through 1946. Farm machinery production was retarded by strikes and shortage of materials but the output was much larger than during the war years as war industries reconverted. Production of farm machinery during the last half of 1945 and first quarter of 1946 was less than in the same period a year earlier. Some of the labour difficulties had not been settled by the end of 1946. Many new types of machines appeared and found ready buyers, since farmers had ready capital. The principal trend was toward somewhat smaller machines



FARMER DEMONSTRATING A JEEP fitted with new hydraulic lift which was announced in Aug. 1946, and which increases the manoeuvrability of the jeep as a farm implement; here he has raised a spring-tooth field cultivator and is ready to move to another location

sulted to the average-sized family farm. Designs were revised to adapt them to operation by one man, since the average U.S. farm has only one and a half men for general operation.

Fertilizers.—The general increase in average yields after 1940 was partly caused by the use of more commercial fertilizers. Consumption in 1946 was estimated to be about 13,500,000 tons compared with 13,202,000 tons used in 1945 and a prewar average, 1935-39, of 7,270,000 tons. Compared with prewar the amount of nitrogen was doubled but the demand was not satisfied. The use of commercial fertilizers was increasing more rapidly in areas that formerly used little fertilizer, such as the corn belt. The price of fertilizer was more favourable to farmers in 1945 and 1946, in that in terms of plant nutrients the farmer's dollar would buy more than at any previous time in history. Prices were lower near the point of production and distant states were using the more concentrated forms to reduce freight costs. Exports were restricted toward the end of the year to make more plant food available to U.S. farmers, although large amounts were shipped to increase food production in Great Britain, Europe and North Africa. Production was being expanded as rapidly as new plants could be built. Detailed reports of the use of fertilizers on cotton indicated that 1,479,000 tons were used in 1946, which is about the same as was used in 1935-44. But the 1946 supply was used on 8,776,000 ac. while the prewar supply was used on 10,343,000 ac. Therefore the average per ac. in 1946 was 337 lb. compared with 286 lb. in 1935-44.

Agricultural Policies.—Under the Agriculture Adjustment act of 1938 and the Steagall amendment of 1941 the prices of basic crops, corn, cotton, wheat, rice, tobacco and peanuts for nuts were supported at 90% of parity (cotton 92½%). This act was to be in force for two years after the Jan. 1 following the date of the official end of the war or to Jan. 1, 1950. The total cost of price-supporting measures in the form of government payments was \$687,056,000 in 1945 compared with \$715,161,000 in 1944 and \$590,339,000 in 1943. The total for 1946 was expected to be about the same as that of 1945. Changes in legislation by congress were few, the principal adjustments being in regulations under the Price Control act.

Representatives of the leading farm organizations representing about 4,000,000 farm families met in October and jointly proposed revision of the parity formula to include farm labour costs as a factor and to establish a better base than the 1910-14 being used. The secretary of agriculture proposed to congress that the basic government policies be reconsidered.

The principal action by congress was the passage of the Market Research act, authorizing an appropriation of \$9,500,000 the first year, increasing to \$60,000,000 the fifth year, for research in new uses for farm products and improved marketing facilities and services. This bill was strongly supported by organized farmers as one method of solving the problem of agricultural surpluses. The appropriations were left to be made by the 80th congress in 1947. An 11-man advisory committee was appointed to assist the U.S. department of agriculture in choosing projects to be investigated. Another act of importance was one which consolidated several agencies, including the Farm Security administration, into a new agency called the Farmer's Home administration. Several forms of loans to farmers for seeds, drought aid and loans to needy farmers to establish themselves on the land were included.

World Farmers' Organization.—A conference was held in London May 20, 1946, to organize the International Federation of Agricultural Producers. The idea had been proposed at Quebec, Can., in 1945 by the National Farmers' Union of Britain. It was agreed to include only national organizations that are completely independent of governments, the latter being represented by the Food and Agriculture Organization. Thirteen nations qualified for membership under these conditions. A constitution was agreed upon for one year, which was to be submitted to the various organizations for ratification and final adoption or change at a 1947 conference of farm organizations. Four U.S. organizations participated in the conference at London: the National Grange, Farmer's union, American Farm Bureau federation and National Council of Farmers' Cooperatives. These four organizations each had one-fourth of the U.S. vote in the world organization.

A *World Agricultural Census* was organized by the economic and statistics division of the United Nations Food and Agriculture organization in Nov. 1946, to co-ordinate the census work of all nations along lines begun by the International Institute of Agriculture in 1930 and 1940. The latter published the results of the first census in 1930 but the war intervened to interrupt the 1940 survey. Committees were preparing plans at the year's end to make the world's agricultural statistics comparable and more complete.

The International Institute of Agriculture, which had operated from its headquarters at Rome, Italy, from 1904, formally dissolved at a general assembly in July 1946 and its work was absorbed by F.A.O., which arranged to employ some members of the staff and to retire others on pensions. The member countries of the institute were asked to pay their quotas for the war years to provide funds to liquidate the institute's obligations. The Italian government offered the buildings of the institute at Rome for the use of F.A.O. as a branch. The extensive agricultural library and archives were to remain at Rome until the location of a branch for F.A.O. in Europe had been decided. (See also AGRICULTURAL RESEARCH ADMINISTRATION; CENSUS DATA, 1946; CHEMISTRY; FAMINES; FERTILIZERS; HORTICULTURE; IRRIGATION; LAW; LIVESTOCK; METEOROLOGY; PRICE ADMINISTRATION, OFFICE OF; PRICES; SOIL EROSION AND SOIL CONSERVATION; VEGETABLES, etc.; also under principal crops.) (J. C. Ms.)

Great Britain.—The world cereal position necessitated a sharp reversal of the 1945 policy of a gradual return to peacetime conditions. In May 1946 the livestock feeding stuffs rations were reduced, the cut for pigs and poultry bringing their new rations below even wartime levels. This halted any expan-

sion of the livestock industry although there was a slight increase in the numbers of dairy cattle. The number of sheep rose to 12,819,000. Pigs fell in number by 256,000. The cereal area for England and Wales dropped by a further 326,000 ac. The acreage of potatoes and sugar beets rose by 27,000 and 20,000 ac. respectively. Horticultural crops were increased by 42,000 ac. During the year a further 363,000 ac. were put down to grass.

There was an increase in the total agricultural labour force but prisoner-of-war labour continued to supply a substantial proportion of the manpower in farming. In July the national minimum wage was raised from 70s. to 80s. per week. In Dec. the Agricultural Wages (Regulation) bill was introduced to transfer permanently to the Central Agricultural Wages board the wage-fixing powers of the local wages committees.

Agricultural prices were governed by the "Feb. review" made by the minister of agriculture and the National Farmers' unions. The announcement of prices made in March 1946 showed a general upward trend; these prices were to become operative in the 1947 harvest for cereals; from July 1, 1946, for livestock and from April 1 for milk. Compulsory cropping orders for wheat were to be reintroduced for the 1947 crop. The feeding stuffs rations reduction and the wage increase induced a special price review in July. Cereal, potato and sugar beet prices were raised for the 1946 harvest and a further general price increase for arable and livestock products for the 1947 season was announced. As a wheat acreage of at least 2,500,000 ac. was required, wheat prices were to be raised to an over-all average of 20s. 9d. per cwt. The tentative emphasis upon livestock production made in 1945 was reversed. In Oct. 1946 the War Agriculture Executive committees were reconstituted as county executive committees, when the National Agricultural Advisory service came into operation. In Nov. the Hill Farming act was passed, under which financial assistance for farm improvement was to be given to owners and tenants of hill farms.

Weather conditions were generally unfavourable to agriculture throughout the year. Spring cultivations were delayed by rain. Rain and lack of sunshine hampered haymaking. Yields of hay were above the decennial average but not of good quality. The yield and quality of cereal crops suffered considerably from the deplorable harvest weather. The yields of wheat, barley, oats and potatoes were below the decennial averages. Sugar beet yields, however, were above average and the sugar content was good despite lack of sunshine. Other root crops also showed yields above average.

FILMS.—*Eggs* (Encyclopædia Britannica Films, Inc.). (E. Ts.)

Agriculture, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

Air Conditioning. Toward the close of 1946 it was apparent that production of air conditioning equipment for the year would exceed that in 1940 despite serious shortages of materials and components, particularly iron castings, copper, sheet steel, electric motors and controls, and despite problems of reconversion from wartime to peacetime manufacture. These problems and shortages were the result of several factors including reconversion problems of producers, price ceilings which diverted materials into more profitable channels and extensive strikes in all of the major industries.

Statistics of domestic and export shipments of air conditioning equipment are published by the U.S. bureau of the census. However, the releases as of Dec. 1946 covered only the calendar year of 1945. A comparison of shipments in 1945 with the prewar year of 1940 for several types of air conditioning products, and estimates of shipments in 1946 from industry sources, follow.

Room air conditioner shipments in 1945 were 1,126 billed at manufacturers' price of \$326,395, as contrasted with shipments in 1940 of 30,873 priced at \$4,584,406. In the first eight months of 1946 shipments were approximately four times the 1940 rate; however, it seemed doubtful that the industry would attain a level more than one-quarter or one-third the units shipped in 1940.

Self-contained air conditioners of the commercial type were used extensively during World War II for essential industrial and commercial applications, and for use in army hospitals. With the momentum thus gained shipments in 1945 were more than double those in 1940 with indications that shipments in 1946 might triple the prewar level. Shipments in 1945 were 13,847 at manufacturers' price of \$10,903,473 as contrasted with 1940 shipments of 5,880 priced at \$4,466,926.

Air conditioned coolers of the remote type in 1945 amounted to approximately half of the shipments in 1940. Shipments in 1945 were 2,850 at \$1,484,971, whereas in 1940 they were 5,955 units at \$2,269,210.

Air conditioning equipment also includes reciprocating and centrifugal condensing units, evaporative condensers, cooling towers, air washers, heat transfer surface and other devices. Statistics for these products do not differentiate between air conditioning and commercial refrigeration application. It can be stated, however, that the volume of sales in 1945 with both of these applications exceeded shipments in 1940 with indications that 1946 would be substantially higher.

Refinements in the design of products were made in 1946 but for the most part they were similar to those produced in the prewar period.

Applications, of course, changed in character. During the war air conditioning was used extensively in mobile units and on ships, in testing laboratories, in industrial plants for increased production and quality control, in hospitals and in many other ways. During 1946 there were still many industrial applications in testing laboratories, in precision manufacture and in the manufacture and processing of hygroscopic materials, but in addition many systems were being planned for the comfort and health of occupants in locations such as hotels, office buildings, retail stores and apartments. (See also METALLURGY; PUBLIC HEALTH ENGINEERING.) (F. H. F.)

Aircraft Carriers: see AVIATION, MILITARY; NAVIES OF THE WORLD.

Air Forces of the World: see AVIATION, MILITARY.

Air Mail: see POST OFFICE.

Airports and Flying Fields. On May 13, 1946, the Federal Airport act, public law 377, 79th congress, chapter 251, 2nd session, was approved by the president. This action by the federal government was the outstanding development affecting airports and airfields in 1946.

The Federal Airport act authorizes annual appropriations for the construction or improvement of public airports amounting in the aggregate to \$500,000,000. The appropriation in any one year may not exceed \$100,000,000. Of the funds appropriated under this authorizing legislation 5% was to be retained by the Civil Aeronautics administration for the expense of planning and administering the airport construction program. The remaining 95% was to be divided into two parts: one amounting to three-fourths of the 95% was to be apportioned among the states in proportion to their area and population, and the other part amounting to one-fourth of the 95% was to comprise a discretionary fund which was to be allotted to those specific projects which the administrator of CAA deemed most appropriate

for carrying out the national airport plan. The act further authorizes appropriations totalling \$20,000,000 for airport work in Alaska, Hawaii and Puerto Rico of which 50% was to be used in Alaska and 25% each in Hawaii and Puerto Rico. Some states had also appropriated funds with which to assist public sponsors in the state in meeting the basic federal participation ratio of 50%-58%.

In general, the act authorizes the use of appropriated funds for land and easements in air space, airport construction including the removal of hazards and the construction of airport buildings except hangars. Other provisions set the proportion of federal participation in the various items of work, classes of projects and locations of the projects. Projects which embrace work sufficient to bring an airport to CAA class 4 or better must be submitted to the congress for approval at the time the appropriation for funds to do the work is being considered. The selection and approval of projects for airports CAA class 3 or below is left to the CAA.

For planning and statistical purposes, the Civil Aeronautics administration classifies airports according to the effective length of the area available for take-off or landing. Class 1 airports must have, at sea level, a usable landing strip of from 1,800 ft. to 2,499 ft. in length; class 2 from 2,500 ft. to 3,499 ft.; class 3 from 3,500 ft. to 4,499 ft.; and class 4 from 4,500 ft. upwards. The existence or absence of other facilities, such as paved runways, night lights, radio, hangars and fuelling equipment does not affect the classification. There follows a comparison of the number of airports in the U.S. by classification for the periods indicated.

	Dec. 1, 1942	Dec. 1, 1943	Dec. 1, 1944	Dec. 1, 1945	Dec. 1, 1946
Class 1. . . .	1,593	923	1,170	1,550	1,905
Class 2. . . .	688	786	917	1,054	1,249
Class 3. . . .	306	418	463	479	485
Class 4. . . .	199	561	799	834	859
Total. . . .	2,786	2,688	3,349	3,917	4,498

Airports are also grouped under types of ownership or control and the ratios for the various groups are as follows:



ROADBED of the "Electropult," a new plane launcher designed by Westinghouse Electric Corp. for the U.S. navy, and announced in 1946, showing a jet fighter plane preparing to take off. The Electropult is fundamentally a linear electric motor which delivers power in a straight line instead of in the conventional rotating pattern. This plane is sped down the quarter-mile roadbed by its own engines and the Electropult, and into the air at 116 m.p.h. in four seconds

	Dec. 1, 1943	Dec. 1, 1944	Dec. 1, 1945	Dec. 1, 1946
Municipal, commercial and private	66.6%	62.1%	68.6%	76.0%
Armed services	22.3	29.8	23.6	17.4
Other federal	11.1	8.1	7.8	6.6
	100.0%	100.0%	100.0%	100.0%

These totals indicate that the trend toward the establishment of small airports begun toward the end of World War II continued through 1946. For the most part however these new airports were located in the smaller towns and cities. The establishment of adequate airports for personal flying in the major centres of population was still being retarded by opposition on the part of property owners, lack of capital on the part of airport owners and general apathy on the part of municipal officials to recognize the future need for these facilities.

Scheduled and nonscheduled air transport operations taxed the good weather capacity of many of the major airports serving the larger cities during 1946 and this volume of operations caused serious delays and trip cancellations when instrument approaches were required.

Improvement programs were contemplated for most of the airports used by the air carriers which were expected to result in a substantial increase in capacity for aircraft movements under contact flight conditions, and co-ordinated research was continued during the year with a view toward adapting many of the wartime aids to flight to civil use.

Included in this over-all program of increasing airport instrument landing capacities was the actual installation at 52 airports by the CAA of its Instrument Landing System. This system was developed and ready for use prior to World War II but its civil use was delayed because of the need for the equipment for war use. (J. B. Bd.)

Great Britain, Commonwealth and Europe.—The start of civil flying at the beginning of 1946 placed a great strain on the facilities and accommodation available at the airports and aerodromes freed for civil aviation use. In Europe, excluding Great Britain, all the aerodromes had been so heavily bombed by the Allied air forces that a tremendous amount of clearing and temporary repairs had to be effected before they could be used. The damage at such aerodromes as Amsterdam, Brussels, Le Bourget, Orly (Paris) and Bordeaux was tremendous; in some places the wrecked hangars with the damaged German aircraft in them were still as they had been after the bombardment. Repair work went on incessantly, however, and all were handling an ever-increasing volume of air traffic in 1946. In Great Britain there were in Oct. 1946, 94 aerodromes available for civil use, but more were needed to handle the scheduled air services and the charter flying, which had grown at an astonishing rate; there were more than 70 charter companies alone.

On the aerodromes of the capital cities of Great Britain, France, Belgium, the Netherlands, Sweden, Portugal and other countries long permanent runways suitable for non-visibility flying were being laid down and all the radio and radar aids for these purposes were being installed; great blocks of buildings to contain all the offices and passenger accommodation were being planned and erected.

In Africa a large airport was being built in 1946 at Durban where three hard runways, one of 6,600 ft. and two others of 5,280 ft., were being laid down. To do this the river Noulaas was diverted three miles. Another big aerodrome at Livingstone, Northern Rhodesia, was being prepared at a cost of £250,000.

In Australia, the Melbourne airport at Essendon was being developed and enlarged to provide hard runways of 6,100 and 4,800 ft. The aerodrome buildings were to cover an area of 100 ac. At Sydney's Mascot aerodrome similar developments were taking place which were estimated to take five years to complete at a cost of £6,000,000. The longest runway was to

be 10,000 ft. in length. Here again, the Cook river had to be diverted.

In New Zealand, India and the middle east many of the wartime aerodromes were being developed to cope with the increasing civil air traffic. Many millions of pounds were to be spent in the Malay peninsula on aerodromes.

In Canada, aerodrome development could take place without fear of air attack, so that the aerodromes which were built for war were transferred wherever necessary to peacetime civil uses. (See also AVIATION, CIVIL; AVIATION, MILITARY.)

(H. R. G.)

Air Races. After five years of World War II hiatus air races came back into their own in 1946 with the 14th annual All-American air meet at Miami, Fla., with the feature event of the meet, the Glenn Curtiss Trophy race, won by Woody Edmondson of Lynchburg, Va.

Another of the top events of the air year was the Cleveland air races which was also a postwar revival. The significant observation was that the four years' lapse produced a speed factor in planes which in 1941 would have been almost incredible. For example, the Thompson Trophy race, a highlight at Cleveland, produced speeds doubling those of four years before. Fast fighter planes dominated both the Thompson and Bendix trophy events.

Paul Mantz, Burbank, Calif., won the Bendix trophy race with an average speed of 435.604 m.p.h. for the 2,048 mi. from California to Cleveland. His time was 153 m.p.h. faster than the mark posted by Frank Fuller in 1939.

William E. Eddy of La Jolla, Calif., placed second and third place went to Jacqueline Cochran, the only woman in the race. Mantz flew most of the way at 30,000 feet altitude. All flew North American P51 Mustangs with the winner going nonstop.

The jet section of the Bendix race was won by Col. Leon Gray of Casa Grande, Ariz., averaging 493.521 m.p.h.

Cleveland also provided a new event for the women fliers—the Halle Trophy race. A former WASP, Margaret Hurlbert of Painesville, O., captured the 75-mi. event with an average speed of 200.588 m.p.h. Jane Page of Chicago was second with a rating of 200.4 m.p.h.

Alvin (Tex) Johnston was the winner of the Thompson Trophy race carrying a purse of \$19,200. His average speed was 373.908—more than 90 m.p.h. faster than the mark set by Roscoe Turner in 1938. Second man home was Anthony W. LeVier and third was Earl Ortman. (T. J. D.)

Air Transport Command. During 1946 the air transport command of the U.S. army air forces, although greatly decreased in personnel and equipment, was expanded considerably in composition and duties by the inclusion of the airways and air communications service, air weather service, air rescue service, flight service and the aeronautical chart service. This move was part of the over-all picture of consolidation, reduction and retrenchment. The ATC, which at its peak numbered more than 3,000 transport aircraft and more than 250,000 personnel, was by the end of 1946 reduced to 649 transport planes and about 60,000 personnel. Its route mileage decreased from a peak of 184,000 to 71,000 mi.

Despite reductions in personnel and budget allowances, an increase of 9% in the utilization of available ton miles was registered during the first nine months of 1946 over the same period in 1945.

ATC's primary operational function, military air transportation, is conducted by its three divisions—Atlantic, Pacific and European. Because of the severe shortage of technically skilled military personnel certain of ATC's overseas routes were con-

tracted to civilian air lines under jurisdiction of these divisions.

U.S. forces in Japan were supplied during 1946 by three flights per day to Tokyo, flown by the Pacific division. The division headquarters at Hickam field, Honolulu, controlled additional supporting flights from the ATC port of aerial embarkation at Fairfield-Suisun, Calif., to Guam, Johnston Island, Kwajalien, Manila, Shanghai and Peiping. Flights to U.S. bases in Alaska from the U.S. were also maintained by the Pacific division.

From Atlantic division headquarters at Fort Totten, N.Y., two flights daily were routed to Europe with additional missions to Newfoundland, Labrador, Greenland and the Azores. Air transport requirements for U.S. troops in Atkinson, Panamá and Puerto Rico were also met by the Atlantic division.

Within the continental U.S., the Atlantic division operated scheduled routes connecting the ports of aerial embarkation with the major army and air force depots.

The Allied services conduct other flights in support of their functions, *i.e.*, air weather service maintains long-range weather reconnaissance flights, air rescue service operates amphibious and helicopter craft, etc.

In September, Lt. Gen. Harold L. George was appointed to the military staff of United Nations, and was succeeded as ATC commander by Major General Robert M. Webster, formerly commander of ATC's European division and previously commander of the 1st tactical air force in Europe.

The mobility and versatility of the air transport command was demonstrated in May when it was called upon to assist in relieving the national emergency resulting from the short but serious national rail strike. With only four days advance notice, ATC mobilized 1,000 planes, quadrupled all domestic schedules and plotted routes to 60 key cities where liaison officers were placed. Operations lasted only 48 hours and the full potentiality of the command was never reached, but in that short time thousands of pounds of priority mail, passengers and cargo were air-lifted.

For "Operations Crossroads," the atomic bomb tests, ATC flew more than 2,000 passengers and 680 tons of supplies to Kwajalien Island, operations base for the experiment.

In Sept. 1946, ATC's daily operations averaged 148,000 plane-miles, 860 passengers and 467,000 ton-miles. Air evacuation was averaging 1,000 patients per month.

From Jan. to Sept. 1946, ATC flew 48,000 tons 116,112,169 ton-miles; 305,427 passengers were carried more than 918,810,000 passenger miles.

The primary mission of the ATC is to train and provide a nucleus of personnel and equipment necessary to meet strategic air transport requirements in the event of a national emergency. In fulfilling this mission, the ATC is employed in its secondary mission—providing air lift to the armed forces of the United States wherever stationed. (R. M. W.)

A.L.A.: see AMERICAN LIBRARY ASSOCIATION.

Ala, Hussein (1884–), Iranian diplomat, was educated at Westminster school and at the University of London. After completing his studies, he was admitted to the bar at Inner temple. Later, he joined Iran's foreign service and attended the Paris peace conference in 1919. He was joint managing director of the Iranian National bank (1933–34) and Iran's minister to Great Britain (1934–36). Ala was governor of the Iranian National bank in 1941 and the following year he was appointed a minister at the Iranian court.

In Nov. 1945, he was assigned to Washington as Iranian ambassador and was concurrently Iran's delegate to the United Nations. He figured prominently in the Russo-Iranian dispute be-

fore the United Nations Security council in the spring of 1946. On March 19, 1946, Ala formally protested to the council against continued presence of soviet troops in Iran in violation of the March 2 deadline for their withdrawal.

In his subsequent appearances before the council, Ala either contradicted or was contradicted by his government. Despite this bewildering conflict between Ala and the Tehran government, the latter did not request his recall.

On several occasions, Ala was criticized by the president of the Security council for giving the council unauthorized reports. Specifically, on May 22, he was called to task by Alexandre Parodi, president of the council, for issuing, without orders from his government, reports (later contradicted by Premier Ghavam) asserting that "soviet interference" in Iran had not ceased. Ala replied that he put forward the real facts before the council and inferred that the government's communications with him were frequently tardy and contradictory.

On May 29, the Iranian embassy in Washington disclosed that Premier Ghavam had issued a final order to Ala to cease making statements before the U.N.

Alabama. Alabama, located in the east south central division of the United States, commonly called the "Cotton State," was admitted to the union Dec. 14, 1819, as the 22nd state. Area: 51,609 sq.mi.—51,078 mi. of land and 531 mi. of water. The population in 1940 was 2,832,961; the 1944 estimate, 2,818,083. Of the 1940 population there were: 1,849,097 whites, 983,290 Negroes and 574 other persons; 2,821,004 native-born and 11,957 foreign-born. In 1940, 30.2% of the population was urban; 69.8%, rural. The capital city, Montgomery, in 1940 had a population of 78,084. The chief other cities were Birmingham (1940 pop. 267,583) and Mobile (78,720).

History.—Incumbents of principal elective offices of the state government were: Chauncey Sparks, governor; Handy Ellis, lieutenant-governor; William N. McQueen, attorney general; John Brandon, state auditor; Joe N. Poole, commissioner of agriculture and industries; Gordon Persons, chairman, public service commission; Sibyl Pool, secretary of state; Walter C. Lusk, state treasurer; Elbert B. Norton, state superintendent of education. Elected to principal elective offices, with terms beginning in Jan. 1947, were: James E. Folsom, governor; J. Clarence Inzer, lieutenant-governor; Albert A. Carmichael, attorney general; Dan Thomas, state auditor; Haygood Paterson, commissioner of agriculture and industries; Sibyl Pool, secretary of state; John Brandon, state treasurer; Austin R. Meadows, state superintendent of education. Nine amendments to the state constitution were ratified by the people.

Education.—During the academic year 1945–46 (ending June 30), there were 3,785 public schools which enrolled elementary students and 1,927 which enrolled secondary students; 1,798 of these schools were attended by both elementary and secondary pupils; therefore, the net total of separate public elementary and secondary schools was 2,116. There were 12,469 elementary and 7,135 secondary teaching positions in the public schools. Enrolment was 439,365 in the public elementary grades and 204,520 in the secondary grades. State institutions of higher learning in 1946 were as follows: the University of Alabama, Alabama Polytechnic institute, Alabama college, Agricultural and Mechanical institute (Negroes), Florence State Teachers college, Jacksonville State Teachers college, Troy State Teachers college, Livingston State Teachers college, Montgomery State Teachers college (Negroes).

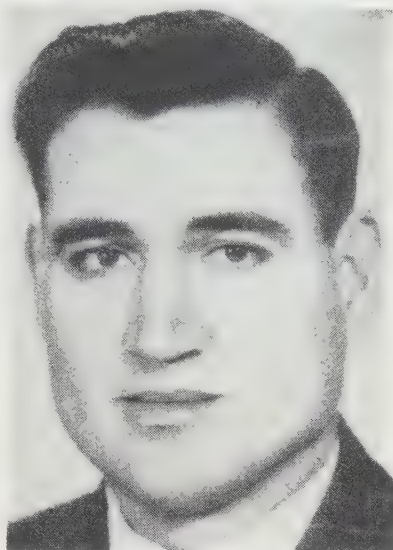
Social Insurance and Assistance, Public Welfare and Related Programs.—Amounts spent for public assistance categories in Alabama during the fiscal year 1945–46 (ending Sept.

30) and the number of recipients (in parentheses) during Sept. 1946 were as follows: old-age assistance \$7,323,844 (39,250); aid to the blind \$169,581 (876); aid to dependent children \$2,044,573 (6,921); aid to children in foster care \$130,819 (353); aid to the handicapped \$646,310 (4,139); temporary aid \$35,830 (157). During the fiscal year 1945-46 unemployment compensation payments were \$17,903,637 to an estimated total of 88,000 beneficiaries. Legislative 1945-46 fiscal year appropriations to the several state correctional agencies, which are substantially self-supporting, and their inmate populations (in parentheses) on Nov. 30, 1946, were: department of corrections and institutions \$471,000 (3,923); Alabama Boys' Industrial school \$145,000 (203); State Training School for Girls \$70,000 (133); Alabama Reform School for Juvenile Negro Lawbreakers \$50,000 (379).

Communications.—Highways and roads consisted of 7,305 mi. in the State system, 53,125 mi. in county systems and between 4,000 and 4,500 mi. in municipal systems. State government expenditures for the purpose of highways, excluding highway debt service amounting to \$2,795,938, were \$13,460,747 during the fiscal year 1945-46. Miles of railroad tracks were approximately 7,800.

Banking and Finance.—On June 30, 1946, there were in Alabama: 153 state banks and 1 branch, which had total deposits of \$397,629,653 and total assets of \$420,406,727; 66 national banks and 20 branches, which had total deposits of approximately \$838,601,000 and total assets of approximately \$888,587,000. On Jan. 1, 1946, there were: 8 state savings and loan associations, which had free shares of \$3,462,147 and total assets of \$4,094,118; 17 national savings and loan associations, which had free shares of \$20,450,152 and total assets of \$22,226,711. According to best available estimates (which exclude resources of state higher education, insane and a few other institutions and the state docks system), total net state government receipts in the fiscal year 1945-46 were \$114,207,102; total net disbursements during that period were \$111,547,040; state bonded indebtedness on Sept. 30, 1946, was \$44,430,000; cash and investment balances on the same date were \$79,923,708.

Agriculture.—The value of Alabama's crop production in 1946 was \$329,828,000. A total of 6,398,000 ac. was harvested. Cash income from sale of crops, livestock and livestock products for 1945 was \$258,998,000; the value of home consumption of crops, livestock and livestock products was \$100,762,000; income from government payments was \$9,536,000. The 1946



JAMES E. FOLSOM, Democrat, was elected governor of Alabama on Nov. 5, 1946

season was favourable for most crops, although not so favourable as 1945, with a particular abundance of moisture in the fall months.

Manufacturing.—The total estimated value of manufactures in Alabama in 1939 was \$574,670,690. The 2,095 manufacturing establishments working 8 or more persons in 1945 had an average of 220,566 employees, to whom they paid wages of \$419,252,627.

Table II.—Principal Industries of Alabama, 1939 and 1937

Industry	Value of Products	
	1939	1937
Cotton broad woven goods	\$75,044,582	\$93,390,182
Blast furnace products	37,085,389	39,629,075
Sawmills, veneer mills, cooperage mills, stock mills, lumber and timber products, etc.	32,512,574	31,915,650
Cast iron pipe and fittings	30,662,008	28,104,450
Oven coke and coke oven by-products	20,138,932	23,579,609
Cotton yarn and thread	14,077,102	17,183,094
Meat packing, wholesale	11,239,523	8,852,612
Cottonseed oil, cake, meal and linters	10,756,520	19,681,409
Fertilizers	9,453,063	8,871,151

Minerals.—The value of Alabama mineral production in

Table III.—Principal Mineral Products of Alabama, 1943 and 1941

Mineral	Value, 1943	Value, 1941
Coal	\$58,575,000	\$41,985,942
Iron Ore	21,047,231	18,090,992
Cement	10,943,926	11,142,649
Stone	3,178,908	3,745,651

1944 was \$108,460,000; in 1943 the value was \$102,013,000.

(C. Ss.)

Alaska. Alaska is one of the two incorporated territories of the United States. The territory lies between the meridians of 130° W. and 173° E. longitude and between the parallels of 51° and 72° N. latitude. It has an area of 586,400 sq.mi. (land, 571,065 sq.mi.) and a civilian population of 72,524 (1939 census). The capital is Juneau, with a population of 5,729; other chief cities are Ketchikan, population 4,695; Nome, 1,559; Anchorage, 3,495; and Fairbanks, 3,455.

Alaska suffered economic setbacks in 1946 because of a paralyzing shipping strike on the west coast which tied up ships in the Alaska trade for 127 days between April 1 and Dec. 8. Emergency food shipments coming into the territory by air sent prices soaring to heights where butter retailed at \$1 a pound and up, meat at \$1.50 a pound and eggs at \$1.35 a dozen. Other commodities' prices were at similar levels at the end of the year. Though the shipping strike was ended in December, shipping concerns still faced the problem of trying to do business without sufficient ships. One company with a fleet of 22 ships in the Alaska trade at the beginning of World War II found itself with only 8 vessels when the war ended. Two other companies had only one ship each. Congressional hearings were held on the Alaska shipping problems in Juneau and Seattle and out of them it was hoped might come improved water transportation to the territory.

Alaska legislature met in special session in 1946, the second of its kind in the territory's legislative history. It enacted into law a liberal veterans' bonus measure and levied a 1% gross revenue tax on business to finance the program. From its enactment in April, the tax had brought in at the end of December approximately \$1,000,000. Under the veterans' law, Alaska veterans of World War II may obtain loans up to \$10,000 at 4% interest to establish businesses, buy homes, farms, fishing boats, etc., or may elect to take a cash bonus of \$10 per month for every month of service. Bonuses can be repaid and loans obtained and when loans are paid new loans may be secured. The legislature also appropriated \$250,000 to carry on a territorial-wide public health program.

Alaska communication system, unit of the U.S. army signal

Table I.—Leading Agricultural Products of Alabama, 1946 and 1945

Crop	1946	1945	Value—1946
Cotton, bales	800,000	931,000	\$136,000,000
Corn, all, bu.	42,005,000	48,081,000	77,709,000
Peanuts, lbs.	262,350,000	340,900,000	23,612,000
Cottonseed, tons	310,000	354,000	20,770,000
Hay, all, tons	780,000	774,000	19,500,000
Sweet potatoes, bu.	5,525,000	5,950,000	12,708,000
Oats, bu.	5,537,000	6,526,000	6,921,000
Potatoes, bu.	4,646,000	4,935,000	6,040,000
Sugar cane sirup, gal.	2,430,000	2,860,000	4,860,000
Peaches, bu.	1,575,000	2,440,000	4,174,000

corps, established the first land-line telephone connection between interior Alaska and the southeast panhandle during the year. As the result of a cable being laid from Juneau to Skagway, there to connect with the telephone line established by the army during the war, it was possible to talk by telephone from Juneau, the capital, to Fairbanks, Anchorage and other points as well as to continental United States via the line flanking the Alaska military highway across Canada which was built during the war.

Fishing, the territory's largest industry, slumped in 1946. The salmon pack fell to 4,000,000 cases as compared with the average annual pack of between 5,000,000 and 6,000,000 cases. The price, however, was high, canned salmon selling as high as \$24 per case.

Exploration for oil, started by the navy during World War II, continued in the Arctic naval reserve under private contract. Wells were driven in the region about 100 mi. south of Point Barrow.

Nome was the disaster town of the year. This mining town on the Bering sea coast twice was struck by terrific storms. A large part of its business district was damaged and losses were around \$500,000.

An extensive program of constructing permanent bases in Alaska was started by the army in 1946. Millions were spent at Ladd field near Fairbanks, Elmendorf field near Anchorage and at points in the Aleutian chain. Thousands of workers were employed but housing was such a serious problem that the army was forced to build its own houses to accommodate the construction workers. Throughout the territory housing of any kind was at premium and building was slow because of lack of material.

Territorial bank balance at the end of the year was \$1,076,000. Alaska has no public debt. (L. M. W.)

Alaska Highway: *see* ROADS AND HIGHWAYS.

Albania. Albania, a people's republic in the western part of the Balkan peninsula, along the Adriatic shore. Area 10,629 sq.mi.; pop. (census 1930) 1,003,124; (est. 1939) 1,063,000. Capital, Tirana. Chief cities (1930 census): Tirana (30,806); Scutari (29,209); Koritsa (22,787); Elbasan (13,796), Valona (9,100). Religion: Mohammedans (688,280); Orthodox Christians (210,313); Roman Catholics (104,184). Premier in 1946: Enver Hoxha.

History.—On Nov. 10, 1945, the Big Three recognized the cabinet of Enver Hoxha conditionally as the provisional government, and elections held in the following month brought the expected victory at the polls. The government suppressed all opposition, and openly followed the path shown by the soviet government in the U.S.S.R. and by Tito's government in Yugoslavia.

The social and economic backwardness of the small but strategically highly important country made complete government control of all cultural and economic life relatively easy. The government was wholly communist dominated. Its three leading personalities were Premier Hoxha, the minister of information, M. Maleshova who lived in Moscow for 15 years and returned only during World War II to Albania and Kodji Xoxe, the communist chief of the general staff and president of the special tribunal dealing with "war criminals."

The new government introduced equality for women, broadened the very narrow bases of educational work in the country and began to modernize its economic life. U.N.R.R.A. relief supplies were of great importance in improving the economic situation and the state of public health. The relatively very large army which the regime maintained, however, slowed



U.S. ARMY TRUCK crossing the Drin river in Albania; the truck was one of 297 purchased in 1946 by the U.N.R.R.A. and turned over to the Albanian government, to carry food to the interior of Albania

down economic reconstruction.

As the result of the hostile attitude of the Albanian government to the western democracies, relations between that country on the one hand, and Great Britain and the United States on the other hand, steadily worsened during 1946. The government-controlled press and radio of Albania conducted uninterrupted bitter propaganda against the western democracies.

The country concluded a naval agreement with Yugoslavia on Sept. 10, 1946, and was reported to have heavily fortified, with soviet help, strategic points on the Adriatic coast.

On Nov. 27 Yugoslavia and Albania signed an agreement establishing a customs union between the two countries co-ordinating their economic and financial policies.

On April 6, 1946, Great Britain recalled its military mission after complaining that the Albanian government had restricted unfairly the freedom of movement of the mission and expelled a war graves commission. Britain revoked a decision to send an envoy to Albania and declined to accept an Albanian envoy. The strained relations between the two countries became worse when, as a result of mines laid in the Corfu channel, British warships were damaged. The United States government decided in Nov. 1946 not to recognize the Albanian government and to recall the U.S. diplomatic mission at Tirana. The chief defendant in an Albanian sabotage trial on Nov. 15 was reported as stating that the assistant chief of the withdrawing U.S. mission led a ring of plotters against the regime. On the same day the U.S. mission headed by George D. Henderson left Albania on board a U.S. warship which was not allowed to enter an Albanian port.

While the relations with Yugoslavia became more and more intimate, Albanian relations with Greece grew more and more hostile.

The Greek government complained to the United Nations about troubles fomented allegedly by the Albanian government, in co-operation with the Yugoslav government, along the border.

The Greek government claimed northern Epirus from Albania on ethnographic reasons. (*See also ITALIAN COLONIAL EMPIRE.*)

(H. Ko.)

Alberta. Most westerly of the three prairie provinces of Canada, Alberta was created by parliament in 1905. The area is 255,285 sq.mi., of which 6,485 are water; pop. 796,169 (1941 census), with 489,583 rural, 426,458 male; the 1946 dominion bureau of statistics estimate was 826,000. The largest city is Edmonton, provincial capital (1941: 93,817; 1943: 131,050). Administered by a lieutenant governor, an executive council and a 63-member legislative assembly, Alberta is represented by 17 members of parliament and 6 senators.

History.—Throughout 1946, Social Credit Premier Hon. E. C. Manning continued in office, producing a record surplus of \$10,310,856 for the fiscal year ending March 31. Political interest centred on the legality of the "Alberta Bill of Rights" passed at the spring session of the legislature. On Dec. 17 the Alberta supreme court validated Part I outlining the "rights of citizens to education and security," but invalidated Part II which planned to finance education and security with credit certificates backed by the province's resources. Premier Manning announced he would appeal to the privy council, though from 1935 that body had declared unconstitutional other attempts to practise Social Credit theories.

A nondelivery strike of 50,000 farmers, launched Sept. 7 by the Alberta Farmers' union, lasted several weeks, sought parity between farm costs and returns, but petered out. (C. Cy.)

Education.—In the school session 1943-44, the enrolment of pupils in all educational institutions was 171,940. The total revenue for provincially controlled schools in 1943 was \$11,996,605. The University of Alberta, with its seat at Edmonton, is the provincial university.

Agriculture.—In 1944 the total value of agricultural production was \$420,111,000; farm income, \$314,100,000. For 1945 the wheat crop was 80,000,000 bu. and the oats crop, 76,000,000 bu. The total value of field

crops in 1945 was set tentatively at \$174,622,000. Inspected slaughtering of livestock during the first 50 weeks of 1945 were: cattle 308,538; calves 71,677; hogs 1,434,677; sheep 108,047.

Minerals.—In the period Sept. 1944-Sept. 1945, coal production was 5,617,775 tons (1943-44, 5,240,353 tons). In 1944 oil production was 8,788,276 bbl.

Transportation and Communication.—In 1944 there were 5,682 mi. of railroads and 87,975 telephones. There were 81,094 mi. of highways in 1945.

Alcan (Alaska) Highway: see ROADS AND HIGHWAYS.

Alcohol, Industrial. The total output of industrial alcohol in the U.S. was restricted during 1946 by the shortage of grains, which were needed for relief supplies and feed. Total tax-paid industrial alcohol production was 329,386,000 gal. in the year ending July 1, 1946, compared with 683,431,000 gal. in 1945 and 298,270,000 gal. in 1941, when the war demand began. The rubber industry continued to use petroleum products and the cost of grain alcohol was too high for it to compete with other alcohols. Throughout 1946 grain prices were high and restrictions on the use of grains for alcohol making were severe. The use of wheat for alcohol making was prohibited after March 1, 1946. The amount of wheat used was up to more than 108,000,000 bu. in 1943 but dropped to 21,000,000 bu. in 1945. A part of the latter was used to make alcoholic liquors. The quantities of rice and other grains were also restricted for alcohol making. The government bought large quantities of potatoes to support the market in 1946 and by mid-September had diverted about 30,000,000 bu. to alcohol making. Efforts to increase the use of various agricultural surpluses for alcohol making were continued and some new processes appeared promising.

The Commodity Credit corporation purchased the surplus of blackstrap molasses from Cuba for alcohol making amounting to 115,000,000 gal. in 1946 and 165,000,000 gal. in 1947. The corporation also agreed to buy 10,000,000 gal. of alcohol to be delivered in 1946 and 20,000,000 gal. to be delivered in 1947.

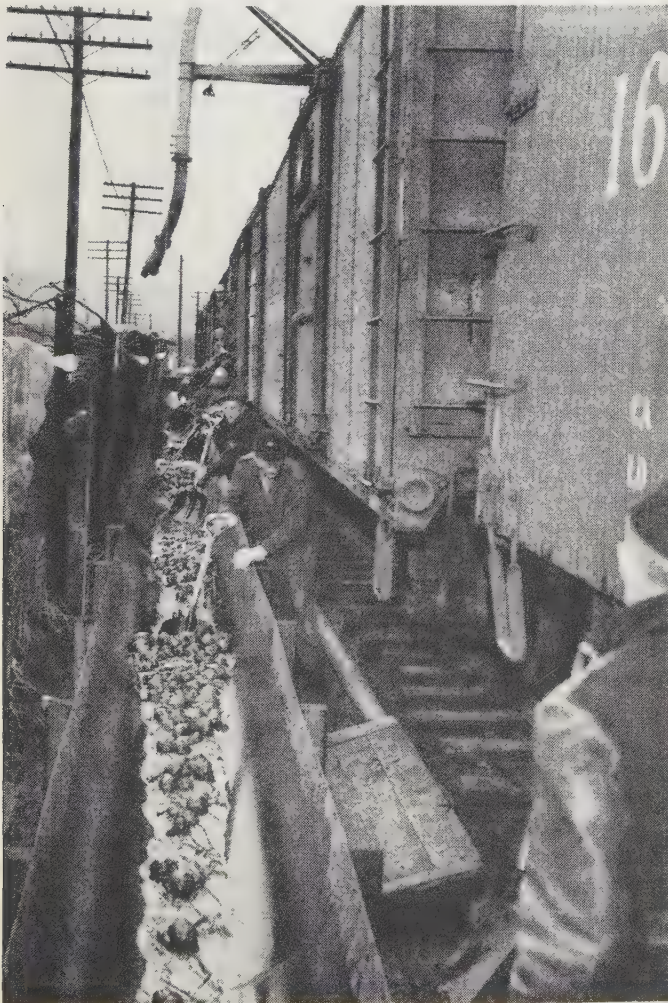
(J. C. Ms.)

Alcoholic Intoxication: see INTOXICATION, ALCOHOLIC.

Alcoholic Liquor: see BREWING AND BEER; LIQUORS, ALCOHOLIC; WINES.

Alekhine, Alexander (1892-1946), French chess champion, was born on Nov. 1 in Moscow. He fled from Russia after the revolution, and became a naturalized Frenchman in 1927. Rated one of the world's greatest chess players, he won the world championship from J. R. Capablanca in 1927, lost it in 1935 to Dr. Max Euwe, but regained it from Dr. Euwe in 1937. In the 1938 A.V.R.O. tournament in the Netherlands, he finished fourth, but came back to win first place in the 1940 Salzburg tournament. He dropped to second place in the 1942 Munich contest. In 1941, two articles bearing Dr. Alekhine's name attacking Jewish chess masters and criticizing the alleged "Jewish influence" on the game were printed in a German language chess magazine distributed on the continent. Dr. Alekhine subsequently asserted that the Germans had twisted his language and had inserted the offensive anti-Semitic utterances. Before his death he had been working on his memoirs and was training to meet the Russian chess champion, Michael Botvinnik, in England. He was found dead in his hotel room in Estoril, Portugal, of a heart ailment on March 24. See *Encyclopædia Britannica*.

Alemán, Miguel (1902-), Mexican statesman, was born in Sayula, Vera Cruz state, the son of a shopkeeper who became a revolutionary general. Graduated in 1928 from the law school of the National University of Mexico, he was admitted to the bar in the same year. Entering politics after a successful legal career climaxed by his appointment as a justice in the federal appeals court, he was elected to



SLUICING POTATOES down a metal trough at the Joseph S. Finch distillery at Schenley, Pa., in 1946, in the process of producing alcohol from them

the senate, but resigned in 1936 to become governor of Vera Cruz state. Four years later, Alemán also resigned from this office to become campaign manager for Gen. Manuel Avila Camacho during the presidential campaign of 1940. Upon his election, Avila Camacho named Alemán as minister of interior and minister of government. During World War II, Alemán was a staunch supporter of the Allies and in June 1945, he began his campaign for the presidency. In the elections, held July 7, 1946, Alemán defeated his opponent, Ezequiel Padilla by an overwhelming margin. Upon his inauguration (Dec. 1, 1946), the new president reassured Mexican workers that they would continue to have state protection, but asserted that his government intended to "maintain the interests of the country above those of individuals or groups."

Aleutian Islands: *see* ALASKA.

Alexander, Albert Victor (1885–), British statesman and politician, was born May 1, in Weston-super-Mare, England. At the age of 18, he worked for the Somerset County Education committee, staying with that organization for 17 years. He joined the army during World War I, rising from the rank of private to that of captain. After the armistice, Alexander became interested in the co-operative movement and was made parliamentary secretary of the Co-operative congress in 1920. In 1922, he was elected to parliament as a Co-operative party candidate.

He was first lord of the admiralty in the MacDonald government, 1929–31, and after losing his seat in the Labourite defeat of 1931, he resumed his association with the Co-operatives. He was elected again to the house of commons in 1935 and in 1940 Churchill renamed Alexander first lord of the admiralty.

After the Labourite victory in July 1945, Alexander again headed the admiralty, this time in the Attlee government. In the summer of 1946, he temporarily replaced Ernest Bevin, who was in ill-health, at the 21-nations peace conference in Paris. Clement Attlee created a ministry of defense on Oct. 4, 1946, appointing Alexander at its head with control of the three armed services—army, navy and air force.

Alexander, Harold Rupert Leofric George,

VISCOUNT, OF TUNIS (1891–), British field marshal and governor-general of Canada, was born on Dec. 10, 1891, the third son of the fourth earl of Caledon. He was educated at Harrow and Sandhurst and took his commission in the Irish guards in 1911; during World War I, when he commanded a battalion of his regiment on the western front, he was twice wounded and received the distinguished service order, military cross and the Legion of Honour.

In 1939 he led the 1st division to France; the final defense and evacuation of Dunkirk was organized by him, and he was among the last to leave the beaches. Between Dec. 1940 and Feb. 1942 as general officer commanding in chief, southern command, he initiated in the battle school the new scheme of training for scientific warfare. At the end of Feb. 1942 he arrived in Burma to extricate the hopelessly outnumbered British army from a campaign already lost. In Aug. 1942 he was sent to the middle east as commander in chief; under his direction the 8th army won the decisive victory of El Alamein and pursued the German and Italian forces to Tobruk, Bengasi, Tripoli and the border of Tunisia. As deputy commander in chief to General Eisenhower and field commander of the British, U.S. and French armies in North Africa, he carried through the Allied offensive which led to the fall of Tunis and the surrender of the axis; as commander of the 15th British, Canadian and U.S. army group

he directed the invasion of Sicily in July and of Italy in Sept. 1943. Under his command the Anglo-American 5th army and the British 8th army fought their way to north Italy. He was made field marshal after the capture of Rome on June 4, 1944, and in December he became supreme commander, Mediterranean theatre; he imposed unconditional surrender on the German southwestern armies in May 1945. In Aug. 1945 he was appointed governor-general of Canada. A viscounty was conferred upon him in the New Year honours of 1946, and on March 10 he was given the freedom of the City of London.

In December he was made Knight of the Garter; as he was unable to attend the investiture, his insignia were sent to him in Canada.

Alfalfa. The 1946 U.S. crop of alfalfa hay was estimated by the U.S. department of agriculture at 31,817,000 tons which was 8% less than the 34,462,000 tons harvested in 1945 but 6% above the 10-year average 1935–44 of 29,886,000 tons. The total acreage harvested was 14,440,000 ac. in 1946, 15,261,000 ac. in 1945 compared with an average of 14,203,000 ac. for the 10 years 1935–44. The average yield was 2.20 tons per acre compared with 2.26 tons in 1945 and an average of 2.10 tons. The crop was below average in a large area extending from Ohio to Minnesota and from Colorado to Oregon. Most states outside of these areas had above-average yields. California reported the high yield of 4.60 tons per acre, mostly from irrigated land, and New Mexico had an average yield of 3 tons per ac. The price of hay advanced during 1946 at a moderate rate. The average price of loose alfalfa hay in Jan. 1946 was \$18.40 per ton for the whole United States and \$20.00 in Nov., ranging from \$10.30 per ton in North Dakota to more than \$30.00 per ton in the Carolinas where the crop was short.

U.S. Production of Alfalfa Hay in Leading States, 1946, 1945 and 10-year Average, 1935–44

			(In thousands of tons)					
State	1946	1945	10-yr. average	State	1946	1945	10-yr. average	
California . . .	4,623	4,309	3,431	Colorado . . .	1,255	1,349	1,271	
Idaho	2,010	1,949	1,885	Illinois	1,200	1,277	1,054	
Minnesota . . .	1,917	1,942	2,386	Montana . . .	1,139	1,290	1,004	
Nebraska . . .	1,786	1,982	1,262	Utah	898	989	971	
Iowa	1,615	1,856	2,037	Ohio	840	942	898	
Kansas	1,569	1,789	1,105	Washington . .	809	808	713	
Wisconsin . . .	1,517	2,112	2,285	Indiana	773	*831	804	
Michigan . . .	1,404	1,907	1,896	New York . . .	695	869	736	

The alfalfa seed crop made a new record of 1,658,400 bu. in 1946, 9% above the record of 1939 and 40% above 1945. The favourable weather permitted a record acreage of 1,070,000 ac. to be harvested which was 40% above the average. The yield averaged 1.55 bu. for the country as a whole, with 3.70 bu. in California, 2.80 bu. in Utah and 2.75 bu. in Texas. Kansas, the leading seed-producing state, averaged 1.50 bu. per ac. (*See also* HAY.) (J. C. Ms.)

Algeria: *see* FRENCH COLONIAL EMPIRE.

Alien Property Custodian, Office of: *see* FOREIGN INVESTMENTS IN THE UNITED STATES.

Aliens. **Alien Registration.**—All aliens remaining in the U.S. for 29 days or longer are required to register under the provisions of the Alien Registration act of 1940. The initial registration for aliens began on Aug. 27, 1940, and continued through Dec. 26, 1940. During this period, 4,889,770 aliens registered as residents of continental U.S. Factors determining the alien population are net immigration, naturalization and mortality. By using the true figures for immigration and naturalization, and estimating the alien mortality for the period of registration, it is possible to arrive at the approximate alien population. On such a basis it is estimated that there were

approximately 3,000,000 resident aliens in continental U.S. on June 30, 1946. This estimate does not take into account persons there temporarily; that is, nonimmigrants, border crossers and imported labourers.

Naturalization.—Naturalization was granted in the U.S. and overseas to 150,062 persons during the fiscal year ended June 30, 1946. This was a marked decrease from the highest recorded figure of 441,979 naturalizations which occurred in the fiscal year ended June 30, 1944. Of the naturalizations granted in 1946, 134,849 were of civilians. During the year, 6,575 petitions for naturalization were denied; there were 9,782 denied in the fiscal year ended June 30, 1945.

The Second War Powers act, approved March 27, 1942, made available temporarily, an expeditious naturalization procedure to noncitizens serving in the armed forces of the U.S. For the fiscal year ended June 30, 1946, 13,159 members of the military and naval forces residing in the U.S., Alaska, Hawaii, Puerto Rico and the Virgin Islands were admitted to citizenship on the basis of petitions filed with naturalization courts. In addition, a total of 2,054 persons serving abroad with the armed forces of the U.S. were admitted to citizenship by designated representatives of the immigration and naturalization service under the administrative process. Naturalizations were granted in the following areas: Belgium 92; England 77; France 434; Germany 447; Italy 77; other Europe 18; China 49; India 216; Australia 60; Philippine Islands 506; other Pacific 2; all other countries 76. The number of aliens naturalized during the fiscal year 1946, with the principal countries to which such persons owed allegiance, are shown in the table below.

There were 186 naturalizations judicially granted which were revoked during the year, an increase of 21 as compared with the preceding fiscal year. In 162 cases the foreign service of the department of state initiated the action because naturalized citizens of the U.S. became permanent residents of foreign countries within five years after naturalization. In 21 cases the immigration and naturalization service initiated action because naturalization was fraudulently or illegally procured, and in three cases, because the persons were dishonourably discharged, following naturalization under sections 701 and 702 of the nationality act of 1940.

Nationality may be lost involuntarily through commission of treason against the U.S., or by desertion from the military or naval service of the U.S. in time of war, if convicted of the offense, or by departure from or remaining outside the jurisdiction of the U.S. in time of war or national emergency for the purpose of evading or avoiding training and service in the armed forces of the country. Nationality may also be lost voluntarily through the performance of various acts. In the fiscal year ended June 30, 1946, 1,113 persons expatriated themselves.

Petitions for naturalization, exclusive of overseas petitions by members of the armed forces, were filed by 123,864 persons. Declarations of intention filed in the fiscal year 1946 dropped

to 28,787, the lowest number recorded from 1907, which was the first year in which consolidated statistical records of naturalization were made. There were 31,195 declarations filed in the fiscal year 1945, 42,368 in 1944 and 115,664 in 1943.

Alien Enemies.—During the fiscal year 1946 the population of the civilian alien enemy internment camps increased by 4,939 including 61 persons born in the camps. The increase consisted mainly of persons from evacuation centres previously operated by the War Relocation Authority of the Department of Interior. During the same period 10,764 persons departed from the camps—6,224 for repatriation, 280 on parole, 35 for internment at large and 4,201 pursuant to unconditional release; and there were 24 deaths. 1,539 remained in custody at the close of the fiscal year—982 Japanese, 555 Germans, 1 Italian and 1 Hungarian. Of these, 146 (90 Japanese and 56 Germans) had voluntarily joined the interned head of the family; 891 had been apprehended in continental U.S. under presidential warrants; 492 had been brought from other American republics for internment as alien enemies deemed dangerous to the western hemisphere; and 10 had been brought from Hawaii (1) the European or South Pacific theatres of war (8) and from an enemy merchant vessel (1) taken into custody early in the war. Only two civilian internment facilities remained in operation at the close of the fiscal year.

Most of the Japanese who remained in internment had renounced their U.S. citizenship and were being held for repatriation pending the action of the federal courts on questions concerning the legality of their forced removal from the U.S. under the Alien Enemy Act of 1798. Most of the Germans remaining in internment had appealed the action of the attorney general in ordering their removals and their cases were awaiting action by the U.S. supreme court.

New Legislation.—The act of Dec. 29, 1945 (International Organizations Immunity act) authorized the temporary admission of persons designated by foreign governments to serve as their representatives in or to certain international organizations, officers and employees of such organizations, and members of the immediate families of such representatives, officers and employees, and granted them the same privileges, exemptions, and immunities concerning entry into and departure from the U.S., alien registration and fingerprinting, and registration of foreign agents, that are accorded officers and employees, respectively, of foreign governments, and members of their families.

The act of April 30, 1946 (Philippine Trade Act of 1946) provided for the admission to the U.S., as nonquota immigrants, of certain citizens of the Philippine Islands who had actually resided in the U.S. continuously for three years during the period beginning June 1, 1938, and ending Nov. 30, 1941. These benefits also were extended under certain conditions to the wives and unmarried children under 18 of such Philippine citizens. Application for admission under this act had to be made before July 4, 1951.

Another act of April 30, 1946 (Philippine Rehabilitation Act of 1946) provided that until June 30, 1950, a limited number of Filipinos might be admitted to the U.S. temporarily, without regard to the immigration laws except laws relating to alien registration and fingerprinting, for instruction or training under the supervision and at the expense of the U.S. government.

The act of June 29, 1946, authorized the prompt admission to the U.S. for a period of three months, of the alien fiancées or fiancés of citizens of the U.S. who had served honourably or were so serving in the armed forces of the U.S. during World War II. The benefits of the act are conferred only when the alien is not subject to exclusion under the immigration laws, the applicable nonpreference portion of the quota is exhausted and the alien intends in good faith to contract a valid marriage to

*Aliens Naturalized During Year Ended June 30, 1946,
by Countries or Regions of Former Allegiance*

Countries or regions of former allegiance	Total Naturalized	Civilian	Military	
			In U.S. under Sec. 701	Abroad under Sec. 702
All countries	150,062	134,849	13,159	2,054
Austria	6,357	6,202	133	22
British Empire	31,321	27,100	3,612	609
China	599	265	287	47
Czechoslovakia	4,165	3,937	189	39
Germany	17,464	16,707	656	101
Greece	3,313	3,058	223	32
Hungary	3,385	3,299	67	19
Italy	23,099	21,940	961	198
Mexico	5,135	2,682	2,065	388
Philippine Islands	2,644	43	2,364	237
Poland	12,907	12,501	353	53
Union of Soviet Socialist Republics	7,404	7,172	201	31
Yugoslavia	2,524	2,371	136	17
Other Countries	29,745	27,572	1,912	261

such U.S. citizen. Application for such admission had to be made before July 2, 1947.

The act of July 2, 1946, provided that Filipino persons or persons of Filipino descent and persons of races indigenous to India shall have the right to become naturalized citizens; exempted certain Filipino persons or persons of Filipino descent from the naturalization requirements relating to declaration of intention and certificate of arrival; and defined the classes of persons to be chargeable to the immigration quotas of India and China.

The act of July 31, 1946, added subdivision (i) to section 201 of the nationality act of 1940. The new subdivision conferred citizenship upon a child born abroad to an alien parent and a citizen parent who had served or was serving honourably in the armed forces of the U.S. during World War II, if the citizen parent had previously resided in the U.S. for 10 years, at least 5 of which were after attaining the age of 12 years.

The act of Aug. 7, 1946 (amending the act of Feb. 27, 1925) increased the powers of officers of the immigration and naturalization service to arrest certain aliens without a warrant and to search vessels, railway cars and other conveyances.

The act of Aug. 7, 1946 (amending section 323 of the nationality act of 1940) provided for the expeditious naturalization prior to Aug. 7, 1947, of former citizens who had lost their citizenship by voting in a political election in a foreign state other than a state at war with the U.S. during World War II.

The act of Aug. 7, 1946 (amending section 2 of the act of Dec. 17, 1943) granted nonquota immigration status to Chinese wives of U.S. citizens. (See also CENSUS DATA, 1946; WAR RELOCATION AUTHORITY.) (U. C.)

Great Britain.—The number of aliens registered with the police by Nov. 1946 was 257,742 (males, 142,531; females, 115,211). The figure at March 31, 1946, was 276,033, and at March 31, 1945, 282,264. The principal nationalities represented were: Austrian, 16,096; Belgian, 10,495; Chinese, 12,862; Czechoslovak, 10,122; Dutch, 12,226; French, 12,781; German, 36,059; Italian, 17,807; Norwegian, 9,398; Polish, 23,276; Russian, 39,426, and American, 13,438. Members of the diplomatic and consular services of foreign governments, members of the British and Allied forces (not being on leave for a period exceeding 16 days) and British-protected persons were exempt from registration. Visitors other than enemy aliens were not required to register unless their stay exceeded two months. By an order of Feb. 9, 1946, women who had lost their British nationality by reason of marriage were exempt from registration; 19,034 registrations were cancelled under this order.

Responsibility for the re-settlement in civil life either in the United Kingdom or elsewhere of members of the Polish forces serving under British command who were unwilling to return to Poland was accepted by the British government. The total number involved was estimated at 170,000. Of these more than 20,000 volunteered to return to Poland, and repatriation proceeded at the rate of 3,000 to 4,000 a month. There were in addition 20,000 dependents to be brought from Italy and elsewhere.

The Aliens order, 1946, reintroduced the prewar requirement, that a foreigner entering the country for employment must be in possession of an employment permit issued to his employer by the ministry of labour and national service. During the first six months following the order 7,601 permits were issued. Of these 5,522 were for domestic servants, 729 for entertainers coming for short engagements and 386 for student employees.

There were approximately 30,000 applications for naturalization and between 40 and 50 applications were lodged daily. The number of new applications for the six months to Sept. 30, 1946, was 8,025, compared with a yearly average of 1,708 before

World War II. The number of certificates granted during the year was 4,170. Special arrangements were made to consider claims for priority either because of service in the British forces or in the merchant navy, or because of the contribution made by the applicant to the war effort or to the economic welfare of the country. The rate of naturalization was officially stated to be 7,000 a year.

During 1946, 257 persons were deported under deportation orders. Twenty-three enemy aliens out of a total of 27,568 interned for precautionary reasons were still interned under the royal prerogative. In two cases legal proceedings were taken to challenge internment and repatriation; the others were hospital cases. (W. B. L.)

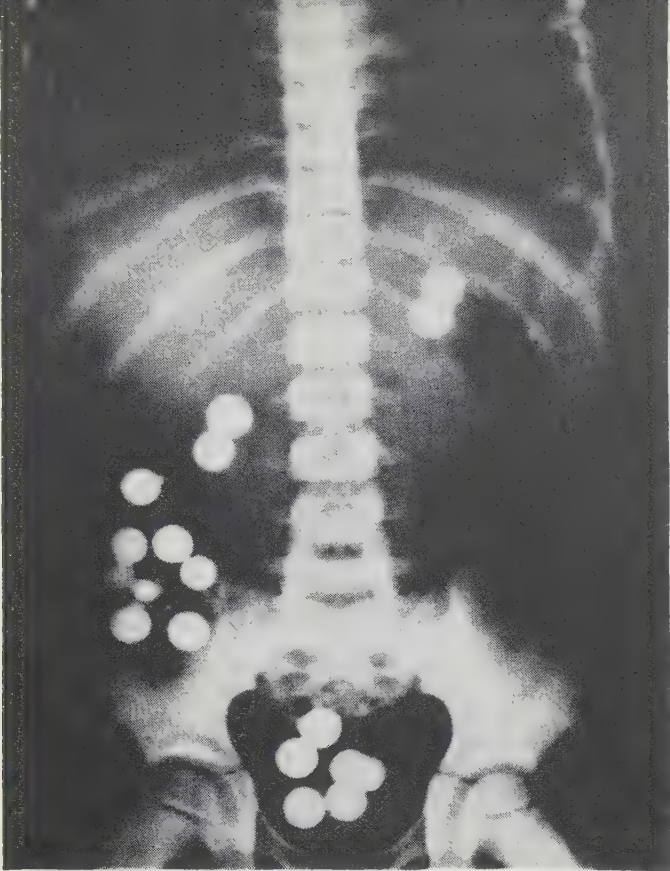
Alimentary System, Disorders of. The Oesophagus.

During a recent period of ten years, 44 patients with benign stricture of the oesophagus came under E. B. Benedict's observation. During this same period, 128 patients with carcinoma of the oesophagus were seen by him. Almost all of the former group were more than 50 years of age; hence it was necessary to rule out carcinoma by oesophagoscopy and biopsy. Difficulty in swallowing was the chief symptom of patients with benign stricture. Both benign and malignant diseases of the oesophagus appear to be relatively infrequent in women. Of the 44 patients with benign stricture, 31 were men and 13 women; of the 128 patients with carcinoma, 107 were men. In the series of 44 cases of benign stricture, hiatus hernia also was present in 17 cases, duodenal ulcer was present in 15 cases and oesophageal ulcer was present in 8 cases. Oesophagitis was present invariably.

The treatment recommended consisted of initial bougienage (dilatation with a bougie) through the oesophagus, preceded by the local application of sulfadiazine, a diet consisting exclusively of bland strained foods, and the complete elimination of the use of tobacco and alcohol. This treatment also was supplemented by the use of a bougie or dilator passed over a thread previously swallowed to serve as a guide. The hazard of blind bougienage was emphasized.

The Stomach and Duodenum.—Gastroduodenal ulcer continued important in gastroenterologic medicine, and rightly so because of its prevalence and its unfavourable effect on the comfort, efficiency and risk to life of about 10% of the adult population. Largely on the basis of an increase in admissions to hospitals and personal observations or convictions, the impression prevailed that there had been an actual increase in the incidence of peptic ulcer, and in that of duodenal ulcer in particular. While such might be the case, definitive proof of this was lacking since proof would presuppose an investigation that would include a broad sampling of the general population involving thousands of cases selected from material which had been submitted to intensive study by approved modern methods. Such an obviously extremely difficult study had never been made up to 1947.

Current articles rightly emphasized the importance of keeping an ulcer of the stomach or duodenum healed once successful initial treatment had been accomplished. The need for reliable data on the incidence of recurrences of ulcer following conservative methods of treatment was apparent. Published reports bearing on this phase of the subject, several of them documented with statistical evidence revealed disappointing results. Lately, P. J. Raimondi and M. F. Collen observed that among 151 patients studied for one to two and three-fourths years, approximately 66% had recurrences within a year. Such a large percentage of relapses is probably in great measure the result of inadequate treatment, as well as failure to cultivate the co-operation of the patient properly. One is reminded of Berk-



X-RAY PICTURE showing marbles in alimentary canal of Edward Travis of Peekskill, N.Y., a nine-year old boy who had swallowed them on a dare in May 1946

eley George Moynihan's criticism in 1932; namely, that the failure of medical treatment was attributable to its insufficiency.

Vagotomy in the treatment of chronic refractory ulcer continued to interest physician and surgeon alike. It was somewhat too soon to determine the ultimate effect of this operation, not only on the lesion itself but on eventual gastric form and function, or to be able to predict the future extent to which the operation would be utilized. So far, reports emanating from various authoritative sources were generally favourable and encouraging.

The Pancreas.—Of all the diseases giving rise to abdominal manifestations, those of the pancreas continued to be the most difficult of recognition. This is in large measure due to the inaccessibility of the organ and its secretions to examination, and to the frequent omission of the gland in diagnostic orientation. Current knowledge of the pancreas in health and disease was embodied in a small volume by H. O. Lagerlöf and was considered in an article by M. W. Comfort, E. E. Gambill and A. H. Baggenstoss.

Factors predisposing to inflammatory disease of the pancreas are cholecystitis, alcoholism and duodenal lesions, and, to lesser degree mumps, syphilis and tuberculosis. Acute pancreatitis often is erroneously diagnosed as acute inflammation of the gallbladder, perforating peptic ulcer or acute intestinal obstruction. In cases of acute diseases, absence of objective evidence of disease of the gallbladder, of the upper part of the digestive tract, or of the kidneys presupposes exclusion of the pancreas as the offending organ. An increase of amylase in blood serum or urine is reliable corroborative evidence of pancreatic involvement. Lagerlöf maintained that the acute fulminating forms of pancreatitis frequently may be distinguished from acute cholecystitis by the greater intensity and duration of the pain and by the associated cyanosis, ileus and shock. Involvement of the terminal portion of the organ, or the tail, gives rise to pain in the left side of the upper part of the abdomen. The pain passes straight

through the abdomen or extends around to the back, a circumstance which enables prompt recognition of the true nature of the disorder by the experienced clinician. Lagerlöf described the following four main types: (1) cases with repeated acute attacks and symptom-free intervals, "relapsing pancreatitis"; (2) cases with periodic or continual discomfort in the abdomen, consisting mostly of pain; (3) cases, the main features of which are disorders in the internal or external secretion; (4) cases with no pancreatic symptoms, in which the pancreatic disease is discovered accidentally at operation or at necropsy, or by functional tests.

The contribution by Comfort and his associates is unique and instructive because it is a comprehensive analysis of the clinical and pathologic data in a series of 29 cases of chronic pancreatitis characterized by acute exacerbations from time to time, in the large majority of cases, and without associated disease of the biliary or gastroduodenal tracts of a degree sufficient to influence the clinical picture. The conclusions of these investigators were more or less consonant with those of Lagerlöf, and the authors concluded their article with the following optimistic note: "The diagnosis of chronic relapsing pancreatitis should be made with a high degree of accuracy, because of the highly characteristic clinical picture, including the characteristic painful exacerbations and the disturbances of function of the pancreas demonstrable during and between the acute exacerbations." (From Comfort, Gambill and Baggenstoss, *Gastroenterology*.)

The Intestine.—The small bowel, like the pancreas, is slowly but grudgingly yielding its secrets. However, much remained to be learned. The smallness of a volume by Ross Golden on the roentgenologic examination of this organ attests the lack of knowledge that still persisted. While there is still much to be desired in the roentgenologic examination of the small intestine, progress was made in the detection of such pathologic processes as benign tumours which often give rise to painless melaena, regional ileitis, nutritional disorders, such as sprue, obstructive processes of benign or malignant nature and Meckel's diverticulum.

The successful role of antibiotics in the treatment of disease processes of the colon is apparent. W. E. Palmer and W. L. Ricketts successfully treated three patients with chronic ulcerative colitis who had manifestations of generalized peritonitis by means of combined sulfonamide and penicillin therapy. B. Kirschner reported one case of acute fulminating ulcerative colitis in which treatment with streptomycin proved successful. According to W. H. Hargreaves, penicillin is an effective adjunct to the conventional drugs employed in the treatment of chronic amoebic dysentery.

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Allen, Sir Hugh Percy (1869-1946), British musician, was born on Dec. 23 at Reading. A former director of the Royal College of Music (1918-37), Sir Hugh at the time of his death was professor of music at Oxford university, a post he had held for 28 years. He also was president of the Royal College of Organists. He was popu-

larly known to British music lovers as conductor of the London and the Oxford Bach choirs and he had served the British Broadcasting corporation as chairman of the music advisory committee. He died in an Oxford hospital on Feb. 20. See *Encyclopædia Britannica*.

Allergy. During 1946 significant advances were made in the treatment of allergic conditions. First in importance was the recognition of the value of antihistamine drugs. It had long been believed that when the antigen (pollen as an example) encounters the sensitive cells of an allergic individual a substance known as histamine is suddenly liberated, causing the symptoms of allergy. Certain drugs were developed, among which were benadryl and pyribenzamine, which prevented the action of histamine, thus limiting or preventing allergic symptoms. Many investigators contributed to this study during 1946. C. E. Arbesman and his co-workers treated 495 patients with various allergic disorders. Nasal allergy was helped most. Less effective relief occurred in asthma, while only the milder cases of hives responded favourably. S. Friedman and S. M. Feinberg confirmed the effectiveness of the drug in itching skin conditions and in seasonal nasal allergy. All workers emphasized the fact that the effect was palliative and not curative.

Other advances in therapy were reported. D. State and O. H. Wangenstein obtained good results in 10 out of 15 patients with serum sickness by the injection of procaine intravenously. Improvement in the treatment of poison ivy continued to be studied. M. B. Sulzberger, R. L. Baer and A. Kanof reported the successful use of chloramide in ointments for the oxidation and chlorination of the poison ivy toxin. The drug had been used as an antivesicant in the U.S. army. M. B. Strauss and W. C. Spain reported an improvement in the plant extract for immunization purposes by using an aqueous suspension rather than an alcoholic extract of poison ivy.

While these advances in therapy represented positive contributions, the dangers and disadvantages of some measures were likewise reported. The widespread use of penicillin brought out the danger of the development of both general and local sensitivity to this substance. M. H. Kolodny and E. Denhoff found 32 allergic reactions in 124 patients who received penicillin intramuscularly. This high incidence of allergy was attributed to the presence of fungus infections in dermatologic cases. J. A. McGuire reported localized sensitivity of the hand following penicillin applications. Similarly L. Goldman reported allergy of the lips (cheilitis) following the use of a penicillin mouth rinse.

The danger from the use of the newly prepared virus vaccines grown in egg embryo was pointed out by A. J. Stull. He reported that the injection of such vaccines in egg-sensitive individuals may result in dangerous systemic reactions.

While these contributions emphasized the practical problems in allergy, work was also done on the fundamental questions and on the diagnosis of unusual allergic conditions. The importance of heredity as a background of allergy, while long recognized, was re-emphasized in a detailed study by K. A. Stiles and his co-workers. The authors studied the inheritance of respiratory allergies in 1 family of 5 generations with 232 persons. The incidence of allergy in this group was 22.4% in contrast with about 7% in the general population. They confirmed that the inheritance was for the general allergic predisposition rather than for the specific allergic condition and concluded that respiratory allergy behaves as an irregular dominant character.

In the field of diagnosis serious allergic involvement of the eye was reported by several workers. F. C. Cordes and R. Cordero-Moreno described four cases of atopic cataracts in

whom sensitivity to pollens and foods was established. L. Bothman studied six patients with iritis who were sensitive to pollens and moulds. Improvement of their condition occurred following adequate hyposensitization.

The occurrence of an allergic reaction in the joints to give the symptoms of subacute arthritis was described by L. H. Crip in four cases. The joint pains subsided after the elimination of foods to which these patients were sensitive.

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Allied Commission on Reparations: see REPARATIONS.
Allied Control Council: see ALLIED MILITARY GOVERNMENT.

Allied Council for Japan: see JAPAN.

Allied Military Government. In the year 1946 there was a shift from negative to positive civil affairs in military objectives in liberated and enemy countries. With the destruction of the enemies' military machines and the removal of the nazis, ultra-nationalists and militarists from the political and economic life, the long-term Allied program to aid these countries in qualifying for membership in the community of nations assumed dominance. In aid of the democratization objective, the defeated enemies were granted more and more responsibility for their own political and economic existence; the role of the occupying forces was contracted more and more towards its long-term function of guarantors of the maintenance of democratic processes and supporters for attainment of self-sustaining economies stripped of war potentials.

There was little change in the area of responsibility of the United States. In 1946 the United States was participating in the government of 200,000,000 people in the occupied areas of Italy, Korea, Austria, Germany and Japan. In Italy there were only two provinces under Allied control pending territorial settlements; controlled in the north by the U.S.S.R. and in the south by the United States, Korea was without political experience and a corps of trained government personnel to assume complete responsibility for its government; Austria, although divided into four zones for occupation purposes, was governed by a freely elected Austrian central government, which was subject to control by the Allied high commissioners pending execution of a peace treaty. The German reich and its central agencies disappeared with defeat of its army. In 1946 that country was controlled by the four-power Allied Control council in Berlin when inter-Allied agreement was possible, or on a zonal basis when agreement was not possible. The United States administered Japan as a unit with the assistance and advice of its Allies on matters of policy.

In Washington, D.C., the war department and the state and navy departments were the triumvirate formally banded together in a committee, known as S.W.N.C.C. (State-War-Navy Coordinating committee), which provided the policy, direction and guidance for U.S. military occupational commanders in Europe and in the far east. Also the war department, through its daily cable contact with its field commanders, reflected the practicalities and administrative limitations of U.S. occupation forces and brought this point of view to S.W.N.C.C. wherein the political and economic views were secured from the state



ALLIED PATROL TEAM, composed of a British, a Russian, a French and a U.S. military policeman, chat before starting their tour of duty through the British zone of Vienna in 1946

department. In March a new assistant secretaryship for occupied areas was created in the department of state. While the executive responsibility remained military, many civilians were hired in the United States and sent to the occupied areas to relieve military personnel. In the fall of 1945, there had been approximately 30,000 U.S. military personnel engaged in civil affairs in occupied areas. As rapidly as security considerations permitted, civilian personnel was employed so that the control would be more representative of all interests in the United States. Too, as conditions permitted transfer of responsibilities to indigenous governmental agencies, the over-all number of U.S. nationals employed in civil affairs was decreased. By the summer of 1946, the total employed in civil affairs had been reduced to 18,000, of whom 11,000 were military and 7,000 civilian. By fall, this number had been reduced to 13,500, of whom 7,800 were military and 5,700 civilian. The occupation forces of 730,000, deployed tactically throughout the areas, of necessity were military.

The Allies were faced at the outset with the repatriation of 10,000,000 civilians and almost 10,000,000 enemy military personnel. The enemies had, through varying degrees of coercion, imported millions of enforced labourers and had sent out millions of their own nationals to exploit occupied areas militarily and economically. Identification, care, and control of these displaced persons of Allied, friendly, neutral, and other non-enemy nationals at times taxed the facilities of the entire civil affairs and occupational forces organizations. These people reported to displaced persons camps only when they found it expedient to do so; too, there was constant and unauthorized movement across

zonal barriers. At the end of 1946, the task of moving this huge mass of people was more than 80% completed. Of displaced persons 6,000,000 had been repatriated from Germany, 3,500,000 of whom were from the U.S. zone. At the close of the year 550,000 remained in the U.S. zone, voluntary nonrepatriables who for political, economic or other reasons did not desire to return to their homes and who, under United States policy, had not been forced to do so. In the far east, 1,000,000 Koreans were repatriated from Japan. In addition to the displaced persons, the occupation forces had the task of moving hundreds of thousands of enemy nationals expelled from other countries. Of German civilians 1,500,000 were expelled from the Sudetenland, Czechoslovakia and elsewhere in Europe and moved to the U.S. zone of Germany; and 2,500,000 Japanese civilians were moved from Korea, China and elsewhere in the far east to Japan.

The civil affairs responsibility of most immediate interest within the United States was the purging of nazis and Japanese ultra-nationalists both from government and positions of influence in commerce and industry. These were the people charged with guilt for the war; the party members, collaborators and other adherents; the jingoists, chauvinists and expansionists. In the U.S. zone, Germany, of 1,456,467 persons in government and business investigated by military government, 373,762 were disqualified for government position or private position higher than that of labourer. Denazification in the U.S. zone was so far advanced and responsible German government of the zone so well established by the summer of 1946 that further denazification was delegated to the Germans to act under supervision and direction of the military governor. In Japan, where a government was found intact and willing to

carry out the orders of the supreme commander, purging of ultra-nationalists was from the outset made a responsibility of the Japanese acting under direction of the supreme commander. By the close of the year, 186,000 Japanese had been dismissed from government positions.

At the end of the year, the military forces of the enemy had been demobilized and the organization destroyed. In Germany the United States forces processed 7,818,752 prisoners of war. At the end of September 62,419 were being retained in labour units to assist the U.S. occupation forces.

Allied policy was to destroy or to remove as reparations all war and other plants surplus to the permissible peacetime needs of the enemies' economies. In this period much was accomplished in destruction of war plants and reparations. Of the 98 war plants in the U.S. zone of Germany, 64 were destroyed. In addition, 698 plants in the three western zones, 157 of which were in the U.S. zone, were labelled available for reparations, and the first shipments made to allottee nations. At the end of the period, further shipments were suspended pending agreement on the economic unification of Germany with which reparations were inextricably bound. In Japan, the enemy armed forces had been demobilized but destruction of war plants and reparation removals were awaiting soviet participation in an international reparations conference.

During the year much progress was made in the establishment of representative and responsible governments. In aid of this democratization program, a free press and democratic education system was developed and religion stripped of state control. The Japanese, in their 35-year occupation of Korea, pursued a policy which prevented the training of Koreans in government unless they demonstrated affection for Japanese control and disaffection for an independent Korea. The basic U.S. policy was to sponsor political growth among the Koreans and to train Koreans to administer their own government. By the close of the year 1946, there were Koreans in every department of government to whom was delegated all possible responsibility; political parties were organized and their leaders were advising the U.S. commander. The interim legislature for southern Korea was convened in Dec. 1946. Half of the members of this legislature were elected by the voters in the U.S. zone and the remainder appointed by the commanding general, U.S. army forces in Korea. After the liberation of southern Korea, U.S. forces dismissed the 70,000 Japanese and disaffected Koreans found in government office; all Japanese were dismissed from business and other private employment and all Japanese were repatriated from southern Korea. In Japan, much progress was made in the democratization of the dictatorial government. Political parties were permitted to organize; democratic national elections, in which women participated for the first time, were held and the constitution, rewritten to include democratic principles, was passed by the Japanese diet in October and announced by the emperor to the Japanese people in November. A revived press, freed of traditional control, played an important role in informing the public of the issues and in constructive criticism of the constitution.

Italy was, at the close of the year, under control of its own elected government, subject to authority exercised for security of Allied troops by the Allied commander in one small area. The Austrians elected a government which assumed responsibility for administration of the nation. In Germany, while Allied disagreements prevented the creation of German central administrative agencies as provided for by the Potsdam declaration, political parties were organized by states and were active in all the zones. The United States led all other zones in political development in Germany. In its zone, governments were elected for towns less than 20,000 in January; for county governments

in April; for cities more than 20,000 in May and for each of the three German states in the U.S. zone in November. As soon as the governments in the three states would have selected their ministries, all officials appointed by military government would have been replaced by officials elected by the people or by their representatives. Members of constitutional assemblies were elected in June in each of the states of the U.S. zone to draft democratic constitutions. These constitutions were drafted, submitted to the people and ratified in November and December. In October, elections for representatives to the city council and the 20 borough councils of Berlin were held. These were the first elections held in Berlin after the inception of the occupation and also the first elections held in Germany under the combined auspices of the four occupying powers.

Accompanying the program to make the defeated enemy peoples responsible for their government, exercising only that control necessary to assure continuance of democratic processes, there was a drive to make them responsible for their own economic existence. In both Germany and Japan access to the raw materials of the world was granted as rapidly as supplies were available and as rapidly as their industrial plants, reshaped and stripped of their war potentials, were able to use them. In addition to lack of raw material imports, the Germans suffered a critical shortage of transportation because of war damage and lack of fuel. Zonal shortages of fuel and, in part, materials were caused by the zonal boundaries of the occupying powers. The Potsdam declaration provided for administration of Germany as a political and economic unit. Economically and administratively, the four zones of Germany were interdependent. The zones were established to determine only troop occupation responsibility of the several Allies; insofar as these lines had been used to establish administrative and economic barriers, they impeded attainment of almost all the basic objectives of the Allies. Secretary of State Byrnes announced at Stuttgart in late summer the determination of the United States to provide for integration of the administration of Germany by the four powers insofar as possible and invited all the Allies to join with the United States. At that time the British agreed to a merger of the British and U.S. zones, to be effective Jan. 1, 1947.

In the program to make the occupied areas self-supporting, raw materials were being made available. As part of this program 890,000 bales of cotton were shipped from the United States to Japan, and 220,000 bales to Germany, the cost of the raw material to be repaid in finished products. In addition, imports valued at \$30,281,200, principally raw silk, were received in the United States from Japan, and \$2,458,641 from Germany. To stimulate further production of consumer goods and to make Germany self-supporting, businessmen were permitted to enter the U.S. zone of Germany for purchase of exportable commodities. Postal service between Germany and Japan and the outside world was expanded to include informational and non-transactional correspondence with respect to trade prospects and other messages looking toward the resumption of business relations.

Along with its other occupation duties, the Allies went ahead in 1946 in their determination to punish war criminals. Of major war criminals 49 were indicted for trial before international tribunals in Nuernberg and Tokyo. (*See WAR CRIMES.*)

One of the main objectives of military government in the occupied countries was to re-establish and encourage by positive means democratic life. The civil affairs division was responsible for the administration of a broad program of re-education to attain this end. To accomplish this the following means were being utilized and controlled: schools, churches, social organizations, cultural materials and mass media (press and radio, books and periodicals, films, theatres and music).

Before initiating this program of re-education, measures were

taken to remove individuals who had been closely identified with militarism or the totalitarian governments in the fields of education, information and religion. In Germany and Austria this was done through denazification and in Japan through the screening of teachers. Books and publications which expounded militaristic or ultra-nationalistic views were segregated. Publications licensed by military authorities in Germany, Austria and Japan were subject to post-publication censorship only. Militaristic and nationalistic propaganda, criticism of the Allied nations or of military government and violations of security regulations were forbidden. Within these limitations it may be said that a free press existed in those countries.

On the positive side much had been accomplished by the close of 1946. As of Nov. 1946, there were 44 newspapers with a circulation of 4,159,607; 238 periodicals and 1,664 books were licensed for publication by Germans in the U.S. zone of Germany. A newspaper, *Die Neue Zeitung*, with a circulation of 1,600,000, and 3 periodicals, *Heute*, circulation 400,000, *Amerikanische Rundschau*, circulation 200,000, and *Neue Auslese*, circulation 600,000, were being published by military government in Germany and the bulk of their materials was supplied by the civil affairs division. In addition, much feature and background material was sent to German newspapers. Special requests from the occupied areas for the publication of articles, books, periodicals and other material were handled and arrangements made for publication in the occupied areas. Of libraries and information centres 49 were already operating or were to be opened by the end of the fiscal year—20 in Germany, 4 in Austria, 1 in Trieste, 17 in Japan and 7 in Korea. In view of acquired responsibility for Okinawa and Trieste an additional library and information centre was expected to be opened in each of these places. These libraries were being supplied with a set of basic materials such as reference works and outstanding examples of democratic, particularly U.S., culture and achievement, comprising 3,000 vol. Each of these centres furthermore was being equipped with 200 to 300 U.S. periodicals, a collection of U.S. recorded music, a set of documentary and educational films, along with the necessary phonographs and projectors. Exhibits of U.S. painting and photography were also being provided for many of these information centres. Documentary films produced in the United States specifically for reorientation purposes were to be exhibited in theatres and also in information centres in the occupied areas. Many of these were primarily designed for use in the educational systems. A total of 622 licences for theatres were granted in Germany. Lending libraries of U.S. music were being set up in several key cities, with the scores available for borrowing.

Provisions were also made for the exchange of professors, students and cultural experts. This was limited to personnel going to the occupied areas from the United States for periods of two to six months for a specific task. It was contemplated that by July 1, a total of approximately 500 visiting specialists from the United States would have been sent as consultants to the occupied areas.

The elementary and secondary schools of Germany and Austria were opened and at the end of the first year had 97.4% and 93%, respectively, of the eligible pupils in attendance. More than 5,328,616 emergency textbooks were printed in Germany by military government for use in German elementary and secondary schools. Meanwhile, manuscripts were solicited from German educators and 842 were read and approved for current adoption and use. Of teacher training colleges 42 had been set up in the U.S. zone of Germany and had already produced 6,500 graduates to teach in German schools. Vocational and adult education was instituted on a large scale.

A project of assembling a collection of around 500 of the

best U.S. textbooks to be sent to 35 localities in the occupied areas was completed. The selection was made by groups of experts in elementary and secondary education from public and private schools. These books were designed as guides and examples for the native educators in the occupied areas whose responsibility it was to rewrite the textbooks for their own schools.

Youth activities under the direction of military government and with the co-operation of U.S. tactical troops were set up in each German county. These activities included sport, recreation, religious training and training designed to rehabilitate German youth. The total number of youth groups as of Sept. 1 was 2,901, with a membership of 500,000. These included revival of such organizations as Boy Scouts, Girl Scouts and Pathfinder groups.

Changes and reforms in the existing German educational system were also introduced by the responsible German authorities but with the encouragement of military government. These included an extension of state-sponsored free education for all social and economic classes, and for both sexes, the introduction of student self-government in the secondary schools and revisions of the structure of the educational systems in the various *Laender*. An education mission was sent to Germany in Aug. 1946 and in its report made recommendations for future action. A long-range policy statement for German education, published Aug. 13, 1946, stated the ultimate objectives of the educational policy. The constitutions adopted by all three of the German states in the U.S. zone in November and December made provision for a great extension of educational opportunity to all portions of the population, regardless of sex, social status or economic means.

In Austria the same program was followed in denazification, in revising the school system, in publications and information services generally.

In Japan many steps were taken to reform the educational system. Schools were demilitarized, state Shinto was abolished, textbooks and curricula were revised, co-education was extended and encouraged, private schools were operating with greater freedom than ever before and programs of adult education through radio, motion pictures, press and libraries were undertaken. The ministry of education set up advisory and reviewing bodies for carrying out the directives of S.C.A.P. (supreme commander for the Allied Powers). An education mission from the United States visited Japan at the invitation of the supreme commander and made recommendations for future developments in the field of education. Of periodicals, 1,780 with a circulation of 14,000,000 to 15,000,000 were appearing in 1946. Of the many newspapers published the 3 chief papers had a circulation of more than 8,000,000. Freedom of assembly, speech and religion were granted subject to the necessities of military security. The free criticism of the Japanese draft constitution indicated the extent of developments of a free press in Japan. The program of libraries and information centres was to be completed by the end of the year.

In all the occupied territories, freedom of religion was permitted and encouraged. As far as possible the ecclesiastical authorities in the occupied territories were given the responsibility of ridding themselves of any members of their faith who had been closely identified with militaristic and ultra-nationalistic activities. In every case the ecclesiastical authorities filled any vacancies in their churches subject only to the negative check of military government. Assistance was given in all of the occupied territories to the existing religious organizations in permitting conferences and meetings on church problems, pastoral letters and other religious publications and in the revival of youth activities. (See also JAPAN.) (D. NE.)

Allocations and Allotments: see PRIORITIES AND ALLOCATIONS.

Alloys: see BERYLLIUM; MAGNESIUM; METALLURGY; MOLYBDENUM; MONAZITE; NICKEL; TITANIUM; VANADIUM.

Almonds: see NUTS.

Aluminum. Production data became available during 1946 for most of the producing countries during the war years, and are shown in Table I. The peak of war demand was reached in 1943, at three times the prewar level, and subsequent declines brought the 1945 output down to a figure that was of the same general order as was expected for postwar operations.

Table I.—World Production of Aluminum

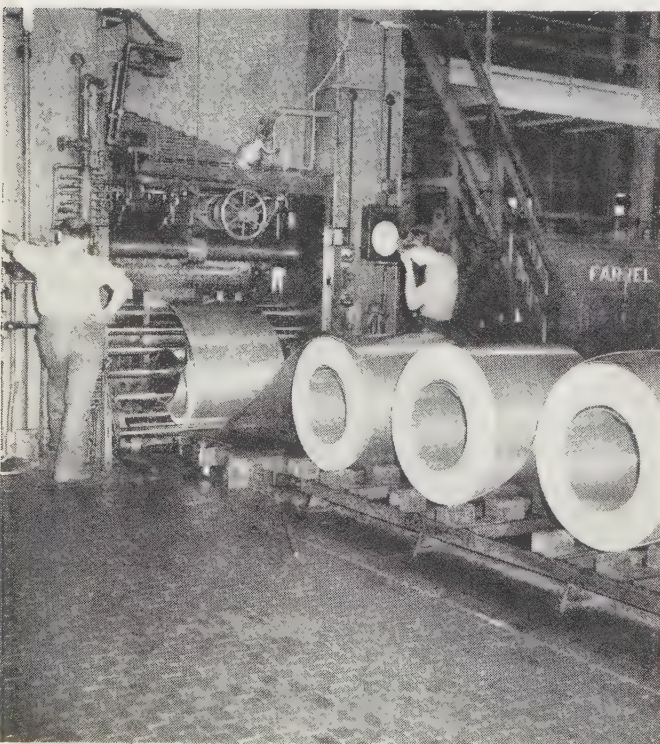
	(Thousands of short tons)						
	1939	1940	1941	1942	1943	1944	1945
Canada . .	82.8	109.1	213.9	340.6	495.8	462.1	215.7
France . .	55.1	68.1	70.5	49.9	51.2	28.8	41.0
Germany . .	231.5	232.9	246.5	290.9	275.6	269	?
Great Britain . .	27.6	21.3	25.8	52.6	62.7	39.7	357
Italy . . .	37.7	42.8	53.1	48.0	38.6	22	?
Japan . . .	25.4	38.8	72.2	101.9	146.4	150.8	?
Norway . .	34.3	30.6	19.3	22.6	25.9	22.1	?
Switzerland . .	30.8	30.9	26.7	26.5	22.0	16.5	?
U.S.S.R. . .	80.5	66.1	55.1	60.6	68.7	78.3	95.1
United States . .	163.5	206.3	309.1	521.1	920.2	776.4	496.5
Others . . .	8.2	8.1	10.2	11.5	16.2	18.6	?
Total . .	777.4	855.0	1,102.4	1,526.2	2,123.3	1,884.3	1,010

Table II.—Data of Aluminum Industry in U.S., 1940-45

	(Thousands of short tons)					
	1940	1941	1942	1943	1944	1945
Production, primary . . .	206.3	309.1	521.1	920.2	776.4	496.5
Imports	17.4	13.4	112.1	135.6	100.9	334.1
Exports	26.9	7.4	38.7	117.6	188.1	5.7
Producers' stocks . . .	-30.2	+12.2	+5.5	+60.8	-55.3	+28.8
Available new supply . .	227.0	302.8	589.0	877.4	744.6	796.1
Secondary recovery . . .	80.4	106.9	196.5	314.0	325.6	298.4
Total supply	307.4	409.7	785.5	1,191.4	1,070.1	1,094.5

United States.—A brief cross section of the progress of the industry in the U.S. is given in Table II.

In the disposal of the government-owned plant capacity built for war production, efforts were made to strengthen the com-



SCENE IN AN ALUMINUM sheet mill near Chicago, showing a machine cold rolling sheets of aluminum during 1946. Most of the raw material was aluminum battle scrap from war planes

petitive position of the industry.

As a result of the increased production capacity and reduced prices, postwar uses were expected to expand, especially in applications where saving of weight is a factor. (See also METALLURGY.)

(G. A. Ro.)

Ambassadors and Envoys. The following is a list of ambassadors and envoys to and from the United States and to and from Great Britain Jan. 1, 1947.

To and From the United States

To the United States	Country	From the United States
Aziz, Abdol Hosayn	Afghanistan	Palmer, Ely E.
*Ivanisovich, Don Oscar	Argentina	*Messersmith, George S.
*Makin, Norman J. O.	Australia	*Butler, Robert
Kleinwaechter, Dr. Ludwig	Austria	Erhardt, John G.
*Silvercruys, Baron Robert	Belgium	*Kirk, Admiral Alan G.
*Martinez Vargas, Don Ricardo	Bolivia	*Flack, Joseph
*Martins, Carlos	Brazil	*Pawley, William D.
	Bulgaria	Barnes, Maynard B. ¹
	Canada	*Atherton, Ray
*Nieto del Rio, Don Felix	Chile	*Bowers, Claude G.
*Koo, Dr. V. K. Wellington	China	*Stuart, J. Leighton
*Sanz de Santamaria, Don Carlos	Colombia	*Wiley, John C.
*Gutiérrez, Don Francisco de P.	Costa Rica	*Johnson, Hallett
*Belt, Dr. Guillermo	Cuba	*Norweb, R. Henry
*Slávik, Dr. Juraj	Czechoslovakia	*Steinhardt, Laurence A.
Kauffmann, Henrik de	Denmark	Marvel, Josiah, Jr.
*García Godoy, Don Emilio	Dominican Rep.	*Butler, George H.
*Yllescas, Dr. Don Francisco	Ecuador	*Scotten, Robert M.
*Hassan Bey, Mahmoud	Egypt	*Tuck, S. Pinkney
*Castro, Dr. Don Héctor David	El Salvador	*Simmons, John F.
Kaiv, Johannes ²	Estonia	(Legation at Tallinn closed)
Imru, Ras H. S.	Ethiopia	Cole, Felix
Jutila, Dr. Kalle T.	Finland	Hamilton, Maxwell M.
*Bonnet, Henri	France	*Caffery, Jefferson
	Germany	Murphy, Robert D. ³
*Inverchapel, The Rt. Hon. the Lord	Great Britain	*Gardner, O. Max
*Economou-Gouras, Paul	Greece	*MacVeagh, Lincoln
*García Granados, Don Jorge	Guatemala	*Kyle, Edwin Jackson
*Charles, Joseph D.	Haiti	*Tittmann, Harold H., Jr.
*Cáceres, Dr. Don Julián R.	Honduras	*Erwin, John D.
Szegedy-Maszácz, Aladár	Hungary	Schoenfeld, H. F. Arthur
Thors, Thor	Iceland	(Vacancy)
*Baipai, Sir Girja Shankar	India	Merrill, George R. ⁴
*Ala, Hussein	Iran	*Allen, George V.
Jawdat, Ali	Iraq	*Wadsworth, George
Brennan, Robert	Ireland	Gray, David
*Tarchiani, Alberto	Italy	*Dunn, James Clement
	Japan	Acheson, George, Jr. ⁵
	Korea	Langdon, William R. ⁵
	Latvia	(Legation at Riga closed)
	Lebanon	Pinkerton, Lowell C.
	Liberia	Lanier, Raphael O'Hara
Zadeikis, Povilas	Lithuania	(Legation at Kaunas closed)
Le Gallais, Hugues	Luxembourg	Kirk, Admiral Alan G.
*Espinoza de los Monteros, Dr. Don Antonio	Mexico	*Thurston, Walter
	Morocco	Alling, Paul H. ⁶
*Loudon, Dr. A.	Netherlands	*Hornbeck, Stanley K.
Berendsen, Sir Carl A.	New Zealand	Warren, vva M.
*Savilla Sacasa, Dr. Don Guillermo	Nicaragua	*Warren, Fletcher
*Munthe de Morgenstjerne, Wilhelm	Norway	*Bay, Charles U.
*Vallarino, Dr. Don J. J.	Panamá	*Hines, Brig. Gen. Frank T.
*Acosta, Dr. Don Cesar R.	Paraguay	*Beaulac, Willard L.
*Prado, Don Jorge	Peru	*Cooper, Prentice
*Elizalde, Joaquin M.	Republic of the Philippines	*McNutt, Paul V.
	Poland	*Lane, Arthur Bliss
*Lange, Oskar	Portugal	*Baruch, Herman B.
*Bianchi, Dr. João Antonio de	Rumania	Berry, Burton V. ¹
Ralea, Mihail	Saudi Arabia	Childs, J. Rives
Al-Faqih, Sheikh Asad	Siam	Stanton, Edwin F.
*Sent Pramoi, Mom Rajawongse	Spain	*Bonsal, Philip W.
*Cárdenas, Don Juan Francisco de	Sweden	Dreyfus, Louis G., Jr.
Eriksson, Herman	Switzerland	Harrison, Leland
Bruggmann, Charles	Syria	(Vacancy)
Zurayk, Dr. Costi K.	Turkey	*Wilson, Edwin C.
*Baydur, Hüseyin Ragip	Union of South Africa	Holcomb, Gen. Thomas
Andrews, H. T.	U.S.S.R.	*Smith, Lt. Gen. Walter Bedell
	Uruguay	*McGurk, Joseph F.
*Novikov, Nikolai V.	Venezuela	*Corrigan, Frank P.
*Blanco, Dr. Juan Carlos	Yemen	Childs, J. Rives
*Falcón-Briceño, Dr. Don M. A.	Yugoslavia	*Patterson, Richard C., Jr.

*Ambassadors.
†Chargé d'Affaires ad Interim.
‡Foreign service officer.
§Acting consul general.
¶U.S. political adviser; with the personal rank of ambassador.
‡Chargé d'Affaires ad Interim; with the rank of minister.
§U.S. political adviser; consul general.
¶Diplomatic agent; consul general; with the rank of minister.

To and From Great Britain

To Great Britain	Country	From Great Britain
Sardar Mohammad Naim	Afghanistan	Squire, Sir Giles F.
*de Labougle, Dr. Ricardo	Argentina	*Leeper, Sir Reginald, W. A.
Schmidt, Heinrich ¹	Austria	Mack, W. H. B. ¹
*de Thiesies, Vicomte Alain O.	Belgium	*Knatchbull-Hugessen, Sir H. M.
Solares, Napoleon	Bolivia	†Ashton, E. A.
*de Aragão, J. J. Moniz	Brazil	*Gainer, Sir Donald St. C.
	Bulgaria	Houstoun-Boswall, W. E. ¹
	Chile	*Leche, John H.
*Bianchi, Manuel	China	*Stevenson, Sir Ralph C. S.
*Tien-Hsi, Dr. Cheng		

To and From Great Britain (Continued)

To Great Britain	Country	From Great Britain
*Echandia, Dr. Dario	Colombia	*Broadmead, Philip M.
Harrison, Fernando Soto (absent)	Costa Rica	Coultras, Frederick G.
de Blanck, Guillermo	Cuba	Dodds, James I.
*Lobkowitz, Maximilian	Czechoslovakia	*Nichols, Sir Philip B. B.
Reventlow, Count Eduard	Denmark	Randall, Alec W. G.
Pastoriza, Andrés	Dominican Rep.	Macrae, Russell D.
Lafrante, Homero V.	Ecuador	Edmond, Colin A.
*Amr Pasha, Abd el Fattah	Egypt	*Campbell, Sir Ronald I.
Medhen, Blatta Ephrem T.	Ethiopia	Farquhar, Harold L.
Wuori, Eero A.	Finland	Shepherd, Francis M.
*Mossigli, Rene	France	*Duff Cooper, Alfred
*Aghnides, Thanassis	Greece	*Norton, Sir Clifford
Fuentes, Gen. Miguel Ydigoras	Guatemala	Hughes-Hallett, Leslie C.
Alexis, Stephen	Haiti	Routh, Augustus C.
	Honduras	Fowler, Rees J.
Bede, Istvan	Hungary	Helm, Alexander K. ¹
Thorvardsson, Stefan	Iceland	Shepherd, Sir H. Gerald
*Seyed Hassan Taqizadeh	Iran	*Le Rougetel, Sir John H.
*Emir Zaid	Iraq	*Stonehewer Bird, Sir Hugh
Carandini, Count Nicolo	Italy	*Charles, Sir Noel H.
	Japan	Gascoigne, Alvary D. F. ¹
Chamoun, Camille	Lebanon	†Eyles, H. M.
de Lynden, Baron Robert A.	Liberia	Bowering, J.
Clasen, André	Luxembourg	Knatchbull-Hugessen, Sir H. M.
*O'Farrell, Frederico J.	Mexico	*Bateman, C. Harold
Gen. Shingha Shumshere Jung Bahadur Rana	Nepal	Falconer, George A.
*van Verduynen, Jonkheer E. Michiels	Netherlands	*Bland, Sir Neville
Herdocia, Dr. Constantino (absent)	Nicaragua	Robertson, A. W.
*Prebensen, Per Preben	Norway	*Collier, Sir Lawrence
Porras, Dr. Demetrio A.	Panama	Irving, Stanley G.
Aguilera, Andrés	Paraguay	Fell, J. R. M.
*Berckemeyer, Fernando	Peru	*Roberts, Walter St. C. H.
	Philippines	Foulds, Linton
*Michalowski, Jerzy	Poland	*Cavendish-Bentinck, V. F. W.
*Duke of Palmella	Portugal	*O'Malley, Sir Owen St. C.
Franassovici, R. ¹	Romania	Holman, Adrian ¹
†Dawson, Samuel Jorge	Salvador	Mayers, N.
Sheikh Hafiz Wahba	Saudi Arabia	Graffey-Smith, Lawrence B.
Prince Nakhtrata Mangala Kitiyakara de las Bárcenas y Lopez, Domingo	Siam	Thompson, Geoffrey H.
	Spain	*Mallet, Sir Victor (recalled Dec. 23)
Prytz, Björn Gustaf	Sweden	Jerram, Cecil B.
Ruegger, Paul	Switzerland	Snow, Thomas M.
al Armanazi, Dr. Najeeb	Syria	†Eyles, H. M.
Emir Abdul Majid Haidar	Trans-Jordan	Kirkbride, Sir Alec S.
*Agikalin, Cevat	Turkey	*Kelly, Sir David
*Zarubin, Georgi	U.S.S.R.	*Peterson, Sir Maurice
Gardner, O. Max	U.S.A.	*Baron Inverchapel
*MacEachan, Dr. Roberto E.	Uruguay	*Vereker, George G. M.
	Vatican	Osborne, Sir F. d'Arcy G.
*Azpúrua, Andrés R.	Venezuela	*Ogilvie-Forbes, Sir G. A. D.
*Leontić, Ljubo	Yugoslavia	*Peake, Charles B. P.

*—Ambassador; unstarred—Envoy Extraordinary; †—Chargé d'Affaires.

¹—Political representative.

Persons no longer in the list but still accepted by the British government as personally possessing diplomatic privileges:

Torma, August	Estonia
Zarine, Charles	Latvia
Balutis, Bronius	Lithuania

American Academy of Arts and Letters: *see* SOCIETIES AND ASSOCIATIONS.

American Academy of Political and Social Science: *see* SOCIETIES AND ASSOCIATIONS.

American Association for the Advancement of Science: *see* SOCIETIES AND ASSOCIATIONS.

American Association of Law Libraries: *see* SOCIETIES AND ASSOCIATIONS.

American Bankers Association: *see* SOCIETIES AND ASSOCIATIONS.

American Bar Association: *see* SOCIETIES AND ASSOCIATIONS.

American Bible Society: *see* SOCIETIES AND ASSOCIATIONS.

American Chemical Society: *see* SOCIETIES AND ASSOCIATIONS.

American Citizens Abroad. During the period of about 50 years up to World War II, U.S. citizens had, in increasing numbers, taken up temporary domicile abroad of such duration as to constitute several years foreign residence. In 1939, at the outbreak of World War II, there were living outside the United States more than 300,000 U.S. citizens. This figure, of course, does not include those persons who were temporarily abroad as tourists or pleasure seekers or temporarily visiting relatives or attending school. In the fall of 1939 the U.S. government, through its official representatives abroad, urged the return to the United States of those persons whose presence outside the United States was not required by important and urgent matters which could not be

otherwise attended to than through their personal presence. Reasonable numbers began their homeward journey from the orient as well as from Europe but others remained in the belief that war and its consequences could not overtake them. When the United States entered the war its representatives were withdrawn gradually from those countries involved in the war on the side of the enemies and the protection of U.S. interests and U.S. citizens was left to the Swiss government. No census was taken of those who remained but as the countries of the occupation were recovered by the Allied armies U.S. citizens made themselves known and sought aid from U.S. representatives. During 1946 the return to the United States of many semipermanent residents abroad continued. But the cessation of hostilities made it possible and desirable for businessmen and professional people to concern themselves with the restoration of commercial trade and cultural intercourse between the United States and that part of the world which had been in enemy hands. As the military operations released aircraft and surface ships U.S. representatives went abroad in increasing numbers to visit their former connections not only in the war areas but in the neutral and Allied countries and actively restored trade and promoted a return to normalcy. Many former representatives of U.S. business, with their families, returned to their stations abroad and there was residing outside of the United States by Jan. 1947 a fraction of the more than 300,000 U.S. citizens who were resident abroad in 1939, augmented by this large number of U.S. citizens who returned to attend to commercial and professional matters as well as by those whose presence was required by alien relatives and family interests. In addition to this, the U.S. armies of occupation were in four foreign countries—Germany, Austria, Korea and Japan—and were being joined by members of their families from April 1, 1946. The rules covering the travel of dependents of servicemen were set up and carried out by the military authorities. The documentation of these people with passports was necessary in order that they might move about in countries other than the one in which they resided, as a relief from the monotony and hardships of occupation. From April 1, 17,769 dependents were sent overseas into the European area; into the Mediterranean area 1,739; into the China, Burma, India theatre 479; to the mid-Pacific 3,535; to the Philippines 1,852 and to the Japan, Korea area 4,289. In the number sent to the mid-Pacific were included persons who travelled to the smallest of the islands under U.S. occupation and were living comfortably in areas never reached before by U.S. women and children. There was temporary travel to Europe of several thousand persons solely for the purpose of assisting their relatives who had need not only of material things but of the consolation brought by the personal contact with their more fortunate relatives who escaped the personal experience of the horrors and hardships of occupation, bombing and extreme rationing. These U.S. citizens made an additional contribution to the return to normalcy in Europe by a moderate amount of travel and visiting such as was established on a rather large scale for use during furloughs granted soldiers of the U.S. forces in Europe and their families. In this way gradual restoration of local transportation, hotel facilities and betterment in food obtainable in restaurants was stimulated. Because of the ever-changing situation during the calendar year of 1946 it was not possible to do more than record an incomplete summary of people residing abroad (*see* table on p. 48).

In general the countries of the western hemisphere received, during the calendar year 1946, about the usual number of professional and business persons, students, teachers and those travelling for pleasure, health or cultural reasons. The full realization of travel plans for persons desiring to spend a year or more within the western hemisphere was hampered only by the lack

American Citizens Abroad			
Country	Head	Dependents	Total
Argentina	1,707	1,471	3,178
Australia	1,441	542	1,983
Bolivia	450	461	911
Brazil	3,748	2,336	6,084
Canada	72,076	93,277	165,353
Chile	908	718	1,626
Colombia	1,596	1,666	3,262
Costa Rica	649	447	1,096
Cuba	2,653	2,371	5,024
Dominican Republic	2,319	4,091	6,410
Ecuador	461	300	761
Egypt	564	215	779
El Salvador	225	150	375
Ethiopia	182	27	209
Greece	—	—	7,384
Guatemala	669	755	1,424
Haiti	341	234	575
Honduras	444	444	888
India	—	—	4,600
Iran	398	71	469
Iraq	106	32	138
Lebanon	673	555	1,228
Liberia	357	125	482
Mexico	17,428	9,092	26,520
Morocco	130	46	176
New Zealand	172	543	715
Nicaragua	299	160	459
Palestine	2,786	2,114	4,900
Panamá	3,900	4,500	8,400
Paraguay	150	100	250
Peru	1,124	1,336	2,460
Philippine Islands	2,021	1,941	3,962
Siam	—	—	163
Syria	139	158	297
Turkey	273	83	356
Union of South Africa	950	749	1,699
Uruguay	250	200	450
Venezuela	1,805	1,479	3,284
Total			268,330

of the prewar type of surface and air transportation. In Asia, with the exception of Japan and Korea, businessmen, missionaries, government officials and civilian specialists to assist in rehabilitation work moved freely and found transportation adequate for their travel. In China specifically and in the countries of Europe, those U.S. citizens residing on a semipermanent basis in 1946 comprised an extremely large number of relief and welfare workers, persons rendering aid to government and to private individuals in economics, agriculture, reconstruction and rehabilitation of every character. An unusually large number of government officials were residing in Europe for war crimes work, for civilian employment in the occupation areas and as advisers in all forms of specialized activity. The year 1946 found an extremely critical food and housing shortage in most countries and travellers experienced personal hardship and privation, in a lesser degree, however, than in the preceding year.

(R. B. S.)

American College of Life Underwriters: *see* SOCIETIES AND ASSOCIATIONS.

American College of Surgeons: *see* SOCIETIES AND ASSOCIATIONS.

American Dental Association. The American Dental association, founded in 1859, had in 1946 a membership of more than 61,000 dentists, approximately six-sevenths of the practising dentists in the U.S.

During the year, dentistry made noticeable advances in the field of dental research, particularly in relation to the control of dental caries. The American Dental association sponsored a bill in congress which, when passed, would enable the U.S. public health service to increase greatly its dental research activities. The association sponsored two additional bills in congress, one to provide grants-in-aid to states for dental health education and dental care, especially for children; and one to improve dental service in the U.S. army. It continued to co-operate with the Veterans' administration to improve dental service for veterans. It established health goals for children and youth and developed a manual on dental health programs for elementary and secondary schools. It established basic standards of hos-

pital dental service required of approved hospitals. It adopted standards for the approval of hospital dental internships and residencies and for the approval of courses for the training of dental technicians.

One new dental school was established in 1946, increasing the number of dental teaching institutions to 40, all of which, except three, had been approved or provisionally approved by the Council on Dental Education of the association.

The association increased its facilities for the certification of dental materials, medicaments and dentifrices and enlarged its public educational program. It increased the number of issues of the *Journal of the American Dental Association* from 12 to 24 per year and continued to publish the *Journal of Oral Surgery* on a quarterly basis.

A full scientific meeting of the association was to be held in Boston, Mass., in Aug. 1947.

Officers for the year 1946-47 were: president, Dr. Sterling V. Mead; president-elect, Dr. H. B. Washburn; first vice-president, Dr. E. B. Penn; second vice-president, Dr. B. B. McCollum; third vice-president, Dr. M. D. Huff; secretary, Dr. Harold Hillenbrand and treasurer, Dr. Roscoe Volland. (L. W. M.)

American Economic Association: *see* SOCIETIES AND ASSOCIATIONS.

American Federation of Labor. The membership of the American Federation of Labor reached an all-time high in 1946 with 7,151,808 paid-up members on Aug. 31. Two new international unions were formed during the year, and a new Maritime Trades department was created within the federation.

During the year the federation continued its activities in both national and international affairs affecting the workers. This included not only active participation in the International Labour organization, but in the re-establishment of free trade unions in both the old world and the new. The convention of the federation stressed the need for greater public understanding of the problems of the workers and the constructive work being done by trade unions. Federation plans for the future called on both management and the workers to establish true collective bargaining machinery for their mutual benefit, augmented by sincere efforts to work together for better and greater production. The federation favoured early and complete abandonment of unnecessary government controls over the economy of the U.S.; the re-establishment of the U.S. system of free enterprise and the negotiation of work contracts through the orderly processes of collective bargaining.

Legislative activities were continued on both state and national levels. Every effort was to be made to repeal existing antilabour laws, and to prevent the enactment of repressive legislation in the future. The federation continued its established practice of nonpartisanship in politics—calling on workers to reward friends and defeat enemies at the polls. The urgent need for a reorganization of the department of labour was emphasized by the federation, to the end that this government agency might be more effective in the work for which it was created. The reorganization plans which had been effected were unacceptable to the federation. The need for adequate public housing was stressed and the implementation of a constructive public housing program was urged by the federation.

The federation was especially active in the field of social insurance with special emphasis on (1) the development and introduction of legislation to establish a unified, comprehensive national system of social insurance, and (2) continued interim efforts to improve the state unemployment compensation programs. In the field of education, the federation sought greater

educational opportunities for all through federal aid for the school system. The federation was also vitally interested in a sound program for vocational education and directed special efforts in that field. Continued support was given to the Workers Education bureau, which is the educational agency of the federation charged with responsibility for development of adult education programs.

In its pronouncement on wages the federation reaffirmed its previous declarations in support of increased wages by which workers would receive a just and equitable division of profits accruing from the wealth they produce.

A special organizing drive was being carried on in the south. The federation also actively participated in an agricultural program designed to relieve the south of its economic dependence on cotton. A decided stand was taken for equal employment opportunity and full participation in unions of the American Federation of Labor, regardless of race, creed, or colour.

(See also CONGRESS OF INDUSTRIAL ORGANIZATIONS; LABOUR UNIONS; STRIKES AND LOCK-OUTS; UNITED STATES.) (W. G.)

American Geographical Society: see SOCIETIES AND ASSOCIATIONS.

American Historical Association: see SOCIETIES AND ASSOCIATIONS.

American Indians: see INDIANS, AMERICAN.

American Institute for Property and Liability Underwriters, Inc.: see SOCIETIES AND ASSOCIATIONS.

American Institute of Accountants: see SOCIETIES AND ASSOCIATIONS.

American Institute of Chemical Engineers: see SOCIETIES AND ASSOCIATIONS.

American Institute of Electrical Engineers: see SOCIETIES AND ASSOCIATIONS.

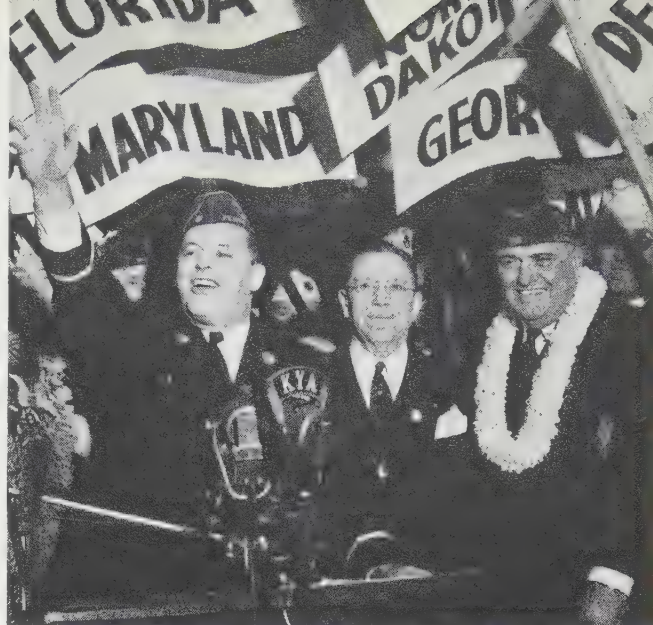
American Institute of Mining and Metallurgical Engineers: see SOCIETIES AND ASSOCIATIONS.

American Iron and Steel Institute: see SOCIETIES AND ASSOCIATIONS.

American Law Institute: see SOCIETIES AND ASSOCIATIONS.

American Legion. The American Legion is an organization of U.S. veterans of World Wars I and II. Originally chartered as a World War I veterans' organization by congress in 1919, it became a two-war organization Oct. 29, 1942, when Pres. Roosevelt signed Public Act 767, making honourably discharged veterans of World War II eligible for membership.

The accomplishments of the American Legion in 1946 included: (1) the enactment into law of a bill to provide terminal leave pay for enlisted personnel and veterans of the armed forces; (2) enactment into law of a bill liberalizing National Service Life Insurance held by World War II veterans; (3) enactment into law of a bill amending the Surplus Property act to provide World War II veterans a set-aside list of surplus items for purchase and a priority in remaining items second only to that of the federal government; (4) enactment of federal legislation providing a 20% cost-of-living pension increase for all disabled veterans of both world wars and removing pension reductions for veterans during periods of hospitalization; (5) enactment into law of a bill to increase burial allowances for veterans; (6) enactment into law of a bill extending social security benefits to dependents of World War II veterans; (7) enactment into law of a bill increasing to 25,000 the number of regular army officers; (8) extending financial aid to 325,700 children of veterans as one of its many contributions in the child welfare field; (9) sponsoring the V.A.L.A.R (American Legion Army Recruiting) plan for which the legion was hon-



PAUL H. GRIFFITH (left), elected national commander of the American Legion at the Legion convention in San Francisco on Oct. 4, 1946. With him are D. A. Griffith, his father (centre) and John Stelle, retiring commander

oured by the war department; (10) expanding its rehabilitation service to 45 offices and contact points offering services and counselling to veterans in education, vocational training, disability allowances, discharge reviews, application for terminal leave and other problems; (11) allocating with its auxiliary \$50,000 for research into rheumatic heart disease; (12) making many recommendations to the Veterans' administration for improvement of services and facilities for veterans as the result of studies and surveys; (13) assisting in adjudication of hundreds of thousands of death and disability claims of veterans and their dependents; (14) strengthening its Americanism program to combat foreign "isms"; (15) conducting nation-wide youth training programs including junior baseball, boys' states, boys' forum on national government, national high school oratorical contests, school medal awards, essay contests and sponsoring more than 3,000 Boy Scout troops; (16) formulating a detailed plan of maximum employment based on sales, service and distribution as the result of a nation-wide survey of industry and business by employment division officials of the legion; (17) sponsoring a national "Jobs For All" essay contest; (18) producing with the American Mutual Alliance a film, *No Help Wanted*, urging employment of the disabled veterans; (19) drafting a comprehensive housing plan from recommendations of a special committee of World War II veterans who surveyed housing conditions in every section of the nation; (20) sponsoring a "Gifts To Yanks Who Gave" Christmas program; (21) participating in National Education Week, which it originated.

As a result of its 28th annual national convention in San Francisco the legion: (1) urged repeal of a law placing limitations and ceilings on the on-the-job training provisions of the legion-sponsored G.I. Bill of Rights; (2) urged elevation of the federal security administrator to cabinet rank; (3) asked restriction of all immigration until 1948; (4) proposed a single department of national security with provisions for army, navy and air forces on equal level; (5) demanded redemption of G.I. terminal leave government bonds into cash; (6) asked exemption for currently accrued federal income tax to the first \$5,000 of earned income for all honourably discharged World War II veterans; (7) proposed a world police force and a strengthened plan for United Nations.

All membership records of the American Legion again were broken in 1946. On Dec. 31, 1946, there were more than 3,321,-

ooo members in 15,700 posts. This was a gain of 1,700,000 over the membership in 1945. Of the members 68% were World War II veterans. The American Legion auxiliary, showing a gain of 170,000, had a membership of more than 800,000 in 10,600 units. The Forty and Eight completed the year with 72,000 members, and the auxiliary counterpart, the Eight and Forty, had 11,300.

The two national publications, the *American Legion Magazine* and the *National Legionnaire*, each had a circulation in excess of 3,300,000.

At the San Francisco national convention Paul H. Griffith of Uniontown, Pa., was elected national commander for 1946-47. (P. H. GH.)

American Library Association. American Library association (A.L.A.) is the oldest professional association of librarians, library trustees and friends of libraries. Although the association's membership, which is open to all persons and institutions, is drawn from all continents, it is primarily composed of individuals interested in library development in the United States and Canada. Organized Oct. 6, 1876, in Philadelphia, the association is affiliated with more than 60 other library associations throughout the world and works closely with organizations and government agencies concerned with education, research, recreation and public service. The activities of the association were carried on in 1946 by a headquarters staff of 83, assisted by more than 600 persons serving on approximately 80 volunteer boards and committees. Carl H. Milam was executive secretary of the association.

In June 1946 the A.L.A. transferred headquarters to one of the historic McCormick homesteads at 50 East Huron street, Chicago 11, Ill. Julia Wright Merrill, long active in the extension of free public library service, retired after 21 years with the association.

During the first postwar year, the association was again concerned with efforts to extend complete and adequate library service to the United States especially through the Public Library Service Demonstration bill, introduced in congress on March 12. It promoted the economic security and professional advancement of librarians by the formulation of new minimum salary standards and tenure policies. A long-term plan for the development of libraries neared completion and was to be published in 1947 as the *National Plan for Library Service*. It results from the work of several specialists over a period of years.

An A.L.A. International Relations office, located in the Library of Congress annex, Washington 25, D.C., was under the direction of Marion A. Milczewski. Harry M. Lydenberg, former director, retired in the course of the year. The International Relations office was engaged during 1946 in promoting cultural relations through the operation of U.S. libraries in foreign countries, the interchange of librarians and publications between nations, the importation of scholarly books and journals and the rehabilitation of war-devastated libraries. The association's work in Latin America, Europe, China and other devastated war areas is financed out of special funds from government, foundations or individual libraries. Late in 1946 the A.L.A. International Relations board voted to continue the work of the office for five years if funds could be found after the expiration, in 1947, of the existing grant.

The association participated in planning for the United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.), and its executive secretary served as a technical adviser to the U.S. delegation at its meeting in November. Ralph A. Ulveling of Detroit, Mich., then A.L.A. president, toured the European occupation zone in the spring of 1946 at the request of the war department and made recommendations

on library service for occupation troops.

Harry M. Lydenberg, former director of the A.L.A. International Relations office, participated in a Library of Congress mission to gain information about available research resources in Europe. Leon Carnovsky represented the A.L.A. as a member of the commission of educational advisers which visited Japan during the year.

Because of the need to integrate library welfare with government plans, the A.L.A.'s program had for some years focussed on Washington, D.C. An A.L.A. National Relations office was located at 1709 M street, N.W., Washington, D.C. Under the direction of Paul Howard, the office, established in Oct. 1945, promoted and safeguarded library interests throughout 1946.

Working in close co-operation with other library agencies, the National Relations office was concerned with the disposal of surplus books and other surplus property to libraries, recognition by the government of the essentiality of library service in any national research program, inclusion of libraries in public works proposals, social security for library employees, maintenance of low postal rates on books, improvements in document distribution and state demonstrations of public library service organized through the U.S. office of education.

Conferences.—The year 1946 saw the first A.L.A. mid-winter and summer conferences from the time travel restrictions were enforced in 1942. The midwinter conference was held in Chicago while the association's 65th annual conference drew 2,500 delegates including 20 foreign librarians to the Memorial auditorium, Buffalo, N.Y. The following officers were inaugurated at the conclusion of the conference: Mary U. Rothrock, Tennessee Valley authority, president; Paul North Rice, New York public library, first vice-president and president-elect; Nell Avery Unger, Library Association of Portland, Portland, Ore., second vice-president; Rudolph H. Gjelsness, University of Michigan, Ann Arbor, Mich., treasurer.

The annual citations for distinguished service as library trustees were awarded in Buffalo to James J. Weadock, vice-president of the board of trustees of the Lima public library, Lima, O., and Mrs. Myrtle J. Price of Tuscaloosa, Ala., chairman of the Alabama public library service division. At the same time, Lois Lenski received the 25th annual Newbery medal for *Strawberry Girl*, judged to be the outstanding contribution to children's literature in 1945. The tenth annual Caldecott medal for the most distinguished picture book was conferred upon Maud and Miska Petersham for *The Rooster Crows*, a book of U.S. rhymes and jingles. The John Cotton Dana publicity awards, sponsored by the *Wilson Library Bulletin* and the A.L.A. Public Relations committee were awarded to seven libraries for effective public relations programs.

By vote of the A.L.A. council, Frederic G. Melcher, president of the R. R. Bowker company, publisher of the *Library Journal* and the *Publishers' Weekly* was elected an honorary member of the association "for giving himself generously and effectively to the cause of books and reading." From its founding, the A.L.A. had conferred honorary membership on only 28 persons.

Income.—The association's endowment in 1946 was approximately \$2,100,000. The income in 1945-46 was about \$875,164, approximately \$92,215 was drawn from membership dues, sales of publications, etc., and \$69,150 was obtained from the endowment fund. Payment of group retirement annuity premiums was \$153,147 and \$415,466 came from outside sources in the forms of grants or payments for specific purposes. In September, the association received a gift of \$500 from the Wisconsin Federation of Women's Clubs, to finance a memorial membership for Mrs. Lucy Morris, founder of the federation.

Publications.—Despite higher production costs, the association's publishing program was self-sustaining. A.L.A. publishing

is a nonprofit, co-operative enterprise conducted for libraries in the interest of library progress and education generally.

During 1946, in addition to the regular periodicals, *A.L.A. Bulletin*, *Booklist*, *Subscription Books Bulletin*, *College and Research Libraries* and *Hospital Book Guide*, it inaugurated the selling of children's stories on records and the Canadian film, *Library on Wheels*.

The A.L.A. Board of Education for Librarianship gave special attention to the redirection of professional education in line with changing requirements for librarianship, to the need of recruiting more personnel for the profession and more scholarships in library schools, to certification, to accreditation and to the need of veterans for orientation. (M. C. T.)

American Literature. The historical parallel drawn by many between 1946 and 1919 apparently ceased when the literature of those postwar years was compared. After World War I, as after World War II, there had been labour strife, inflation, a housing shortage, political shifts, a Russian scare and a good deal of confusion. But the year 1919 produced a number of books foretoking new developments in American literature—H. L. Mencken's *Prejudices* (first series), Sherwood Anderson's *Winesburg, Ohio*, James Branch Cabell's *Jurgen*, Eugene O'Neill's *The Moon of the Caribbees*, Waldo Frank's *Our America* and John Reed's *Ten Days that Shook the World*.

Critics were unable to see any such trend, or indeed any such outstanding literary achievements as some of these were, in 1946. The fictional and poetic works of the year were generally of mediocre to fairly high grade but not particularly new in content or method. And though there were many solid and thoughtful nonfictional works, none suggested particularly novel lines of thought or action. Both fiction and nonfiction, as was to be expected, tended to look back to wartime experiences or lessons and to survey problems which had been apparent during the years of warfare.

There was, evidently, only a slight decline in the recently developed enthusiasm of the public for reading. As had been predicted, mounting gasoline sales were accompanied by declining book sales, but the decline was not as great a one as some had foreseen, and as yet few publishing houses could complain of hard times. About 7,500 new titles appeared on the lists, about a fifth of them fictional works and about a tenth histories and biographies. The sales of quite a number of these, by prewar standards, were large: several novels found more than 1,000,000 purchasers apiece. This was partly the result, to be sure, of the booming activity of the book clubs. These continued to grow, the two oldest achieving 2,250,000 members between them and one of the youngest acquiring a total of 225,000 members.

The book which probably caused more comment than any was one which had comparatively small sales, Edmund Wilson's *Memoirs of Hecate County*. The furor about this volume in some ways recalled the turmoil about *Jurgen* back in 1919, since much of the comment was stimulated by the extreme frankness of some passages in Wilson's collection of short stories. Cases against the publisher and author were tried in courts scattered from New York to California, and eventually the volume was withdrawn. Yet the excitement caused by the book actually was slight compared with that which had been created by *Jurgen*, and it was certain that Wilson's generally intellectual, symbolic tales would have nothing like the impact of Cabell's book upon the literary fashions of the years following its appearance.

Trends in Fictional Techniques.—Two first novels, both by women, revealed talents far above the ordinary and perhaps forecast coming developments of a technical sort in fiction. Both employed a modified stream-of-consciousness narrative method,

reminiscent of the procedure of the recently rediscovered Henry James or perhaps of Virginia Woolf. The first was *Do I Wake or Sleep?* by Elizabeth Bolton, which sets down the perceptions of the woman Millicent during a crucial 24-hour span in the year 1939. The happenings thus presented not only vitalize three leading characters but also body forth the impact of the coming of the war upon life in New York city. The other novel was *Delta Wedding*, the first novel-length narrative by an author who heretofore confined her activity to the writing of short stories—Eudora Welty. In this novel, as in Miss Bolton's, the narrative is a record of the perceptions of a sensitive but limited observer—this time a young visiting cousin at a wedding on a Mississippi delta plantation. The book is a subtle evocation of the scene as well as of the members of a family in the deep south.

Another fictional technique which flourished during the year was that of satire, much of it fairly ferocious. A variety of groups and institutions were attacked: Frederick Wakeman's *The Hucksters* satirized advertising and the radio. Helen Howe's *We Happy Few* giped at a snobbish group who lived in Cambridge, Mass., but who had recognizable prototypes among the intellectuals of many other towns and cities. John Marquand's novel, *B.F.'s Daughter*, satirized many contemporary attitudes. These three were very popular: all made best-seller lists. Less popular, but equally biting, were Pat Frank's *Mr. Adam*, a somewhat Rabelaisian fantasy which took off the Washington scene; Bentz Plagemann's *All for the Best*, which had at various aspects of civilian and naval life, and Jerome Weidman's *Too Early to Tell*, which dealt harshly with the wartime activities of the OWI.

Recurrent Fictional Themes.—These were the most noteworthy technical trends in fiction. In other outstanding novels, techniques of varied sorts, none very new, were used to consider several recurrent themes all of which had come to seem very important during the war—politics, religion, racial relationships, the war and history.

Among the novels dealing with political problems one at least was outstanding as a technical achievement—Robert Penn Warren's *All the King's Men*. This account of the rise and fall of a southern demagogue who in many ways greatly resembled Huey Long was interesting for its style and for its employment of the flashback. In addition, it had a good deal to say about problems of U.S. government and society. Less interesting technically was Upton Sinclair's old-fashioned narrative carrying along the saga of Lanny Budd, *A World to Win*. A third novel, Alfred Hayes' *All Thy Conquests*, dealt with the political problem abroad, presenting as it did a grim picture of postwar Rome during the occupation.

Books with religious themes, treating a topic quite important in U.S. fiction in late years, included Gladys Schmitt's *David the King*, Dorothy Clarke Wilson's *The Herdsman* (the story of Amos), Russell Janney's *Miracle of the Bells*, Elizabeth Hollister Frost's *Mary and the Spinners* and Donald A. Stauffer's *The Saint and the Hunchback*. Of these, the last was the most mature and rewarding.

Racial problems offered characters, plots and themes for several workmanlike novels. The problem of the Negro received consideration in the melodramatic but rather moving book *Third Ward, Newark* by Curtis Lucas and in Ann Petry's more lifelike picture of her own race in Harlem in *The Street*. Jo Sinclair's *Wasteland* was a psychological study of a Jewish family, and Arthur Miller's *Focus* was a work of real merit which made a blasting attack on anti-Semitism.

There were also a number of works by writers who, like some in the years after World War I, set forth accounts of life in the armed services. Thomas Hegen's *Mr. Roberts*, for instance, was

a collection of short stories vividly representing the tedium of war inactivity. Robert Lowry's *Casualty*, which dealt with a photo reconnaissance outfit in Italy, conveyed the boiling resentment of the G.I. William Saroyan, an older author, unfolded the tale of an American soldier in *The Adventures of Wesley Jackson*, a novel below his best achievements.

The historical novel flourished. In 1946, however, there was no outstandingly successful work in this field. The best works in this genre included *The Fields* by Conrad Richter, *The American* by Howard Fast and *Holdfast Gaines* by Odell Shepard and Willard Shepard. Less successful artistically but generally more popular were Frank Yerbe's *Foxes of Harrow*, Inglis Fletcher's *Toil of the Brave* and Theda Kenyon's *That Skipper from Stonington*.

Established Novelists in 1946.—Like Saroyan, a number of established authors were represented by novels which did not greatly add to their reputations. Examples were Theodore Dreiser's *The Bulwark*, James T. Farrell's *Bernard Clare*, Pearl Buck's *Pavilion of Women*, Charles Jackson's *Fall of Valor*, Louis Paul's *Breakdown*, Taylor Caldwell's *This Side of Innocence* and James Branch Cabell's *There Were Two Pirates*.

A number of the top-flight fiction writers of the country produced no works whatever during the year—Katherine Anne Porter, Ernest Hemingway, Sinclair Lewis, John Steinbeck, John Dos Passos, Glenway Westcott, Erskine Caldwell and Willa Cather. Several of these were readying novels which might make 1947 a better year for U.S. fiction.

Nonfiction: The Atom Bomb and the War.—In the field of nonfiction, as might have been predicted, the atom bomb, the war and the problem of international relationships loomed large.

The most widely discussed consideration of the bomb, its results and its implications was John Hersey's *Hiroshima*. This stern but quiet study of the effects of the bombing of a Japanese city upon some of its victims was first published as the contents of an entire issue of a magazine heretofore devoted to humour, *The New Yorker*. After this initial publication, it was read on many radio programs and thereafter it was published as a book which sold widely. A lucid account of the operation of the bomb was *Dawn Over Zero* by William Lawrence, the science editor of *The New York Times*. Other considerations of the problem of the bomb were George Gamow's scientific *Atomic Energy in Cosmic and Human Life* and Virgil Jordan's rhetorical *Manifesto for the Atomic Age*.

Accounts of the war were, of course, plentiful. Some were reports of correspondents in the tradition of the earlier *Berlin Diary*—Herbert Matthews' *The Education of a Correspondent*, Eric Sevareid's *Not So Wild a Dream* and Vincent Sheean's *This House against That House*. Some were historical accounts such as Walter Phelps Hall's *Iron Out of Calvary*, a compact record of backgrounds, military progress and diplomatic activities; and Charles Beard's *American Foreign Policy in the Making*, a case history of events preceding the conflict. Some were official histories—the *War Reports* of Generals Henry Arnold and George Marshall and of Admiral Ernest King. A number, written with varying degrees of objectivity, offered what purported to be "inside stories"—Ralph Ingersoll's *Top Secret*, Harry C. Butcher's *My Three Years with Eisenhower*, Captain Ellis M. Zacharias' *Secret Missions*. The war on the home front was reported in such books as Donald M. Nelson's *Arsenal of Democracy* and Jonathan Daniels' *Frontier on the Potomac*.

International Problems.—International problems were the concern of a number of authors. The general question of the relationship of the United States to the rest of the world was studied in E. B. White's readable *The Wild Flag*, in William C. Bullitt's *The Great Globe Itself* and in Sumner Welles' *Where Are We Heading?* Focussed upon particular areas or countries

were *Thunder Out of China* by Theodore White and Annalee Jacoby, *Soviet Asia Mission* by Henry A. Wallace, *Soviet Politics* by Frederick L. Schuman and *Dear Fatherland, Rest Quietly* by Margaret Bourke-White.

Neighbouring countries in the western hemisphere were the concern of others. Erna Fergusson's *Cuba* interestingly presented a bird's-eye view. Miguel Covarrubias told of life on the Isthmus of Tehuantepec in his *Mexico South*, and Neill James gave an account of the author's four year stay in Mexico in *Dust on My Heart*. Rexford Guy Tugwell offered a report on his administration in Puerto Rico and told of the problems of that country in *The Stricken Land*. Preston Everett, in *Brazil*, gave an up-to-date exposition of the geography and the economic history of an important neighbour. Most inclusive was John Armstrong Crow, *The Epic of Latin America*, an explanation of the life, institutions and attitudes of the peoples below the Rio Grande.

Domestic Problems.—A spate of books considered problems in the United States, and in a number of these, as in several fictional works, the problem of racial relationships was discussed. Dorothy M. Baruch, *Glass House of Prejudice* and Margaret Halsey, *Color Blind* argued in behalf of greater tolerance. Ellis A. Arnall, governor of Georgia, wrote on a number of southern problems, among them the problem of the Negro, in *The Shore Dimly Seen*.

Several biographies and autobiographies of contemporary leaders also necessarily touched upon domestic problems. *The Autobiography of William Allen White*, to cite one, covered U.S. history from White's point of view during the period from William McKinley to Franklin Delano Roosevelt. Josephus Daniels wrote *The Wilson Era: 1919-1923*. Alpheus Thomas Mason necessarily considered many contemporary issues in *Brandeis: A Free Man's Life*. Col. Edmund Starling, in *Starling of the White House* told of the impressions of presidents from Woodrow Wilson to Roosevelt he had gained while a secret service man.

More controversial than any of these, naturally, were a number of biographies or studies of President Roosevelt, most of them by those who were closely associated with him. Elliott Roosevelt's *As He Saw It* offered a definite interpretation and point-of-view and created much discussion in political columns and editorials. Frances Perkins's *The Roosevelt I Knew* was somewhat more objective and, in general belief, more revealing. A. M. Smith, in *Thank You, Mr. President*, told of Roosevelt as seen through the eyes of a Washington correspondent, and Ross T. McIntyre gave a doctor's report in *White House Physician*. Louis Adamic's *Dinner at the White House* analysed and interpreted not only Roosevelt but also Winston Churchill. Portions of Tugwell's *The Stricken Land*, written as they were by a man who had been both close to Roosevelt and alienated from him, impressed many as a very interesting and temperate attempt to evaluate his statesmanship.

The flood of books about U.S. sections and geographical units abated somewhat. Outstanding among those issued however were Frederick F. Van de Water's contribution to the American Lake Series—*Lake Champlain and Lake George*; Professor Donald Davidson's contribution to the Rivers of America Series—*The Tennessee*; Frank Waters' book for the same series—*The Colorado*; Walter Havighurst's consideration of the Northwest Territory—*Land of Promise*, Bruce Nelson's lively study of the Missouri valley—*Land of the Dakotahs*, Granville Hicks' study of village life—*Small Town* and Gertrude Atherton's reminiscences of a long life in a colourful city—*My San Francisco*.

Histories and Historical Biographies.—Numerically, books which concerned the Civil War stood at the top of the list of

historical works published during the year. Most ambitious of these was *Experiment in Rebellion* by Clifford Dowdey, a history of the government of the confederacy during the conflict. A. H. Bill's *The Beleaguered City* focussed upon a smaller segment of warfare from the southern point of view. The experiences of soldiers during the Civil War were recounted in John Beatty, *Memoirs of a Volunteer* and in the war letters and the diary of Oliver Wendell Holmes, Jr., edited by Mark DeWolfe Howe—*Touched with Fire*. Burton J. Hendrick surveyed the Washington scene in the war years in *Lincoln's War Cabinet*.

Wider spans were covered in a variety of books. Carl Swisher wrote an outstanding history of governmental problems and procedures in *The Growth of Constitutional Power in the United States*. Another facet of U.S. thought was covered in Joseph Dorfman's *The Economic Mind in American Civilization*. Sylvanus G. Morley's *The Ancient Maya* was hailed by critics and historians alike for its fascinating account of a civilization distant in time. History and philosophy combined in a thoughtful book, F. S. C. Northrup's *The Meeting of East and West*, which caused its author to be compared with Oswald Spengler for the scope of his survey.

Biographies dealt with varied historical figures. Nathan Schachner's *Alexander Hamilton* was a fairly objective account of the life of a man whose career, in the past, has usually been treated controversially. Edmund Fuller wrote a carefully documented, slightly fictionized biography of Frederick A. Douglas which read as well as many novels do—*A Star Pointed North*. Henry Luther Stoddard's *Horace Greeley* told of a leader in U.S. journalism during an exciting and important period of national development. Gerald W. Johnson presented an account of another great editor, Adolph S. Ochs, in *An Honorable Titan*.

Three collections of biographies told of fairly long eras of U.S. history in terms of a number of individuals. Members of the famous Lowell family of New England were considered by Ferris Greenslet in *The Lowells and Their Seven Worlds*. A Virginia family was studied in H. J. Eckenrode's *The Randolphs*. And Stewart Holbrook, in *Lost Men of American History*, presented a pageant of forgotten or obscure figures from the past—rebels, inventors, eccentrics and prophets whose experiences throw much light upon the society and the times in which they lived.

Humour.—U.S. humour during the year showed no particular trends. The type of humour which was famous in the 1920s was represented by S. J. Perelman's *Keep It Crisp*, a collection of pieces in which the comedy of free association mingled with that of burlesque and parody. Milt Gross employed the humour of diction and grammar which has amused Americans since the days of Artemus Ward in *I Shoulda Ate the Eclair*. The humour of the eccentric family which had been employed in Clarence Day's *Life With Father* and dozens of books which followed in its wake was employed by John Philip Sousa in *The Psychopathic Dog*, by Rachel Meisenhelder in *God Bless Our Aunts*, by Thelma Jones in *Skinny Angel*, by Stoddard B. Colby in *The Scholar and the Sprout* and by Robert Malloy in *Uneasy Spring*. Radio humour in which the smart turn of phrase is important figured prominently, of course, in Bob Hope's *So This Is Peace*.

Satire figured prominently in three humorous books which were widely appreciated. Eric Hodgins, *Mr. Blandings Builds His Dream House* was a wry account of the frustrations of a New York executive when he attempted to solve the housing problem. Max Shulman, *The Zebra Derby* treated the problem of the rehabilitation of the veteran with broad satire. Arthur Kober, *That Man Is Here Again* was a collection of monologues by Benny Greenspan, actors' agent, which took off the mores of the folk in the moving picture industry in Hollywood.

Poetry.—By 1919 the poetic renaissance which many asso-

ciated with the post World War I period was well under way. The movement in behalf of the "new poetry," as a matter of fact, had started several years before World War I and had continued during the war, and by 1919, such poets as Amy Lowell, Robert Frost, Vachel Lindsay, Edgar Lee Masters, Carl Sandburg and Edna St. Vincent Millay all had established their reputations. If any such movement was to be associated with World War II, critics had not yet managed to discover it.

Most of the better poetry of the year was written by poets who had displayed their wares in earlier books, and such new books as these added little or nothing to the reputations of their authors: E. E. Cummings, *Santa Claus: A Morality*; Alfred Kreymborg, *Man and Shadow: An Allegory*; William Carlos Williams, *Paterson (Book I)*; Stephen Vincent Benet, *The Last Circle*; Roy Addison Helten, *Come Back to Earth* and John Gould Fletcher, *Burning Mountain*.

Three new talents, none, to be sure, particularly novel in method or materials, highlighted the year. Most admired book by a new poet was Robert Lowell, *Lord Weary's Castle*, a collection of poems in the metaphysical tradition which was both learned in its allusions and savage in its intensity. Haniel Long, hitherto represented only by books in prose, produced, in *Grist Mill*, a collection of poems which were in a mode nearer that of the 19th century but which were quiet in tone and sure in their techniques and effects. And Elizabeth Bishop, in *North and South*, brought together a collection of poetic fantasies and descriptions which gave evidence of an intelligent mind, sensitivity of feeling and a sure control of the verse forms which she employed. (See also ENGLISH LITERATURE.) (W. BL.)

American Mathematical Society: see SOCIETIES AND ASSOCIATIONS.

American Medical Association. The American Medical association included in 1946 more than 128,000 physicians who were also members of county and state medical societies. The American Medical association is governed by a house of delegates who are elected by the houses of delegates of the individual state societies. In 1945 the net income of the association amounted to more than \$1,000,000. The association had assets of property and equipment representing about \$1,500,000 and securities of about \$5,600,000, making a total of more than \$7,000,000. The association is incorporated not for profit and all its funds are devoted to promoting its objectives which, according to its constitution, are the promotion of the science and art of medicine and the betterment of public health.

The publications of the American Medical association include the *Journal of the American Medical Association* with a circulation of more than 130,000 weekly; *Hygeia*, a health magazine for the public, with a circulation of approximately 200,000 monthly; nine medical journals for various medical specialties; a complete directory of the medical profession, medical schools, libraries and hospitals, and the *Quarterly Cumulative Index Medicus*, which indexes regularly the contents of more than 1,500 medical periodicals. The association also prepares and publishes *The Standard Nomenclature of Diseases and Operations*.

Through its bureau of health education, its bureau of information and its bureau of investigation the association circulates millions of pamphlets devoted to education of the public in health, the prevention of quackery and the provision of medical care. The association in 1946 had two programs on national broadcasting chains and circulated thousands of radio transcriptions for use on local radio stations. The library of the American Medical association conducts a package library service

which sends articles and reprints to physicians on subjects of interest. The subjects most requested in 1946 were anaesthesia, heart disease, peptic ulcer, syphilis, penicillin, undulant fever and the Rh factor.

The association has a council on medical education and hospitals which is concerned with standardizing the quality of medical education, a council on pharmacy and chemistry which investigates new remedies and controls their advertising claims, a council on industrial health which establishes standards and promotes advancement in the care of workers in industry, and a council on medical service which investigates plans for medical care and encourages the growth of voluntary sickness insurance plans. There are also councils on foods and nutrition and on physical medicine. The association has aided also in the formation of Associated Medical Care Plans, Inc., which is a federation of voluntary sickness insurance plans which meet the standards of the council on medical service. The association maintains also a bureau of medical economics for studying problems related to the costs of medical care, and a bureau of exhibits for the preparation of exhibit material useful in educating both the medical profession and the public. A new activity was the establishment of a bureau of public relations. The association conducts its own printing establishment at its headquarters offices (535 N. Dearborn street, Chicago 10, Ill.) which in 1946 employed more than 700 people.

In aiding the advancement of health and medical care for the people of the United States, the association adopted the following ten-point program:

1. The American Medical association urges a minimum standard of nutrition, housing, clothing and recreation as fundamental to good health and as an objective to be achieved in any suitable health program. The responsibility for attainment of this standard should be placed as far as possible on the individual, but the application of community effort, compatible with the maintenance of free enterprise, should be encouraged with governmental aid where needed.

2. The provision of preventive medical services through professionally competent health departments with sufficient staff and equipment to meet community needs is recognized as essential in a health program. The principle of federal aid through provision of funds or personnel is recognized with the understanding that local areas shall control their own agencies as has been established in the field of education. Health departments should not assume the care of the sick as a function since administration of medical care under such auspices tends to a deterioration in the quality of the service rendered. Medical care to those unable to provide for themselves is best administered by local and private agencies with the aid of public funds when needed. This program for national health should include the administration of medical care including hospitalization to all those needing it but unable to pay, such medical care to be provided preferably by a physician of the patient's choice with funds provided by local agencies with the assistance of federal funds when necessary.

3. The procedures established by modern medicine for advice to the prospective mother and for adequate care in childbirth should be made available to all at a price that they can afford to pay. When local funds are lacking for the care of those unable to pay, federal aid should be supplied with the funds administered through local or state agencies.

4. The child should have throughout infancy proper attention including scientific nutrition, immunization against preventable disease and other services included in infant welfare. Such services are best supplied by personal contact between the mother and the individual physician but may be provided through child care and infant welfare stations administered under local auspices with support by tax funds whenever the need can be shown.

5. The provision of health and diagnostic centres and hospitals necessary to community needs is an essential of good medical care. Such facilities are preferably supplied by local agencies, including the community, church and trade agencies which have been responsible for the fine development of facilities for medical care in most U.S. communities up to this time. Where such facilities are unavailable and cannot be supplied through local or state agencies, the federal government may aid, preferably under a plan which requires that the need be shown and that the community prove its ability to maintain such institutions once they are established.

6. A program for medical care within the U.S. system of individual initiative and freedom of enterprise includes the establishment of voluntary nonprofit prepayment plans for the costs of hospitalization (such as the Blue Cross plans) and voluntary nonprofit prepayment plans for medical care (such as those developed by many state and county medical societies). The principles of such insurance contracts should be acceptable to the council on medical service of the American Medical association and to the authoritative bodies of state medical associations. The evolution of voluntary prepayment insurance against the costs of sickness admits also the utilization of private sickness insurance plans which comply with state regulatory statutes and meet the standards of

the council on medical service of the American Medical association.

7. A program for national health should include the administration of medical care, including hospitalization to all veterans, such medical care to be provided preferably by a physician of the veterans' choice with payment by the Veterans' administration through a plan mutually agreed on between the state medical association and the Veterans' administration.

8. Research for the advancement of medical science is fundamental in any national health program. The inclusion of medical research in a National Science foundation, such as proposed in pending federal legislation, is endorsed.

9. The services rendered by volunteer philanthropic health agencies such as the American Cancer society, the National Tuberculosis association, the National Foundation for Infantile Paralysis, Inc., and by philanthropic agencies such as the Commonwealth fund and the Rockefeller foundation, and similar bodies have been of vast benefit to the American people and are a natural growth of the system of free enterprise and democracy that prevail in the United States. Their participation in a national health program should be encouraged and the growth of such agencies when properly administered should be commended.

10. Fundamental to the promotion of public health and alleviation of illness are widespread education in the field of health and the widest possible dissemination of information regarding the prevention of disease and its treatment by authoritative agencies. Health education should be considered a necessary function of all departments of public health, medical associations and school authorities.

The American Medical association has consistently opposed plans for compulsory sickness insurance such as those proposed by Senators Wagner and Murray and Congressman Dingell. It has favoured, however, proposals for the extension and construction of hospitals and health centres throughout the United States, the extension of preventive medicine through the Social Security act, the establishment of a National Science foundation to encourage co-ordinated and intensified research, the widest possible development of public health facilities and encouragement to the individual states for the prepayment plans to provide medical care to the indigent and the medically indigent and for insurance against loss of wages due to illness and the costs of medical care.

The principal officers of the association following elections by the house of delegates in 1946 were: president, Harrison H. Shoulders, Nashville, Tenn.; president elect, Olin West, Chicago; secretary and general manager, George F. Lull, Chicago; treasurer, J. J. Moore, Chicago; editor of publications, Morris Fishbein, Chicago; business manager, Thomas R. Gardiner, Chicago.

The board of trustees included: James R. Miller, Hartford, Conn.; John H. Fitzgibbon, Portland, Ore.; E. L. Henderson, Louisville, Ky.; Louis H. Bauer, Hempstead, N.Y.; William F. Braasch, Rochester, Minn.; Ernest E. Irons, Chicago; R. L. Sensenich, South Bend, Ind.; Dwight H. Murray, Napa, Calif.; Charles W. Roberts, Atlanta, Ga. (M. Fl.)

American National Red Cross: see RED CROSS.

American Samoa: see SAMOA, AMERICAN.

American Society of Civil Engineers: see SOCIETIES AND ASSOCIATIONS.

American Society of Composers, Authors and Publishers: see SOCIETIES AND ASSOCIATIONS.

American Society of Mechanical Engineers: see SOCIETIES AND ASSOCIATIONS.

American Society of Tool Engineers: see SOCIETIES AND ASSOCIATIONS.

American Veterans of World War II (Amvets).

This organization was founded at Kansas City, Mo., Dec. 10, 1944, by representatives of ten independent veterans' organizations from seven states and the District of Columbia, as an exclusively World War II veterans' organization.

Regular membership is open to any honourably discharged person who served in the armed forces of the U.S. or citizens in the armed forces of any ally of the U.S. between Sept. 16, 1940, and date of cessation of hostilities. Members of the

armed forces on active duty who meet the other requirements are also eligible for regular membership.

There were in 1946 more than 1,050 Amvet posts distributed over every state of the union and the territory of Hawaii; and approximately 100,000 members. National headquarters were located at 724 Ninth St., N.W., in Washington, D.C.

The Second National convention was held in St. Louis, Mo., Nov. 21-24, 1946, at which time Ray Sawyer, Arlington, Va., was elected national commander. At this time, a national program was established to expedite favourable legislation pertaining to veterans' rights and compensations and declaring a national policy and program on various national issues. The program as laid down by the convention includes the following points:

Amendment of the National Service Life Insurance act to make it equivalent in all regards with World War I insurance; the establishment of major veterans' committees in both houses of congress; establishment and protection of employment seniority rights for veterans who do not have re-employment rights under the National Training and Service act; reorganization of the Veterans' administration into a department of veterans affairs, headed by a secretary of cabinet rank; amendment of the federal constitution to enfranchise all 18-year-old citizens; legislation prohibiting the unauthorized wearing, manufacturing or sale of the World War II discharge button; enactment of federal legislation reimbursing amounts paid under state workmen's compensation laws in cases of "second injury" to disabled war veterans; additional \$500 personal income tax exemption for all taxpayers; extension of benefits under the Servicemen's Readjustment act to women who served a minimum of 90 days in the WAC, and were discharged for any reason other than their own misconduct; extension of the provisions of the act granting free cars to amputees so that it may include arm amputees, and so that the amount available to the amputee (\$1,600) may be used as part of a greater purchase price; extension of the amputee provision beyond the existing termination date of June 30, 1947; urging of the Veterans' administration to conduct its own research and purchase only highest quality prosthetic appliances; removal of on-the-job training subsistence ceilings, but increase of the authority of the administering agency to determine what constitutes a bona fide on-the-job program; increase of disability compensation and pensions automatically commensurate with periodic increases in cost of living indices as determined by the department of labour; provision of immediate optional cash redemption of terminal leave bonds; provision of dependency allowances in addition to disability compensation in cases where the veteran has dependents; provision of 15% increase in subsistence allowances for veterans receiving educational benefits under the Servicemen's Readjustment act; approval of the Acheson-Lilienthal report and the Baruch proposal for international control of atomic energy, as well as the reciprocal trade agreement program of the state department; retention of prewar immigration quota limitations; the development of an effective program of international cultural information; establishment of state labour relations committees, to meet at least monthly and study current labour problems within their respective jurisdictions; provisions to encourage research, development and action in the production of low cost rental housing, with guaranteed returns to the investor; retention of ceilings on rental housing and the \$10,000 ceiling on new veterans' housing units; legislation compelling government agencies owning or controlling surplus property and materials essential to veterans' housing to declare such property as surplus so that it may be channelled into the veterans' housing program.

(J. W. Hy.)

Amvets: see AMERICAN VETERANS OF WORLD WAR II.

Anaemia. In 1946 much attention was given to the use of folic acid (vitamin M, B₁₂, pteroyl glutamic acid, L. casei factor) in the treatment of macrocytic anaemias. After the oral or parenteral administration of 2-20 mg. of synthetic folic acid daily, an increase in the number of immature red blood cells in the peripheral blood was noted, followed by an increase in the mature forms. The therapy was effective in pernicious anaemia, and the macrocytic anaemias of sprue, pregnancy, pellagra and in gastrointestinal anaemia. A possible mechanism of action was the increase in cholinesterase after the ingestion of folic acid. Thymine (2-4-dihydroxy-5-methyl-pyrimidine) was found to have an effect similar to that of folic acid, but in larger doses (4.5-10.2 gr. daily). Megaloblastic anaemia in infancy, and pernicious anaemia in childhood responded to folic acid therapy and to liver therapy.

The relation of the Rh factor to haemolytic disease in the newborn was studied extensively. Some cases of maternal Rh sensitization without evidence of haemolytic disease in the child were reported. Rh positive blood was used successfully in the treatment of erythroblastosis fetalis. In adults with idiopathic haemolytic anaemia localized and generalized atrophy of the gastric mucosa was noted. A new type of familial congenital haemolytic anaemia in Filipinos was described, characterized by early appearance, severe symptoms, erythroblastosis, no spherocytosis, normal resistance of the red blood cells to hypotonic saline solutions, microcytosis and hypochromia. Splenectomy did not relieve the anaemia nor jaundice, but the red blood cells became large and hyperchromic. The first case of an acute febrile illness, characterized by thrombocytopenic purpura, haemolytic anaemia and generalized platelet thromboses in a male was reported.

In the military flying personnel the incidence of sicklaemia was 7.37% and there was no intolerance to lowered oxygen tension.

Rats fed on a protein-free diet developed anaemia and a reduction in the number of white blood cells. This change was prevented when 18% casein was added to the diet and corrected after it had appeared when 18% casein and folic acid were given. A diet of purified casein with sulfasuxidine produced a normocytic anaemia in a pig, relieved by liver extract.

In the anaemia of infection the plasma iron was found to be lowered, but the serum copper was increased in amount. Human or dog haemoglobin, injected intravenously into dogs with anaemia and hypoproteinaemia, was utilized in the production of new haemoglobin and plasma protein. Ascorbic acid enhanced the effectiveness of iron in relieving anaemia in children only when scurvy was present. Patients with severe scurvy had a normochromic, normocytic or slightly macrocytic anaemia, with reticulocytosis, moderate leukopenia and thrombocytopenia. Haematological and clinical improvement followed the administration of crystalline vitamin C. Molybdenum sesquioxide with ferrous sulphate was more effective than the latter alone in causing haemoglobin regeneration. Colloidal ferric hydroxide or oxide was utilized for haemoglobin production when given intravenously but was too toxic for therapeutic use. Angular fissures of the mouth and superficial glossitis, resembling vitamin B deficiency, were present in patients with iron deficiency anaemia and disappeared after iron therapy.

Of 1,500 repatriated prisoners of war, 52% showed anaemia (macrocytic, 73%; normocytic, 23%; microcytic, 4%). Some patients exposed to instantaneous doses of radiation (atom bomb) developed anaemia (1,000,000 red blood cells or less per cubic millimeter). Aplastic anaemia was reported following the use of tridione and phenobarbital, in some soldiers treated with atabrine (Quinacrine) and after exposure to products of the sulphite paper industry.

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Anaesthesia. In 1946 the practice of using curare, which followed that of 1945, was expanded. There was some confusion with respect to the designation of the dose in units in contrast to milligrams. It became clear that one had better speak of the drug in terms of milligrams rather than units. Purified products were made as well as the crystalline d-tubocurarine, which was the purest and most easily used of all the products and had the virtue of being uniform.

The Centenary celebration at Boston, Mass., on Oct. 15, 16 and 17 emphasized the long and satisfactory use of diethyl ether and also the great change that had taken place in a century. At one time ether was the only good anaesthetic available but a century later no one anaesthetic could be said to be indispensable. The variety of agents available had increased the choice of anaesthetic so that one could meet most of the surgical needs as well as satisfy the wishes of the patient and his needs other than those which brought him to operation.

In one particular, a great need became evident: the lack of trained personnel for the administration of the various anaesthetic agents. Many institutions laid plans to establish departments of anaesthesiology for the purpose of making training in that field available.

The war had given hundreds of well-trained men the opportunity of demonstrating to many a surgeon for the first time in his experience what could be done by a specialist in anaesthesiology. When the surgeon returned home he carried with him the demand for this new type of service and the hospitals quickly acceded to his desire—so much so that the demand was greater than the supply of suitable personnel. This was true of medical men serving in the uniforms of a number of nations, so that there was a beginning movement all over the world for a change in anaesthesiologic methods and personnel.

Interest in the intravenous use of procaine hydrochloride increased. Procaine was used in the control of postoperative discomfort and in the relief of pruritus.

Anaesthesiologists began to pay much attention to the Rh factor in connection with transfusion of blood into their patients.

They also were concerned about the occasional case of hepatitis caused by virus infection that appeared to be introduced in the administration of solution of dried plasma. (See also SURGERY.)

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Ananda Mahidol (1925-1946), king of Siam, was born Sept. 20, in Germany, son of Prince Mahidol of Songkhla. He was taken to Siam at the age of two and there received his early education. In 1933 he was sent to Switzerland where he spent most of the next 12 years as a student. After the abdication of his uncle King Prajadhipok, Ananda was proclaimed king of Siam, March 2, 1935, ruling under a regency. Although he continued studying in Lausanne, returning to his country only on brief visits, he was greatly revered by his subjects. His desire to return to Switzerland in early 1946, after one of his short sojourns at home, was thwarted by his mother, Queen Phraratanani Sri Sangwan, and powerful politicians.

The youthful monarch dutifully participated in many of the state functions while at the court, but found his greatest pleasure in playing the saxophone and riding over the palace grounds in his U.S. jeep.

In May 1946 he signed a new constitution which provided for a parliament made up of a senate and house of representatives. On June 1 he opened the first meeting of the new popularly-elected legislative body.

Less than a week later the government announced that the king and his royal party were planning to leave for Europe. On June 9, however, almost on the eve of his projected trip, the young monarch was found dead of a bullet wound in his bedroom in the royal palace. Police authorities described his death as accidental, but rumours continued to persist that he had either been murdered or had committed suicide. His brother, Prince Phumiphon Aduldet, succeeded him to the throne.

A formal report issued July 1 by a 20-man medical investigation board, including four foreign physicians, stated that King Ananda was "probably assassinated."

Anderson, Clinton Presba (1895-), U.S. government official, was born Oct. 23, in Centerville, S.D. He attended Dakota Wesleyan university, Mitchell, S.D. (1913-15), and the University of Michigan, Ann Arbor, Mich. (1915-16). Ill health forced him to give up his studies and he went to New Mexico. In Albuquerque, he worked as a reporter and editor on the *Journal* (1918-22) and later turned to selling insurance. In 1935, Anderson was placed in charge of the state's relief administration, and he was chairman of New Mexico's Unemployment Compensation commission (1936-38). In 1940, he was elected on the Democratic ticket to the federal house of representatives and was twice re-elected. Anderson's vote was divided on support of administration measures. He endorsed several domestic measures inimical to the Roosevelt administration, but on the other hand, he approved in large part the administration's foreign policy.

On May 23, 1945, President Harry S. Truman appointed Anderson secretary of agriculture, and on June 29, the president announced the transfer of the War Food Administration to Anderson's control.

In early 1946, Anderson rejected suggestions that food rationing be reimposed in the U.S. in order to alleviate world famine conditions, declaring it would prove impractical. He also favoured lifting of price controls, in opposition to Chester Bowles and Paul Porter who favoured their retention. Congress decided in Anderson's favour by inserting provisions in the new price control act (July 26) that gave the secretary of agriculture authority to act independently of other government agencies. On Oct. 10, he asked for lifting of price controls on meat; four days later (Oct. 14) most controls were lifted by President Truman's abolition of the second OPA bill.

Angling. Returns for fishing licence sales for the year were not available in January, but estimates of conservation officials placed the increase in the number of anglers in 1946 at from 10% to 25%.

The 38th annual casting tournament, held in Indianapolis, Ind., under the auspices of the National Association of Angling and Casting clubs, had a record-breaking attendance, and 6 new world records were set: Ernest Liotta set a $\frac{3}{8}$ -oz. distance bait record with a score of 407 $\frac{1}{2}$ ft.; Dick Miller made a new salmon fly distance record of 197 ft.; J. A. Halbleib cast the first perfect score of 100 in the $\frac{3}{8}$ -oz. accuracy bait; Dorothy Vogel scored 97 in Skish fly; Wilbur Brooks made a score of 82 in the Skish bait event and Charles Sutphin became accuracy baits champion with a new high score of 197.

Manufacture of fishing tackle was delayed by shortages of materials and the process of converting factories from war production back to their normal products. All items of equipment were scarce both in England and the United States.

Only one new world record fish was caught during the year. R. N. Rose took a 14-lb. spotted weakfish from Lake Worth, Fla., on Feb. 9. (T. Tb.)

Anglo-Egyptian Sudan. A territory in northeast Africa under the joint sovereignty of Great Britain and Egypt. Area: 967,500 sq.mi.; pop. (est. 1942): 6,591,000. Chief towns: Khartoum (46,311); Omdurman (117,041); Wad Medani (5,429); El Obeid (33,328); Kassala (30,026); Berber (20,000); Port Sudan (26,255); Atbara (19,757). Languages: English, Arabic and various Nilotic and Negro tribal dialects in the south. Religion: Mohammedan; south Sudan 20% Christian. Governor general in 1946, Major General Sir Hubert Jervoise Huddleston.

History.—All events in the Sudan in 1946 were overshadowed by the consultations taking place in Cairo between the British and Egyptians respecting the future status of Egypt. The future of the Sudan entered the discussions, but the British foreign secretary gave his pledge in March that no change should be made in its status before the Sudanese had been consulted "through constitutional channels." He also stated that the aim of administration in the Sudan was the establishment of self-government as a first step toward eventual independence. In the prevailing mood of excitement in the Sudan the Umma party, led by Sir Abdel Rahman el Mahdi, which stood for complete independence, persistently made its voice heard. Much rioting in Khartoum took place as a result of rumours and a statement by Sidky Pasha that the Sudan would be embodied under the Egyptian crown (*see* EGYPT). Gordon college was shut. Three thousand Umma party followers demonstrated in Khartoum in October and presented a petition to the governor calling for independence. The British foreign office paid £100,000 to the Sudan as the first instalment on the £2,000,000 to be paid over four years for improving the social services. In 1945 the Sudan had initiated a five-year plan for spending £11,500,000.

The report of the Sudan Plantations syndicate, an important cotton-growing combine, announced a dividend for 1945 of 10% and a bonus of 12%. The first quarter of the year saw heavy damage to the cotton crop from an insect pest, the *jassid*. The building of a new aerodrome at Khartoum was announced, at the intersection of the north-south and the east-west air routes across Africa. The government announced its intention of providing the capital for a company to be known as Sudan Airways. A war memorial dedicated to the forces of the Belgian Congo, who died fighting on Sudanese soil during World War II, was unveiled at Malakal. In September the Blue Nile overflowed its banks and part of Khartoum was under water. Considerable damage was done to maturing crops. The railway be-

tween Khartoum and Atbara was washed out. Thousands were made homeless in the northern province and river steamers were used to evacuate the inhabitants of the submerged islands. Relief measures were organized and food was issued to avert starvation. The proposals to make Atbara a municipality received the assent of the civil and financial secretaries. Arrangements were made for Sudanese judges to attend courses of study in Great Britain. The Sudan Medical association held its first meeting.

Education.—Elementary schools (1945) 117 (19,400 boy pupils); girls' schools 62 (6,700); technical schools 2 (221 boys); private schools 52 (6,900 boys and 3,300 girls); sub-grade and Koran schools 345 (23,000). Gordon Memorial college, students 134, excluding Kitchener school of medicine.

Finance.—Revenue £E6,578,769; expenditure £E6,529,662 (1944). Currency: Egyptian pound (£E)=413.8 U.S. cents.

Trade and Communication.—For the first six months of 1946 imports totalled £E5,787,000 and exports £E5,118,000. The principal government imports were 17,160 short tons of sugar valued at £E428,000 and 33,772 short tons of coal and coke valued at £E128,000. Great Britain contributed 20% of the imports and received 42% of the exports. India came next with 29% and 28% respectively, followed by Egypt with 18% for both imports and exports. Communications: roads for motor traffic *c.* 1,000 mi.; railways 1,991 route mi.; river service 2,325 mi.; motor vehicles licensed (1944) 3,399 cars, commercial vehicles and cycles; telephone subscribers (1945) 3,546. Telephone communication with Great Britain was re-established at the close of 1945.

Agriculture and Mineral Production.—Exported production for the first six months of 1946 (in short tons): raw Egyptian cotton 33,728; gum arabic 18,957; cotton seed 38,500. Gold production (1944): 0.062 kg. (G. A. V.)

Angola: *see* PORTUGUESE COLONIAL EMPIRE.

Animal Fats: *see* VEGETABLE OILS AND ANIMAL FATS.

Animal Industry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Annam: *see* FRENCH COLONIAL EMPIRE.

Anniversaries and Centennials: *see* CALENDAR, 1947, page xxii.

Anthropology. The year 1946 was marked by a resumption and acceleration of anthropological activities which had been curtailed and retarded in most countries during the war years. In the United States the National Research council's committee on international co-operation in anthropology (M. J. Herskovits, chairman) continued its efforts to assemble information on the status of anthropology in countries affected by the war. In Europe the first concerted effort to re-establish contacts among anthropologists was a meeting at Oxford of the permanent council of the International Congress of Anthropological and Ethnological Sciences. Delegates from 21 countries participated in the meeting, which was arranged by Sir John Myres, permanent secretary of the congress. It was decided to hold the next full meeting of the congress in Prague in Aug. 1947. Following the Oxford meeting the Abbé H. Breuil delivered the deferred 1941 Huxley Memorial lecture before the Royal Anthropological institute on "The Discovery of the Antiquity of Man." On April 30 A. L. Kroeber delivered the 1945 Huxley lecture on the subject "The Ancient Oikoumene as an Historic Culture Aggregate." Miss Gertrude Caton-Thompson was designated Huxley Memorial lecturer for 1946.

With record enrolments in the universities and colleges, anthropology courses were expanded and teaching personnel increased. Anthropology was offered for the first time at Colgate

university, Hamilton, N.Y.; Hamilton college, Clinton, N.Y., and the University of North Carolina, Chapel Hill, and the following institutions enlarged their departments: Buffalo, Chicago, Connecticut, Cornell, Harvard, Hawaii, Indiana, Michigan, Ohio, Syracuse, Toronto, Wayne and Wisconsin. In England A. R. Radcliff-Brown retired from the chair of social anthropology at Oxford and was succeeded by E. E. Evans-Pritchard. S. Pigott became professor of anthropology at the University of Edinburgh, succeeding V. G. Childe who was appointed to the newly created chair of prehistoric European archaeology at the University of London. R. Firth assumed the post of professor of anthropology at the London School of Economics and F. Wood Jones was appointed to the chair of anatomy at the Royal College of Surgeons. In Norway, K. E. Schreiner retired as professor of anthropology at the University of Oslo and was succeeded by Jan Jansen.

George Foster became director of the Institute of Social Anthropology of the Smithsonian institution, replacing J. H. Steward who went to Columbia as professor of anthropology, where he succeeded R. Linton who accepted the Sterling professorship in anthropology at Yale. A. Metraux joined the staff of the United Nations as senior social officer in the department of social affairs.

The Museum of Anthropology of the University of Michigan announced the appointment of J. B. Griffin as director, and A. Leroi-Gouran was named assistant director of the Musée de l'Homme, Paris. In Oslo the rector of the university, D. A. Seip, resigned to become president of the Instituttet for Sammenlignende Kulturforskning (Institute for Comparative Research in Human Culture). G. Gjessing, of the institute, devoted the year to a comparative study of pictographs at research centres in the United States and Canada.

In the United States the *Yearbook of Physical Anthropology*, 1945, edited by G. W. Lasker and published by the Viking fund, made its first appearance in 1946. R. Linton assumed editorship of the Viking fund publications in anthropology, and W. B. Fagg and J. C. Trevor were appointed editors of *Man* and the *Journal* of the Royal Anthropological institute. A number of European publications which had suspended during World War II were resumed, and in France a new journal, *Le Journal de la Société des Océanistes*, was issued under the editorship of M. Leenhardt and Father P. O'Reilly. Vol. 50, nos. 1-2 of *L'Anthropologie*, covering the years 1941-46, appeared in June 1946. It contained a detailed study of the Chancelade skull by H. V. Vallois, who concluded that the skull did not show Eskimo affinities as had often been asserted. *Anthropos*, vol. 37-40, for the years 1942-45, also appeared in June 1946, carrying an article by C. C. Uhlenbeck "Ur- und altindogermanische Anklänge im Wortschatz des Eskimo." In this latest of his comparative linguistic studies Uhlenbeck presented extensive new evidence that Eskimo had been subjected to strong Indo-European influence in the remote past. This conclusion, of crucial importance in connection with the problem of the origin of the Eskimo, was accepted by the eminent Eskimo linguist, Wm. Thalbitzer, in an article "Uhlenbeck's Eskimo-Indoeuropean Hypothesis," which appeared in *Travaux du Cercle Linguistique de Copenhague*, vol. 1, 1945.

In a move to bring about closer co-ordination between the different branches of the discipline the American Anthropological association at its annual meeting in Dec. 1946 received the report of a committee (J. H. Steward, chairman) appointed to study and make recommendations concerning reorganization of the association. The committee's report was accepted and a new constitution was adopted which provided for reclassifying membership, setting up definite criteria for professional membership, and establishing an executive board of seven members, with broad powers, to work on behalf of the association between an-

nual meetings. Ruth Benedict was elected president of the American Anthropological association and Hortense Powdermaker of the American Ethnological society. The American Association of Physical Anthropologists re-elected W. M. Krogman as president.

The Viking fund announced the establishment of an annual award of three gold medals and prizes of \$1,000 each in archaeology, cultural anthropology and physical anthropology. Recipients of the prizes for 1946, selected by the representative American anthropological associations, were A. V. Kidder for archaeology, A. L. Kroeber for cultural anthropology, and F. Weidenreich for physical anthropology. In the U.S.S.R. the 1st and 2nd class Stalin prizes of 100,000 and 50,000 rubles were awarded respectively to F. S. Malkhasyan for his interpretative dictionary of the Armenian language and to B. B. Protrovskii for his archaeological and historical account of the old Vannic kingdom of Georgia. H. J. Fleure, president of the Royal Anthropological institute, received the Victoria medal of the Royal Geographical society for his researches in the human aspects of geography. Peter H. Buck, director of the Bishop museum, Honolulu, was knighted (K.C.M.G.) for his services to science and literature.

Field studies, though fewer than in prewar years, showed a marked increase in 1946. As part of the work of a joint Columbia-Yale-Smithsonian expedition to Peru, G. F. Willey and F. W. McBryde studied prehistoric and modern settlement patterns in the Viru valley and Alan Holmberg made a community study of the town of Viru. A Chilean scientific mission of nine members, sponsored by the University of Chile and directed by A. Lipschutz, conducted field studies among the Yahgan, Ona and Alakaluf of Tierra del Fuego.

Through a grant from the Arctic Institute of North America Margaret Lantis conducted psychological and ethnological studies among the Eskimos of Nunivak Island, Alaska. A. I. Halliwell, with a party of six graduate students from Northwestern university, spent two months among the Ojibwa of northern Wisconsin collecting data for a comparative study of personality under acculturation. Four anthropologists, W. R. Bascom, E. T. Hall, Jr., Leonard Mason and John Useem, participated in an economic survey of Micronesia for the U.S. Commercial company, under the direction of Douglas L. Oliver. Another research group, including John F. Embree, anthropologist, was sent out by the University of Hawaii to make a survey of anthropological, botanical, geographical and zoological conditions in Micronesia.

The Hill tribes of Burma were studied by H. N. C. Stevenson, director of frontier areas, and R. F. Fortune, government anthropologist. British anthropologists conducting field research in Africa included Mary Danielli, Madagascar; Eva Meyerowitz, Gold Coast; Phyllis Kaberry, Cameroons; and K. L. Little, Sierra Leone.

L. S. B. Leakey reported the finding of two jaws of the extinct anthropoids *Proconsul* and *Xanopithecus*, from the Lower Miocene deposits of Rusinga Island in Victoria Nyanza. G. H. R. von Koenigswald arrived in New York with all of the fossil hominid material he had discovered in Java, including the entire series of *Homo soloensis*, the *Modjokertensis* infant skull, the *Pithecanthropus robustus* and *Meganthropus* remains, as well as the *Gigantopithecus* teeth from China.

Under the direction of Stith Thompson, the Folklore Institute of America held its second summer session at Indiana university with 15 folklore specialists present. A second conference on Iroquois studies, organized by W. N. Fenton and bringing together ethnologists, linguists, archaeologists and historians on the Lower Great Lakes area, was held at Allegany State park, New York.



GIANT HUMAN TEETH and skull and jawbone fragments displayed on Sept. 19, 1946, at the American Museum of Natural History, New York city, by G. H. R. von Koenigswald, who brought them from China and Java. They were thought to be the most primitive human specimens ever discovered, dating back about 500,000 years

A number of important publications appeared in 1946. Outstanding among them were two bulletins of the Bureau of American Ethnology: *Handbook of South American Indians*, edited by J. H. Steward, and *The Indians of the Southeastern United States*, by J. R. Swanton. The handbook, vol. 1 and 2 of a 5-vol. series prepared in co-operation with the U.S. department of state, contained articles by 32 different authors and provided the first comprehensive summary of existing knowledge of the South American Indians. Swanton's volume of 953 pages assembled a vast body of information on the ethnology and history of the Southeastern Indians and represented the culmination of a lifetime of study devoted to these tribes. Two important volumes appeared under the authorship of Kaj Birket-Smith, a general handbook of ethnology, *Eine allgemeine Ethnologie*, and *Ethnological Collections from the Northwest Passage*, vol. 6, no. 2 of the Reports of the Fifth Thule expedition. The latter, a detailed description of the material culture of the central Eskimos, concluded with a further exposition of the author's views on the origin and relationships of Eskimo culture. Margaret Lantis' *The Social Culture of the Nunivak Eskimo* was the first complete and scientific study of the social culture of any Alaskan Eskimo group. *Outlines of the Geography, Life and Customs of Newfoundland-Labrador*, by the Finnish geographer V. Tanner, included a comprehensive study of the Labrador Indians, Eskimos, and whites.

In the field of linguistics a notable work was *Linguistic Structures of Native America*, no. 6 of the Viking fund publications in anthropology, containing 14 articles by H. Hoiyer and others. Another important linguistic contribution was Leslie Spier's

Comparative Vocabularies and Parallel Texts in Two Yuman Languages in Arizona, issued by the University of New Mexico.

In *Apes, Giants, and Man*, F. Weidenreich described the new fossils from Java and China which form the basis for his revolutionary theory that man's earliest ancestors were giants. Another work that held important implications for human phylogeny was *The South African Fossil Ape-Men—The Australopithecinae*, by R. Broom and G. W. H. Schepers. In this memoir of the Transvaal museum the authors presented new evidence that *Australopithecus*, *Plesianthropus*, and *Paranthropus*, whose teeth and limb bones exhibit a remarkable blend of hominid and simian features, should be assigned to the Lower or Middle Pliocene rather than the Lower Pleistocene.

Among other important works that appeared in 1946 were *Cheran: A Sierra Tarascan Village*, by Ralph L. Beals; *From Savagery to Civilization*, by Grahame Clark; *What Happened in History*, by V. G. Childe; *Heredity, Race, and Society*, by L. C. Dunn and Th. Dobzhansky; *Suye Mura, a Japanese Village*, by John F. Embree; *Human Genetics*, by R. R. Gates; *Malay Fishermen: Their Peasant Economy*, by R. Firth; *The Last Trek of the Indians*, by Grant Foreman; *Water Transport: Origins and Early Evolution*, by J. Hornell; *Caste in India*, by J. H. Hutton; *Legends and Cults in Ancient China*, by Bernhard Karlgren; *Delaware Culture Chronology*, by Vernon Kinietz; *Warriors Without Weapons*, by Gordon Macgregor; *The Eastern Timbira*, by Curt Nimuendajú, translated and edited by R. H. Lowie; *Primitive Education in North America*, by G. A. Pettitt; *Not by Bread Alone*, by Vilhjalmur Stefansson; *Dating the Past: An Introduction to Geochronology*, by Frederick E. Zeuner.

(H. B. Cs.)

Anti-Aircraft Guns: see MUNITIONS OF WAR.

Antigua: see LEEWARD ISLANDS.

Antilles, Greater and Lesser: see WEST INDIES.

Antimony. The salient features of the antimony industry in the United States during late years are indicated in the table.

Data of Antimony Industry in the U.S., 1940-45

	(Short tons)					
Production	1940	1941	1942	1943	1944	1945
In ore	494	1,214	2,944	5,556	4,735	1,930
In alloys*	2,077	2,958	3,267	2,085	2,857	1,992
Imports	16,216	27,504	21,474	29,969	17,761	24,649
In ore	15,733	19,386	20,946	28,755	17,080	22,643
Metal	209	7,469	127	932	293	627
Other forms†	274	649	401	282	388	1,379
Consumption, primary	17,955	29,994	23,852	19,508	23,756	25,761
Secondary recovery	11,421	21,629	18,200	15,483	15,886	17,148

*Antimony content of antimonial lead produced from foreign and domestic ores.

†Estimated antimony content of alloys, oxide and liquated sulphide.

Production of metal from straight antimony ores was largely from imported ores; most of the domestic recovery was from concentrates separated from complex ores of antimony and gold, mercury, copper, or tungsten, or from lead-antimony ores that went to smelters of antimonial lead. The easing of war demand, combined with low prices and increasing costs of production, shut down several of the smaller smelters, and in 1946 the shortage became as acute as at any time during the war years—so much so, in fact, that it became difficult to supply storage batteries for automobiles.

Output was also heavily cut in the countries supplying ore imports to the United States, especially Bolivia and Mexico, and there was little prospect for improvement except through increased prices.

(G. A. Ro.)

Anti-Saloon League of America: see SOCIETIES AND ASSOCIATIONS.

Anti-Semitism. The world stood an excellent chance in 1946 of permanently eliminating overt anti-Semitism. More subtle forms might then also eventually disappear.

Despite Hitler's attempt to indoctrinate the occupied nations of Europe, Jews were slowly beginning to rebuild and re-integrate their lives. There was little talk of a "Jewish" problem in Belgium, the Netherlands, France or the Scandinavian countries. The population of Jews in these countries had been decimated. But freed of nazism, these traditionally liberal states reverted to their prewar pattern of life in which Jews found full equality of rights and responsibilities.

Italy, which had yielded only reluctantly to nazi pressure during the war, also reverted to its liberal treatment of Jews. In 1946 Italy welcomed new citizens of Jewish faith and offered all refugee Jews, stranded in Italy, opportunity to acquire Italian citizenship.

Czechoslovakia and Austria were bright spots in middle Europe. While in both countries restitution of property presented a more difficult problem where Jews were concerned than for those not of Jewish faith, on the whole anti-Semitism seemed to have passed with the collapse of nazism. Czechoslovakia offered Jews equal rights as individual Czech citizens. The country abolished all recognition of minority group rights and called for an abandonment of Zionism (Jewish Nationalism) as a part of the general program. But individual Jews who wished integration as Czech citizens were secure. Conditions in Austria had improved so that several thousand Jews attempted to return there from Palestine.

It was in eastern Europe, exclusive of the U.S.S.R., where anti-Semitism seemed to be indigenous and continued even after nazism's collapse. Poland was the scene of a pogrom in the



EUROPEAN JEWS in Palestine in 1946 still wore the Shield of David on their coats—a badge of shame in nazi concentration camps, a badge of honour in Palestine

summer of 1946. There were sporadic reports of mistreatment of Jews all during the year in Poland. Polish Jews seemed determined to leave the country and streamed across Europe to the U.S. occupation zone in Germany. Rumania, Hungary and Bulgaria, where a major percentage of Europe's surviving Jews lived, were still uncertainties in 1946. If they remained in the soviet orbit, it was likely that anti-Semitism would be forcibly eliminated in legal fashion as in the soviet. Eastern Europe therefore was a question mark, hidden behind the veil of soviet control. Yet, it probably held the key to the future of virulent anti-Semitism on the continent.

Two new trouble spots appeared in 1946 as a result of the attempt to claim Jewish national rights in Palestine. The Arab world became violently anti-Zionist. There was danger that this feeling might become anti-Jewish.

The same Palestinian crisis had its impact in England. British soldiers were killed in Palestine by Zionist terrorists, and in the summer British government headquarters in the King David hotel in Jerusalem were bombed, with a heavy loss of life. There was the serious possibility that in England, too, anti-Zionism might boil over into anti-Semitism. It was already noticeable in the British army as a result of the conflict in Palestine.

Latin America seemed relatively free of anti-Semitism. Brazil, Venezuela, Mexico, the Dominican Republic, were offering immigration opportunities to the displaced Jews of Europe or were being discussed as possibilities for such immigration.

In the United States the prewar anti-Semites failed to make a comeback during the most chaotic period of reconversion. Liberal forces seemed on the offensive against anti-Semitism. The Ku Klux Klan was banned in a number of states, among

them Georgia, where it had had its renaissance in the 1920s. Several states passed Fair Employment Practice codes. One benefit of such codes was a partial elimination of economic discrimination against Jews. There were numerous organized cooperative efforts enlisting Jews and Christians to root out anti-Semitism and eliminate it. There was a general awareness that anti-Semitism was a social malady that destroyed all society and could not be confined to disabilities for Jews.

Two thousand years during which anti-Semitism had existed cautioned against overoptimism. Yet, religious fanaticism was no longer a major force. The Hitlerian racial theories had been discredited. The peace that was still undefined and unfinished in 1946, therefore, held the answer to the future of anti-Semitism. If it recognized and encouraged a fragmented world, with segregation of all kinds of groups, anti-Semitism would be one friction caused by such policies. If the peace was to be broad and move nations and their people toward integration, anti-Semitism would be diminished by the degree to which such a peace obtained. Its rise had been part of world disintegration before 1946. It had reached a low ebb, in the over-all picture, in this year of transition. It would ebb out slowly or mount to new furies beyond 1946, depending upon democracy's ability to win the peace of the war it had so mightily won. (See also FASCISM; JEWISH RELIGIOUS LIFE; REFUGEES.) (EL. BR.)

Antitank Guns: see MUNITIONS OF WAR.

Antitrust Law: see LAW.

Antonescu, Ion (1882-1946), Rumanian soldier and statesman, was born on June 2 in Transylvania. He fought with the Rumanian armies in World War I and served as military attaché in his country's embassies in London and Rome after the war, later rising to chief of the army's general staff and war minister. German demands on Rumania early in World War II led to serious internal disorders and King Carol was compelled to offer the premiership to Antonescu, whose pro-Nazi sentiments were public knowledge. On taking office Sept. 5, 1940, he promptly forced Carol's abdication, established a totalitarian regime and ruled as an absolute dictator. Under Antonescu Rumania became a German puppet state and on June 22, 1941, he joined Hitler in declaring war on the Soviet Union. Rumanian armies, simultaneously with the German forces, invaded Russia; Antonescu assumed the title of generalissimo and commander of Rumanian armies in Bessarabia. During the Soviet counterattack which penetrated Rumania in 1944, Antonescu was arrested by King Michael I, who had succeeded his father Carol to the throne, and in Sept. 1944, Antonescu and other Rumanians accused of active collaboration with the Nazis were turned over to Soviet military authorities.

On May 17, 1946, after a ten-day trial in a Rumanian people's court, Antonescu and 12 of his associates were convicted on charges of war crimes and sentenced to death.

Both the Rumanian supreme court and King Michael refused his appeal for clemency and Antonescu was executed on June 1.

Apples: see FRUIT.

Applied Chemistry: see CHEMISTRY.

Applied Psychology: see PSYCHOLOGY.

Appropriations and Expenditures: see BUDGET, NATIONAL.

Aquariums. The outstanding aquarium event of 1946 was the reopening of Marineland, St. Augustine, Fla. This oceanarium was first able to equip and fill one of its two enormous tanks early in the year and later the other

was completed with its wide selection of local marine fishes and porpoises.

The aquarium of the London, England, zoo, was reopened during the year with a modest collection, but no others closed by the war were re-established.

Neither did any of those prepared in plan materialize, although there was a trend toward the use of such institutions for the study of fishes in general, with the view of conserving the last big natural resources of all countries—the oceans and their contents.

In only one major live-fish exporting country, Brazil, had collectors re-established themselves, but the fishes so far available were not of the species a large aquarium could use for its basic exhibits, most of the stock being mainly suitable for small domestic aquaria. These were all taken immediately by fanciers, however. (C. W. C.)

Aqueducts. Artificial waterways are essential in the development of the western rivers of the U.S. to provide irrigation, municipal and domestic water supplies, flood control and power. Up to 1946 the bureau of reclamation in the department of the interior had developed, designed and constructed many projects to conserve and wisely utilize the rivers and water resources in the 17 western states. It had built more than 15,000 mi. of main canals, more than 100 mi. of tunnels and had placed more than 13,000,000 ft. of pipe.

During 1946 the 71-mi. long San Diego aqueduct designed by the bureau had been more than half completed by the navy department. It was to connect with the Metropolitan Water district's 241-mi. Colorado River aqueduct near San Jacinto, Calif., and when finished would carry up to 50,000,000 gal. of Colorado river water daily to San Diego. The placement of precast concrete pipe varying from 48 to 96-in. in diameter and the excavation of 7 tunnels was in progress.

The 41-mi. long Salt Lake aqueduct on the Provo River project, Utah, was more than half completed by the bureau. It was to transport 150 second ft. of water from Deer Creek reservoir, located 16 mi. northeast of Provo, to the vicinity of Salt Lake City, where the water would be used for industrial, domestic and irrigation purposes. Completed portions totalled 23 mi. in length and included the 6½-ft. diameter Olmstead tunnel, the 3-mi. Alpine-Draper tunnel and 19½ mi. of 69-in. diameter precast concrete pipeline. The fabrication and placement of plate-steel pipeline at high pressure sections were under way.

Aqueduct construction on the bureau's Colorado-Big Thompson project involved the completion of the 13-mi. Alva B. Adams tunnel, "holeing through" of the 10-ft. diameter 1.3-mi. Rams Horn tunnel and excavation work on the 12½-ft. diameter 1.1-mi. Prospect Mountain tunnel and on the 10¾-ft. diameter Aspen Creek siphon. These structures between Estes Park and Grand Lake, Colo., would convey Colorado river water from the western slope of the Rocky mountains to the Big Thompson canyon on the eastern slope for power production and supplemental irrigation of 615,000 ac. of fertile farm land in northeastern Colorado.

Construction was completed or under way on 115 mi. of the 145-mi. long Coachella canal which branches from the All-American canal 18 mi. east of Yuma, Ariz., and extends northwest as far as Indio, Calif. It was to convey 2,500 second ft. of water to irrigate 75,000 ac. of land in the Coachella valley.

On the bureau's multimillion-ac. Central Valley project in Calif., the 47-mi. long Contra Costa canal for furnishing irrigation, municipal and industrial water supplies to the bay region of the Central Valley was rapidly nearing completion; the 160-mi. Friant-Kern canal which would assist the completed Madera canal in carrying water from Millerton lake at Friant dam to

the fertile San Joaquin valley was under construction to mi. 73; the Delta-Mendota canal for conducting water upstream along the San Joaquin river and into the river again at Mendota, Calif., was under construction for a distance of 24 mi.; and the 50-mi. Delta Cross channel for diverting Sacramento river water to the San Joaquin river was scheduled for early construction.

The construction of water conductors was initiated by the bureau on the Columbia Basin project for transporting Columbia river water stored in Lake Roosevelt at Grand Coulee dam to irrigate 1,000,000 ac. of land in central Washington. The work included 13 mi. of the largest irrigation canal in the Pacific Northwest; 6½ mi. of the West canal, a branch of the main canal; the 2-mi. Bacon tunnel and the 1,020-ft. Bacon siphon which are 23-ft. in diameter; and two 25-ft. diameter siphons on the West canal. (See also CANALS AND INLAND WATERWAYS; DAMS; TUNNELS.) (M. W. Ss.)

ARA: see AGRICULTURAL RESEARCH ADMINISTRATION.

Arabia. A peninsula of c. 922,800 sq.mi.; population (est.) 10,084,000. It consists politically of two independent Arab states, Saudi Arabia and Yemen, of the nominally independent sultanate of Oman and Muscat (Masqat), of the territories of the Trucial sheikhdoms of Oman and Qatar (British protectorates), of a nominally independent sheikhdom of Kuwait and of the colony and protectorate of Aden (*q.v.*). Language: Arabic; religion: Mohammedan. Rulers: Saudi Arabia, King Abdul-Aziz ibn Abdurrahman al-Faisal Al-Sa'ud; Yemen, Zaidi Imam Yahya ben Muhammed ben Hamid ed Din; Oman and Masqat, Sultan Sayyid Sa'id bin Taimur; Kuwait, Sheikh Ahmad ibn Jabir al Subah.

History.—On a state visit to Cairo in January King Ibn Sa'ud told Palestinian Arabs that the question of the Arabs and Palestine was a question for Islam in all Arab countries. On returning home Ibn Sa'ud declared that Egypt was "truly the example and hope of all Arabs" and advised all Arabs to rally round the Arab league. This league tended to become representative of the Arab upper classes rather than of the masses.

After publication of the Anglo-American report on Palestine an Arab rulers' conference at Cairo was attended by Emir Faisal of Saudi Arabia, King Abdullah of Transjordan, Emir Yahya of Yemen, Emir Abdul-Ilah, regent of Iraq and the presidents of the Syrian and Lebanese republics. On May 30 it was announced that the Arab kings and presidents would oppose any further immigration into Palestine. They hoped that the cordial relations between the Arab nation and Britain and the U.S.A. would not be disturbed by the insistence of the latter on measures affecting the rights of Palestine Arabs, since any disturbance in that country would be a threat to world peace.

The American-Arabian Oil Company (jointly owned by the Texas Company and Standard Oil Company of California in equal parts) agreed to an extension of its pipeline across Saudi Arabia from the Persian gulf to Egypt, and to the building of a new refinery at Suez or Alexandria. The Transcontinental and Western Air Inc. (of America) opened negotiations with Ibn Sa'ud for a civil aviation agreement. Saudi Arabia received a loan of £6,250,000 from the Export-Import bank.

(R. F. O. B.)

Finance.—The monetary unit in Saudi Arabia is the Saudian rial. Exchange rate, 1942: 1 rial=Rs. 1 (Indian)=30.12 U.S. cents.

Trade.—With Great Britain: (1945) Saudi Arabia and Yemen, imports £17,000; exports £94,000; (1938) Oman and Masqat, Trucial sheikhdoms and Kuwait, imports £40,262; exports £18,354. Saudi Arabia exports: skins, wool, gold, charcoal, cattle, dates, clarified butter, gum. (See also ARAB LEAGUE.)

Arab League. The League of Arab States (*Jāmi'at al-Duwal al-'Arabīyah*) came into existence at Cairo on March 22, 1945, when seven independent states signed a pact safeguarding the sovereignty and independence of each and promising mutual co-operation. These states were Syria, Trans-Jordan, Iraq, Saudi Arabia, Lebanon, Egypt and Yemen. The aim of the league, as stated in the pact, is "to strengthen the close relations and numerous ties which link the Arab states" and "to support and stabilize these ties upon a basis of respect for the independence and sovereignty of these states and to direct their efforts toward the common good of all the Arab countries." At the insistence of Lebanon, the only Christian state in the league, the right of each member to adhere or secede from the organization was recognized. The door was left open for other Arab states to join as they win their independence. In an annex to the pact "the independence of Palestine in the legal sense" was proclaimed and the league took upon itself the right of appointing an Arab representative for Palestine "until the country can effectively exercise its independence."

The pact provides for a council, several committees and a secretariat general. It makes Cairo the permanent seat of the league but authorizes the council to hold its sessions elsewhere. An Egyptian, 'Abd-al-Rahman 'Azzam Bey (later Pasha) was appointed secretary general. The council is composed of representatives of the Arab states, each one of which has one vote only. The council is entrusted with the task of carrying out the purposes of the league and collaborating with any international organizations to guarantee peace and security. The committees of the league study and report on matters of common interest including economic and financial problems, communications, cultural affairs, nationality, social welfare and public health.

The pact forbids resort to force in the settlement of disputes between member states. In case of aggression or threat of aggression, the league, at the request of the threatened member, takes whatever measures it deems necessary.

The league came as a culmination of prolonged attempts at co-operative effort for mutual benefit among Arab states going back to World War I. World War II introduced the Zionist problem and the mandatory system and enhanced Arab nationalism and the desire for collaboration. In a speech on May 29, 1941, British Foreign Secretary Anthony Eden declared that "His Majesty's Government will give full support to any scheme" that the Arabs may desire for "a greater degree of unity than they now enjoy." On Feb. 24, 1943, he declared, "As I have already made plain the British Government would view with sympathy any movement among the Arabs to promote economic, cultural, or political unity, but clearly the initiative in any scheme would have to come from the Arabs themselves."

The initiative came from Egypt. Its prime minister, Nahas Pasha, soon after that invited the various Arab governments to send representatives to Cairo for consultation. Iraq, Trans-Jordan and Syria showed the largest measure of enthusiasm. Lebanon was not prepared to go as far as these neighbours by way of federation or union. Saudi Arabia was hesitant, suspicious that Iraq, Trans-Jordan and Syria might form a bloc against that country. Egypt, which until then had developed no keen interest in any Pan-Arabic movement, contributed to overcoming the early difficulties in the way of organization. As the largest, richest and strongest of the Arab states Egypt now aspired for a position of leadership in Arab affairs.

The rising feeling of solidarity among the Arab countries, even before they were organized as a league, was manifest in the Franco-Lebanese crisis of Nov. 1943. During the Franco-Syrian crisis of May-June 1945 the council of the league declared France the aggressor, supported the demand of Syria and Lebanon



ARAB LEAGUE LEADERS, assembled in Cairo, Egypt, on May 28, 1946, to organize opposition to Jewish immigration to Palestine. Left to right, Seif al Islam Abdullah of Yemen, Sheikh Bishara el Khoury, president of Lebanon, President Shukri el Quwatli of Syria, King Farouk I of Egypt, King Abdullah of Transjordan, and Emir Saud, crown prince of Saudi Arabia

for immediate evacuation of French troops and promised aid. In June 1946 the council held a session in Bludhan, Syria, to frame replies to the United States and British governments, which had raised questions about the possibility of admitting 100,000 Zionists to Palestine. All the states took a firm stand against any further immigration into Palestine. (See also ZIONISM.)

BIBLIOGRAPHY.—*Pact of the Arab League* (the Arab Office, Washington, D.C. [1946]); Majid Khadduri, "Towards an Arab Union: The League of Arab States," *American Political Science Review*, vol. XL, no. 1, pp. 90-100 (Feb. 1946). (P. K. H.)

Archaeology. **Eastern Hemisphere.**—Archaeological activity, in 1946, was getting ready, but was not quite going. On-the-spot organizations, such as the various national departments of antiquities, were busy, but the anticipated postwar burst of activity had not yet begun.

So far as reports were available, no highly spectacular discovery was made during 1946, although several very important contributions to archaeological and historical knowledge did appear. One of the most provocative of these was the information on a Roman trading establishment in India. At this site, Arikamedu, on the southeast coast of India, in the tiny French holding at Pondicherry, the French authorities generously gave permission to excavate to the Archaeological Survey of India. The spirit in which this excavation was accomplished, and the historic sense of the extent of the Indo-Roman economic relationships which it calls up, augured well for the coming new phase of archaeology.

The most important find of Palaeolithic material reported in the year was L. S. B. Leakey's Acheulean "camp sites" at Olor-

gesailie, Kenya, Africa (*Antiquity* xx). Only the latest aspects of the widespread Acheulean facies had been found on actual living floors. The earlier Acheulean type of flint tool has always appeared in geologically redeposited beds. The Olorgesailie sites lie on old land surfaces which later became interbedded between layers of lake sediments, but the original human disposition of the camp sites is said to be undisturbed. The animal bones of the Olorgesailie sites are of extinct species of elephant, hippopotamus, giraffe, pig and baboon—the latter two of giant size. This fauna is assessed as middle Pleistocene.

Leakey reported round stone balls, often found in sets of threes, which he interpreted as bola stones. Bolas are thong-connected groups of stones, used to hurl at the legs of running animals so as to entangle and trip the prey, which can then be finished off with a club. These, taken with the Acheulean type hand axes and cleavers, were the only tools reported—flake tools were not mentioned. Fire was not evidenced, nor graves. The bones of the animals were usually found in a split condition, and their skulls had been smashed—presumably the hunters sought the marrow and brains as well as the meat of their prey.

Europe.—The year's discoveries in Britain were more in the way of detailed substantiation of materials already known, than of spectacular new finds. The *Illustrated London News* showed newly recovered Neolithic sacred circles of Windmill Hill context, and also accounted for several occurrences of tessellated pavements and mosaics of Roman times and of Romano-British pottery. The great circular structures or "henges" of England are usually associated with Early Bronze Age materials. Information appeared on one remarkable find, a treasure of Roman silver plate. This treasure was turned up by a farmer while plowing, near Mildenhall, Suffolk, England. The treasure included trays, dishes, bowls, spoons and detached

handles. The trays are especially handsome examples, with mythological scenes worked in relief as ornamentation. The treasure probably was the plate of a Roman household of the 3rd century A.D.

The investigation of prehistoric archaeological sites in France was being continued. An excellent résumé of accidental discoveries and clearances made during the occupation appears in the *Proc. Prehist. Soc.*, XI. Among the available notes on post-occupation activities is one concerning drawings of animals (of a temperate climate), discovered on the walls of a cave at Ebbo, Ardèche. The Abbé Henri Breuil assessed this art as Aurignacian.

L'Anthropologie, L, contains a final report, with commendable detail, on the original excavations at the rock shelter of Laussel, France. This journal also has much news of the various fates of archaeological collections, museums and personalities during the war.

The post-Pleistocene occupation of a large rock shelter near Gramat, Lot, France, was reported. The shelter contains six upper layers of Tardenoisian type, and one of Sauveterrian at the base of the deposit. It seemed probable that the uppermost Tardenoisian layers were occupied at a time when Neolithic and possibly even later industries flourished nearby.

Sculpture of the Gaulish tribe of Salians, who lived near Aix in Provence, France c. 400-123 B.C., was found by the Germans during World War II. The Salians imprudently attacked the Romans in 179 B.C., and in 123 B.C., Gaius Sextius Calvinus wiped them out and destroyed their capital. The sculpture, of human heads and torsos, shows the traces of the Roman hammers which broke them up.

Antiquity, xx contains an important report by G. Bersu on a late bronze and iron age hill-fort in Switzerland. The site is the Wittnauer Horn, a long narrow promontory, with naturally steep slopes save for the gentle rise on the neck of land which connected it to a plateau. The fortification of the promontory consisted of building a great rampart across the neck, thus increasing the slope at this point to a high angle like that of the natural steep slopes on the other sides of the promontory. Bersu explains why the rampart was not built with a vertical face. The warfare of the Hallstatt A-B phase was carried on with sling stones, and dead ground at the base of a vertical wall would have been an inconvenience to the defenders.

The floors of the houses on the Wittnauer Horn were in part cut into the rock of the perimeter of the promontory, and in part built up on platforms facing out over the slope. The wooden beams of the platforms projected far enough out over the slope so that a defensive parapet ran around the promontory slopes, outside of the houses.

The Wittnauer Horn village seems to have contained a community of people of equal social standing, who lived in much the same way as did the Swiss lake dwellers. In fact, it was believed that the two types of sites were connected culturally. The bones of the various domesticated animals were of the same breed as those known from the latest bronze age lake dwellings and the pottery is identical. It even appeared that the same catastrophe which brought the lake dwellings to an end resulted also in the destruction of the Wittnauer Horn.

The *Illustrated London News* contains Prof. K. Absolon's description (the first detailed one yet made) of his grandfather's remarkable discoveries in the cave of Byči Skala in Moravia. Knowledge of the earlier range of the deposits in the cave are supplemented by Absolon, who excavated a nearby site in 1922 and 1939. A primitive Aurignacian, a Gravettian and a long Magdalenian occupation are accounted for. Then, after a hiatus, represented in the cave section by a sterile travertine layer,



FIVE CYLINDRICAL STRUCTURES, hollow and made of mud bricks, were found in excavations at Helwân, near Cairo, Egypt, which by 1946 had revealed more than 4,000 tombs

comes a sequence of Neolithic to iron age antiquities. The item of greatest interest is the iron age deposit, of about 600 B.C. At first the cave was the workshop of a blacksmith who made iron rings (analysis had yet to prove these were cast; if they were, it would be the earliest use of this technique in ironworking in Europe). Then the blacksmith seems to have been dispossessed, for the cave became the scene of a chieftain's burial.

As in a much earlier case in the royal tombs at Ur, in Mesopotamia, this chieftain was conveyed to his cave-tomb, and laid at rest in a wheeled wagon. About him, numerous retainers were slaughtered to serve him in the hereafter; all but 5 of some 40 skeletons were those of young women. Many animals and great quantities of grain were also deposited with the dead, also a fine variety of ornaments and implements of late Hallstatt iron age type. The pyre was then burned, and the site heaped with stones. The find supplies a remarkable insight to the stage of culture in central Europe at the same time when Greek civilization was beginning to flourish.

S. P. Tolstov, director of the Institute of Ethnology of Moscow, U.S.S.R., has reported (in *Antiquity*, xx) on the Russian excavations at a site in the Kizil Kum desert, in Transcaspia. The site, called Janbas Kala no. 4, contained traces of a large wood and thatch communal enclosure of polygonal form, roofed at least in part, and with a central and subsidiary hearths. The site contained pottery with stamped and scratched ornaments; flint blades, chisels and points including blade-tool micro-liths; and simple pointed bone tools. The bones of wild boar, deer, turtle and of many birds occurred, also great quantities of fish bones. Tolstov believed that his site must not be

later than the beginning of the 3rd millennium B.C.

In H. Field's list of the immediately prewar archaeological activity in Russia (*Am. Rev. of the Soviet Union*, vii-4), it also appeared that about 30 expeditions took the field in the 1945-46 season. No details of their activities were known up to the end of 1946.

Work was being resumed by the various national schools in both Greece and Italy. U.S. field parties were "cleaning house" on the sites of their prewar excavations at the Athenian Agora and at Corinth, but no details were available as to results. A complete Roman cemetery, with pagan and early Christian tombs—for some of which the family names survive—was discovered during the lowering of a floor in crypts under St. Peter's, in Rome.

Near East.—For most of the near east, the still troubled political situation prevented the resumption of large-scale excavations by western European and U.S. excavators. The Oriental institute's epigraphic work at Luxor in Egypt was resumed, and several British and French parties were in the field, but details of their findings were not known.

K. Erguvanli's note (in the *Belleten*, x) adds to the growing information on the Palaeolithic in Turkey. The note accounts for several convincing core-bifaces of Acheulean type, and some utilized flakes, from the district northwest of Gaziantep in the Anatolian highlands. Early in the year, news also came of H. Th. Bossert's discovery of late Hittite sculpture in the same general area.

Information on Syria and Palestine was scanty, but word reached the United States that substantial clearances of important materials in the early bronze age range of Palestine were made late in the year. The work of the Jewish Palestine Exploration society at Khirbet Kerak and of the École Biblique et Archéologique Française at Tell el-Fâr'ah was believed to be especially important. N. Gleuck's intensive survey of early bronze age and Chalcolithic sites in the Jordan drainage continued. Clearance of graves from a ridge near Tel Aviv, Palestine, yielded pottery ossuaries containing human bones and pottery vessels of the type known at the sites of Ghassul and Hadera. This material probably goes back to the beginning of the 4th millennium B.C.

P. Dikaïos, curator of the Cyprus museum, reported interesting copper age finds from the sites of Ambelikoú and Philíá on Cyprus. At both sites there were remains of settlements of the 3rd millennium B.C., and some tombs appeared at Philíá. On the second of two areas at Ambelikoú, evidence of copper working was said to have been found. This was important, for while Cyprus is suspected to have been a great source of ancient copper in later times, no copper workings earlier than the end of the 2nd millennium B.C. had yet been found.

In Egypt, the traces of a prehistoric village establishment, apparently quite similar to that at Merimdeh, were reported from el Omari near Helwân. Plain and burnished pottery appeared, also flint work recalling that of the Fayum, silos, emmer wheat and barley, and a fauna with some apparently domesticated forms.

Somewhat more spectacular work was also carried on at Helwân, by Zaki Bey Saad of the Egyptian Department of Antiquities. Zaki Bey's excavations, in the fourth year of their sponsorship by King Farouk I, concerned some 4,000 graves of the 1st and 2nd Egyptian dynasties. The excavator believed there might be some evidence to indicate a pre-1st dynasty (*i.e.*, a zero dynasty) range. All of the tombs so far exposed were plundered in antiquity; in one case, the skeleton of a man trapped by a falling stone is identified by his water jar and lamp as a grave robber of Roman times. These excavations were expected to add much detail to existing knowledge of the

time of birth of the Egyptian state.

Another important tomb discovery of the 1st Egyptian dynasty, reported by E. Drioton, director of the Department of Antiquities, was made at Sakkāra. This tomb, in which the seal of Queen Mer Nith was found, was said to be the largest royal tomb yet discovered for the 1st dynasty. It seems to have been looted as early as the 2nd dynasty.

Important architectural clearances of the city walls and gates of mediaeval Cairo were made by the Egyptian Department of Arab Antiquities.

The directorate-general of antiquities of the Iraq government continued its fine record of excavations with the clearance of Tell Harmal, near Baghdad. Taha Baqir reported in *Sumer* on the site, which yielded the architectural remains of a fortified enclosure with a single entrance. Buildings of a public character and a large temple appeared within the enclosure; the whole complex dates to the earlier part of the 2nd millennium B.C. Life-size terra-cotta lions flanked the entrance and sanctuary doors of the Tell Harmal temple. The temple itself was an impressive building with niched walls. Some 1,300 cuneiform tablets—lists, salary records, inventories, etc.—go together with other evidence to suggest that Tell Harmal was the administrative centre of an agricultural district in early Babylonian times.

Splendid panels of 'Abbāsīd carved brickwork appeared, when renovations were being undertaken on the Mirjan mosque in Baghdad. The building was being made into a national monument.

India.—The year saw the appearance of three articles on early materials from the Baluchistan-Indus area of northwestern India. One of these articles was general; Stuart Piggott, "The Chronology of Prehistoric Northwest India," *Ancient India*, i. Piggott makes an assessment of the chronological positions and early interrelationships of the earliest village horizons in the area, and also indicates the discovery of one or more types of pottery which are pre-Amri. The Amri material was the earliest known village material of the Indus valley, and did not seem to go back before 3500 B.C.

TOMB EXCAVATED AT HELWÂN, near Cairo, Egypt, and thought to be more than 5,000 years old, was discovered in a project which, under the sponsorship of King Farouk I of Egypt, completed its fourth season in 1946



The second article on the northwest Indian area was the report of an unusually intelligent amateur, the late Brigadier E. J. Ross of the British army, on clearances made by him at Rana Ghundai in Baluchistan (*Journal of Near Eastern Studies* v). In his "Prefatory Remarks" to the Ross report, D. E. McCown of the Oriental institute synthesizes the Rana Ghundai finds with Piggott's Indian study and with the archaeological materials of Iran and Mesopotamia. McCown was, at the close of the year, in India, and on his return was to collaborate with Piggott in a joint report; for the moment, the separate McCown and Piggott studies cited above form an up-to-date analysis of current knowledge of late prehistory in the Baluchistan-Indus area. The Rana Ghundai material itself forms an important link in understanding the connection between northeastern Iran and the Indus. The site yielded at one point a very handsome black-on-red pottery with animal motifs as painted decoration.

The third article concerns the time of the full flower of the Indus civilization of the 3rd millennium B.C., when great urban centres supported clever craftsmen in pottery, sculpture and metalworking, and writing (in 1946 still undeciphered) was known. After its discovery in 1922, the clearances made in cities of the Indus civilization had in no case yielded traces of fortifications or city walls. It was sometimes supposed that here was a case of a peaceful utopian kind of state, much different from the contemporary situations in ancient Egypt and Mesopotamia. New work by R. E. M. Wheeler, director general of archaeology in India, on the mound of Harappa revealed traces of great mud brick citadel walls, faced with a glaze of burned bricks. The proposition for a northwest Indian utopia of 2500 B.C. no longer holds. Moreover, Wheeler recalled the later Aryan legends of the god Indra as a "fortress destroyer," as probable corroboration for the suggestion that the Indus cities (and their civilization) were destroyed by the incoming Aryans about 2000 B.C. or just later.

Ancient India also includes a report on Arikamedu, an Indo-Roman trading station near Pondicherry on the southeast coast. A warehouse and several other structures of about A.D. 50 had been exposed on the site, also numerous sherds of Arretine and other Italian types of pottery. One untrimmed example of an intaglio decorated gem, in the Greco-Roman style, suggests that even western craftsmen themselves may have lived and worked at this far-off site. The presence of this Roman market on the southeast coast of India is a remarkably fine substantiation of the accounts of both classical and Tamil writers that such "factories" existed. In effect, a new chapter was added to the history of India's economic relations with the west.

No important archaeological news from the far east was available for the year. More details and photographs of the tomb of the T'ang emperor, Wang Chien, became available.

Sources used in the preparation of this article, other than those specifically mentioned: *American Journal of Archaeology*, *Antiquaries Journal*, *L'Anthropologie*, *Antiquity*, *Bulletin of the American Schools of Oriental Research*, *Illustrated London News*, *Journal of Near Eastern Studies*, *Man*, *Nature*, *Quarterly of the Department of Antiquities of Palestine*.
(R. J. B.)

Western Hemisphere.—In connection with the Canadian military exercise called "Operation Musk Ox," an archaeological survey was conducted by Maj. Graham Rowley. Among his discoveries was a promising site near Baker lake in the area northwest of Hudson bay.

L. J. Giddings, Jr., of the University of Alaska, collected dendrochronological specimens along the Mackenzie river and arctic coast. This material was expected to be of aid in the dating of ancient Eskimo sites.

Dr. Douglas Leechman of the National museum of Canada made an archaeological survey of the upper Yukon and Porcu-

pine rivers. He found remains of non-ceramic cultures in geological contexts that would indicate considerable antiquity.

Eastern North America.—The excavation for the new John Hancock Life Insurance building, 800 ft. from the site of the Boylston street fishweir in Boston enabled Frederick Johnson of the Peabody museum, Andover, Mass., to make additional study of the sediments associated with this ancient site. Although no actual portions of the fishweir were found, Johnson, in collaboration with a number of other scientists, obtained much additional information concerning the sediments in terms of studies of foraminifera, diatoms, pollen and other organisms.

Douglas S. Byers of the Peabody museum conducted a limited reconnaissance and sampling of shell heaps in Hancock county, Me.

During the summer the Rochester museum expedition, under the direction of Dr. William A. Ritchie, excavated an early period Owasco site in Onondaga county, N.Y. This site was a deposit of quantities of large pottery fragments of the Canandaigua type, numerous fragments of animal bone, mostly black bear, two pitted hammerstones, a fired clay pipe and a clay phallus. Probably this find is indicative of a prehistoric ceremony analogous to the historic feast of the dead.

In November, Joseph Caldwell began an archaeological survey of the Allatoona basin above Cartersville, Ga.

During Nov. and Dec. John W. Griffin began a program of exploration and excavation for the Florida park service in the little-known area of southwestern Florida.

Under the direction of Glenn A. Black a party of students from Indiana university carried out excavations at the famous Angel site near Evansville, Ind. This site was a large village and ceremonial centre of the middle Mississippi Indians c. A.D. 1400-1650.

Dr. Emerson F. Greenman of the Museum of Anthropology of the University of Michigan completed his ninth field season at Killarney, Ont. Excavations were continued in an early post-glacial site, dated at 10,000 to 15,000 years old by its association with an ancient raised beach. Quantities of artifacts made of flaked quartzite have been found. A basilar portion of a Yuma-like blade suggests the possibility of relationships with the west.

Under the direction of Richard G. Morgan of the Ohio State Archaeological and Historical society, surveys were made of the Delaware and Dillon reservoir areas in Ohio. Plans were formulated to salvage as much archaeological material as possible before these proposed reservoir areas were flooded by dam construction.

In Aug. an Adena mound in Fayette county, Ky., was excavated under the direction of Dr. William S. Webb and William G. Haag of the department of anthropology and archaeology of the University of Kentucky. This mound, unit C of the Mount Horeb Earthworks group, covered one of the richest caches of flint and copper artifacts ever found in Kentucky.

The tremendous archaeological program in connection with the proposed flooding of reservoir areas by the Missouri Valley authority was begun during the summer. A number of state institutions co-operated with federal agencies in the archaeological survey of the areas to be flooded. Surveys of these areas and excavation of key sites must be undertaken while the areas are still accessible. The Missouri Basin survey program was carried out under the direction of Dr. Waldo R. Wedel of the U.S. National museum. Although the program was far from completion, about 550,000 sq.mi. were surveyed archaeologically and hundreds of sites were recorded. About 200 sites were selected for excavation.

Western North America.—The department of anthropology

of the University of Washington conducted an archaeological survey of the San Juan Islands during the summer. The survey was undertaken as a field course by students under the direction of Arden R. King. This survey marked the beginning of a long-term archaeological investigation of the North Pacific coast—a region almost completely unknown.

A month's program of excavation and survey in the John Day region of north central Oregon was undertaken by Dr. L. S. Cressman of the Oregon State Museum of Anthropology. Efforts were made to determine the possible connections of the cave culture of the south central part of the state with the Columbia river region in the north.

Under the leadership of Dr. Paul S. Martin the Chicago Natural History museum's 1946 archaeological expedition to the southwest was in the field from June to Sept. The expedition completed the excavation of the "SU" site (interrupted by the war) in New Mexico about 100 mi. north of Silver City.

The "SU" site, tentatively dated at A.D. 500, is a manifestation of the Mogollon culture. Prewar expeditions of the museum established the styles of house types, pottery, tools, weapons, utensils and ornaments as they occurred at this site. The aim of the 1946 expedition was to recover charcoal specimens from burned roof beams and supports in the old Mogollon pit-houses. About 150 charcoal specimens were found and were to be used for obtaining the exact date of the "SU" site by means of dendrochronology. In addition to the charred logs, 1500 potsherds and 500 stone and bone tools were excavated from the pit house ruins.

In August the department of anthropology of the University of Arizona and the Arizona State museum concluded their first season's field work at Point of Pines, 75 mi. east of San Carlos on the San Carlos Indian reservation. The expedition consisted of ten students under the direction of E. B. Sayles, curator of the Arizona State museum and Dr. Emil W. Haury, head of the department of anthropology at the University of Arizona and director of the Arizona State museum.

The season's work inaugurated a 10 to 15-year research program and the establishment of an archaeological field school.

Archaeological work consisted of the clearing of debris from 14 rooms of a small 14th century pueblo. The rooms were full of household goods and since there was no evidence of fire, it looked as if the pueblo had been abandoned hastily. A possible cause of such hasty and enforced evacuation might have been the arrival of Apache Indians from the east.

Tests indicated that there were pit houses beneath the floors of the rooms in the pueblo. Associated pottery fragments indicated that these pit houses were occupied by 12th century Pueblo people, an exceptional situation because the Pueblo people to the north lived in large communal and many-storied houses.

The Point of Pines area promised to be important to archaeological research in the southwest. A previous survey by Haury and Sayles showed that this region contained numerous ruins, large and small, occupied from the early centuries of the era to about A.D. 1400. The major southwestern cultures, Anasazi (Basket Maker-Pueblo), Mogollon and Hohokam are represented in the occupancy of the ruins in the Point of Pines area.

A significant contribution to southwestern prehistory was the publication of "Archaeology of Alkali Ridge, Southeastern Utah" by J. O. Brew (*Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard university, vol. xxi).

Mexico.—The Instituto Nacional de Antropologia continued its numerous and varied excavations. Under the direction of Dr. Alfonso Caso investigations were continued at Monte Alban in Oaxaca.



COLOSSAL BASALT HEAD from the site of San Lorenzo on the Rio Chiquito, in southern Veracruz, Mexico, being photographed by a member of the 1946 National Geographic Society-Smithsonian Institution Archaeological expedition. It was one of five such heads found there

Excavation of an Aztec temple ruin near the Plaza de Santiago produced among other things an excellent series of Aztec ceramic periods including the earliest fabric-impressed pottery found in Mexico. This investigation was undertaken by Dr. Pablo Martinez del Rio. Dr. James B. Griffin of the Museum of Anthropology of the University of Michigan collaborated with Dr. del Rio in the ceramic studies.

During the winter and spring Dr. Wilfredo du Solier undertook exploration of the Tamuin site near Valles, San Luis Potosi. This was a Huasteca ruin of the fifth and sixth periods and consisted of a temple and pyramid. The outstanding features of this site were the murals on the walls of the temple. The depictions in these murals provide the first good archaeological evidence of Huastecan ceremonial activities.

At Buena Vista a Huasteca site excavated by Du Solier produced polished black pottery with engraved designs. This pottery was somewhat similar to certain Caddo types (Fulton Aspect) found in the southeastern United States.

Dr. James B. Griffin of the Museum of Anthropology of the University of Michigan was in Mexico from Feb. to Sept. searching for evidence of prehistoric relationships between Middle America and the southeastern United States.

From Nov. 1945 to June 1946 Richard MacNeish of the department of anthropology of the University of Chicago conducted an archaeological survey of the coast of Tamaulipas, Mexico, between the Sola Marina river and the Texas border.

Archaeological discoveries in this region included late Huasteca (periods five and six) and six new cultures previously unknown. Five of these newly discovered cultures were non-ceramic, probably the products of groups of nomadic Indians

who lived by hunting and food collecting. The sixth culture, named Pueblito, was more elaborate.

The Pueblito culture found in the Sierra de Tamaulipas area was characterized by pyramids of stone, round house platforms of stone, village sites located in defendable areas and unpainted pottery of poor paste with engraved designs.

Typology and stratigraphy of the pottery indicate three ceramic periods of Pueblito culture. These periods seem to correlate with middle and late Teotihuacan and perhaps with Huasteca periods three, four and five.

Huasteca camp sites of the period c. A.D. 1100-1500 were found within 30 mi. of the Texas border, thus considerably extending the northward range of the Huasteca culture.

MacNeish found some evidence of relationship between Huasteca and cultures of central Texas and the Caddo culture of eastern Texas. There were 40 specific resemblances between the Caddo and Huasteca cultures, evidence, perhaps, of small groups of Huasteca traders or similar people who wandered up the Tamaulipas coast to the Rio Grande, then up the Rio Grande and across central Texas to the eastern region of Caddo culture. If MacNeish's data are clearly demonstrable, they will offer the first concrete and specific evidence of cultural relationships between Mexico and the southeastern United States.

With a grant from the Viking Fund, Inc., of New York, Dr. Helmut de Terra undertook a study of the Late Quaternary period in Mexico in search of evidence of early man. Two ancient cultures were discovered. One culture, characterized by scrapers, flakes, chipped pebbles of obsidian and chalcedony and a pointed bone tool was represented at three localities in alluvial and beach formations containing remains of mammoth, bison, horse and other land animals of the Upper Pleistocene. This culture is believed to date back to about 15,000 B.C.

Another old culture, represented by choppers, cores, high-keeled and flat discoidal scrapers, end scrapers and hammerstones, all made of basalt, was manifested in ancient valley fills and fossil caliche soil of early postglacial age, 5,000 to 10,000 B.C.

Guatemala.—Dr. Helmut de Terra extended his search for early man from Mexico to Guatemala, but failed to find evidence of ancient remains in Guatemala. He reported a fossil land mammal fauna in the Motagua valley, probably synchronous with the fauna associated with the earliest finds in Mexico.

In March the United Fruit company began a five-year project of archaeological research in the Guatemala highlands. Under the direction of John M. Dimick, assisted by Stanley H. Boggs, work was begun at Zacaleu near Huehuetenango and about 175 mi. northwest of Guatemala City. One small tomb was discovered and much of the site was reconstructed.

Ledyard Smith of the Carnegie institution excavated a tomb associated with some mounds near Nebaj, department of Quiché. The tomb, nearly ten metres beneath the surface of a low platform, contained jades and fine pottery.

Peru.—The Virú valley program of the Institute of Andean Research lasted from April to Dec. Eight individuals representing five institutions participated in this co-operative study.

Eight periods of culture were tentatively formulated: (1) Cerro Prieto (coastal preceramic); (2) Guañape (Cupisnique); (3) Puerto Moorin (Salinar); (4) Gallinazo (Virú Negative); (5) Huancaco (Mochica); (6) Tomaval (North Coast Tiahuanaco); (7) La Plata (Chimu); and (8) Estero (Inca influence).

Junius Bird of the American Museum of Natural History investigated the preceramic remains of coastal Peru. The preceramic culture was based in part on an agricultural economy—gourd, squash, lacuma and cotton were present in the remains

along with bark-cloth, twined textiles and percussion-flaked tools of stone.

The Chicago Natural History museum expedition under the leadership of Donald Collier obtained stratigraphic evidence showing the cultural evolution from the Guañape (Cupisnique) period to the Puerto Moorin (Salinar) period. Previously there had been a cultural gap between these two periods.

James A. Ford of the American Museum of Natural History made an analysis of the pottery types from surface collections and excavations. He was able by such analyses to place chronologically a number of unexcavated sites in terms of the range of occupancy indicated by the pottery types.

Dr. Gordon R. Willey of the Bureau of American Ethnology made a study of the settlement patterns in the Virú valley as revealed by archaeology. In periods one and two there were small, isolated populations living by marginal horticulture. Periods three and four are marked by increases in population, irrigation and developed horticulture, and the first appearance of large politico-religious centres. Period five presents evidence of political conquest. Period six was a time of disruption. Periods seven and eight show a trend toward urbanization and the building of planned communities.

Dr. Wendell C. Bennett of Yale university conducted intensive excavations in the Gallinazo group belonging to the Gallinazo period. Sites of this group contained pyramid and mound platform combinations, platform dwelling mounds, refuse mounds and simple mounds with refuse and burial. A number of building levels were determined.

Dr. W. Duncan Strong of Columbia university assisted by Clifford Evans of Columbia university conducted stratigraphic work in refuse deposits and graves. Two excavations gave detailed data on the transition from Puerto Moorin (Salinar) to Gallinazo (Virú Negative). A third site placed Huancaco (Mochica) over Gallinazo (Virú Negative), and a fourth site isolated the Puerto Moorin (Salinar) burial complex.

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Archery. The 62nd championship tournament of the National Archery association, the first after 1941, was held at Cincinnati, O., Aug. 5-9, 1946, with the record number of 316 archers participating.

The championship winners were:

Senior Division			
Women's Championship	Scores:	Double National Round	Ann Weber, Bloomfield, N.J. 142-1026
		Double Columbia Round	143-1159
Men's Championship	Scores:	Double York Round	G. Wayne Thompson, Richmond, Calif. 271-1585
		Double American Round	180-1390
Junior Division			
Boy Champion	Scores:	Single Junior American	Jay Reeg, St. Louis, Mo. 90-678
		Double Junior American	180-1334
Girl Champion	Scores:	Single Columbia Round	Alice Ann Bredehoft, Millington, N.J. 71-459
		Double Columbia Round	143-909
Flight Shooting			
Women			
Regular Style	Millie Hill, Dayton, O.	434 yd. 10 in.	
	Mrs. Cecil Modlin, Evansville, Ind.	564 yd. 6 in.	
Men			
Regular Style	Herbert Henderson, Evansville, Ind.	521 yd. 11 in.	
	Charles Pierson, Cincinnati, O.	658 yd. 2 ft. 8 in.	
Junior Division			
Boys			
	Richard Knorr, Cincinnati, O.	378 yd. 6 in.	
Girls			
	Peggy Dunaway, Springboro, O.	427 yd. 2 ft. 9½ in.	

An important archery event in 1946 was the first championship tournament of The National Field Archery association to determine the field archery championships of the United States. This was held at Allegan, Mich., Aug. 9-12, with 476 field archers competing for the national titles.

The championship winners were: Erwin C. Pletcher, Bakersfield, Calif. (men); Mrs. H. A. Bitzenburger, Los Angeles, Calif. (women); M. LeFavour, Fort Wayne, Ind. (junior boy); Kathleen Powell, Portland, Ore. (junior girl).

During 1946 the National Archery association conducted several nation-wide contests by mail, as was done during World War II. These included the Olympic Bowmen league for indoor shooting, the Women's Intercollegiate contest, the Inter-scholastic contest, a clout shoot, a target shoot and a flight shoot.

(L. C. S.)

Architecture. During the year 1946 there developed the full realization of the colossal task of rebuilding the devastated areas of the world and of making up the lag in construction in the countries which had concentrated on production for World War II. The warnings of professional bodies concerning the magnitude and complexity of the task changed from abstract theories to acute needs felt in lack of shelter, overcrowding, mounting building costs and rents.

In most countries active governmental intervention in the building industry became necessary and housing and town planning were political issues. The demand for all types of building was so great and material and labour so inadequate that various systems of priorities, allotments and price controls were maintained throughout 1946.

Great interest in the problems of architecture was a natural result and ranged from exhibits of prefabricated houses by the various occupying armies in Germany to an unprecedented number of books on home design and ownership in the United States. In most cases the enthusiasm for the promises of what was to be had been lost in the acute realization that the world-wide building crisis would last for many years.

While a record volume of building construction got underway, few large projects were completed during 1946. The increasing complexity of modern buildings made them susceptible to delays because of the lack of small but essential items often slow in returning to the market. As a result, any evaluation of trend and progress has to be based in the main on published plans, presentation drawings and models.

It was clearly observed that modern design, seeking a straightforward solution to contemporary problems by exploiting today's materials and methods, outweighed the traditional and electric expression favoured in the first part of the 20th century. Modern solutions to commercial and industrial are universal and it is in domestic and governmental work that traditional design is most persistent. National variations of style were apparent and the concept that there should be an "international" style, a style for all regions, was disproved and disavowed by many once holding this idea.

The influence of science and technology on architecture was increasing, though in actual building this change was not readily apparent as the "tooling-up" period and co-ordination of parts required time for careful planning, testing and widespread use. The application of new wartime developments in materials and methods was promised with increasing assurance but was not fulfilled to any appreciable extent.

An increased awareness of the necessity for, and economy to be found in large-scale building projects was noticeable, not only in the countries to be rebuilt but in the United States. The problems of city planning received greater attention from both architects and laymen alike. While housing construction re-

ceived the greatest attention, a great deal of building for commercial distribution and factories was undertaken along with building for public services and veteran rehabilitation.

Design and Planning.—The modern approach to planning and design became more firmly established. With architects' offices everywhere deluged with commissions, preoccupation with problems of increased building cost forced an increase in the use of simple, direct solutions. The acceptance of modern design was shown by polls of consumer preferences in the United States which indicated a majority interested in modern or "ranch type" homes. The latter is a style characterized by large windows, pitched roofs, often utilizing natural materials and long and low in appearance because of being one floor. In competitions, juries found in favour of modern design. In the U.S.S.R., published designs varied from this general trend and were characterized by a neo-classic trend or an insistent national feeling created by the regional handling of local materials.

In general, the absence of applied ornament was being compensated for by a careful interplay of the textures of building materials. The critics who condemned an architecture without decoration were joined by the Dutch architect Jacobus Oud, once famous for a severe style, who completed a building notable for areas of extremely bold decoration. This independent exception contrasted with a general interest in developing the expression of each building from its own peculiar function, site and materials and methods employed.

In residential design trends apparent before the war continued. Rooms became smaller because of rising costs, but were often made to serve double functions and the art of the designer was used to give a greater sense of space. This was done by means of large glass areas and free planning which allowed one room to merge with another in a manner adding space to both. The decreasing size and number of rooms in dwelling units reflected the decreasing number of children in families, fewer servants and a greater number of women in business and professions. In the United States a Veterans' Emergency Housing program set out to construct single family houses costing under \$10,000. The failure of this program late in the year was followed by emphasis on more desired rental housing. More and more interest in row and group housing appeared in the United States in spite of government aid in financing, and other stimulation of single home ownership. A number of co-operative housing projects were completed or started during the year, in which groups sought the economies to be found in larger-scale building operations.

The lessons of wartime production led to the initiation of many new industrial projects in which flexible techniques of manufacture and new machines accompanied an increased study of the workers' needs based on scientific measurement of light, colour comfort and psychological atmosphere.

The danger of atomic warfare seemed to have had little effect on building plans generally, although reports from Sweden indicated advances in subterranean factories. It was claimed the excess initial cost of such plants was offset by decreased maintenance to a marked degree. The totality of future war was so well understood that more hope was being placed in international action to prevent war than planning and design as a defense against its terrors.

Shop buildings in many countries showed the merchants' eager efforts to return to peacetime competition with an increased emphasis on architectural design as an aid to merchandising. New shops smartly emerged from the rubble in the form of temporary buildings which in simplicity and scale showed an ever-closer relation between purchaser and the displayed merchandise. In the United States the all-glass "open front" design of stores spread to other commercial enterprises. The Trans-

continental and Western Air ticket office in Chicago, Ill., illustrated an outstanding example of this type of design, where outside and inside were blended by extending the plane of walls or ceiling beyond the transparent front wall and utilizing artificial light to further break the barrier between customer and interior.

Many new office buildings were projected or were under construction. New standards of summer air conditioning and utmost flexibility in possible partitioning of space made increasing demands on the designer. Continuous windows based on modular design, flush ceilings of interchangeable panels and lighting units, increased use of aluminum and parking space in each building block were featured. Though students predicted the end of the era of high buildings for New York city, a score of relatively high buildings were started or only awaited freedom from government restrictions on materials and permits.

The great number of medical facilities planned or started in 1946 reflected the need for care of those wounded in the war as well as higher standards in the care of the sick. Health insurance, by the state or by voluntary associations, lies behind some of the expansion. Many of the great hospital projects were in connection with university medical schools or medical research foundations. Highly specialized functions and elaborate circulation and service problems were skillfully met. The special psychiatric hospital made its debut in recognition of the importance of this growing field of therapy.

Materials and Methods.—Throughout the world great interest and faith was placed in the promise of prefabrication. By the end of the year enthusiasm was replaced by an equally unrealistic sense of failure. Experts who proposed metal houses for devastated Europe without realizing the time necessary for the reconversion of productive facilities and manufacturers wishing to be subsidized for entering a new field of production without experience all promised more than it was possible to deliver. The failure of 1946 to produce the hundreds of thousands of dwelling units expected was not one of technology, but of time.

While increased efficiency of the mechanical plant of the home, especially heating, was to be expected, most buildings were erected with prewar types of equipment. The first commercially available mechanical core for the home, containing heater, bath, kitchen and laundry in one unit, went into production. As a demonstration of its flexibility a group of houses designed by outstanding North American architects was built in Kalamazoo, Mich. One example was called a solar house because of a correctly oriented glass area which takes the fullest advantage of the sun's rays, an overhang eliminating undesirable summer sun, yet allowing the lower-angled winter sun to do its work. This particular house used the hot air of the heating unit in under-floor ducts to afford radiant heating, a principle which gained wide acceptance.

The use of plastic and other composite materials increased but no new material threatened the widespread utilization of various forms of masonry, wood, steel and glass.

The expanding scale of builder operations was significant. Contractors once averaging 5 to 10 houses a year were undertaking developments of 100 and more houses at a time. Using site assembly methods, power tools and often monotonously repeated designs, the housing shortage was being met for the time being more effectively by moving machines to the site than by factory fabrication.

The complexity of the construction industry and the interdependence of various materials and equipment which must somehow be fitted together in a building, resulted in greater interest in standard dimensioning of architectural components. In the United States a 4-in. module was gaining slow recognition.

In the Soviet Union the same problem was recognized by the Soviet Academy of Architecture which had proposed to the various government bureaus a module of 10 cm.

A series of disastrous hotel fires in the United States focused attention on the rewriting of many municipal building codes. These were being studied to take advantage of new materials and methods now forbidden by archaic laws as well as to increase safety to life and property. They promised greater opportunity to the designer.

Education.—In every country the crisis in building was completed by a lack of trained architects, technicians and building labour. The schools of architecture were overcrowded. The overwhelming majority of schools presented a modern approach to design problems which could only result in an ever-increasing trend toward modern design forms. Many individuals were concerned with over-specialization of design and proposed that architecture, at least in its training, recognize as its scope not only building design but also the design of building components and city and group planning. In the United States, the growing profession of industrial design accepted design responsibility covering architecture so that clear-cut professional areas of action had not emerged. The increasing industrialization of the building industry was inevitably making changes in the make-up of design groups in spite of laws meant to safeguard the profession.

Examples of 1946 Architecture.—In the United States the collapse of government controls and a homebuilding program aimed at securing new homes for sale to veterans occurred at the end of the year. The acute problem was given to private enterprise, the main government effort being in the form of cheaper financing which aimed at spurring rental construction. A comprehensive national policy on housing including consolidation of government functions, research in the building industry, encouragement of public and private low-rent housing, both urban and rural, and urban redevelopment failed enactment during the year by congress but was scheduled for reconsideration in early 1947. Indignation by veterans' groups and the citizens generally made the failure of the building profession under private initiative alone a political issue.

Erection was started on a number of large rental projects financed by insurance companies. A vast commercial development including markets, theatres, shops and parking and served by moving stairways was announced for Brooklyn. A city of 30,000 people, *Cidade dos Motores*, was begun in Brazil following the designs of Paul L. Wiener and Jose L. Sert. In contrast to the disciplined organization of this plan a more romantic development of similar size was announced as a satellite town for Chicago which would also contain shopping and recreational centres, public services and provision for industry.

The completion of test models of Buckminster Fuller's Dymaxion House—probably the first truly industrially conceived machine for living—captured the imagination of all who saw it. Its unusual form is the result of rethinking the problem of shelter within the limits and possibilities of machine production. This house differs from other prefabrication proposals in that the others adapt the machine to the production of forms originally developed for traditional handicraft methods.

The completion of the Copenhagen Broadcasting building by Vilhelm Lauritzen marked a trend in straightforward, uninhibited design and planning. The peculiar charm of Swiss and Scandinavian architecture accurately reflected the democratic, mature culture of these countries. In Sweden an outstanding apartment group consisting of seven tower buildings by Sven Backstrom and Leif Reinius was dramatic, intelligent and livable.

One of the very few, and certainly the most unusual, religious projects completed during the year was the chapel of St. Francis



Above: RENDERING OF an office building which was under construction in New York city during 1946. Kahn and Jacobs, architects

Left: PROGRESSIVE COMMERCIAL DESIGN applied to the TWA, Trans World airline, new offices in Chicago, 1946. Transparent street walls and extension of the ceiling were basic to the "open front" trend

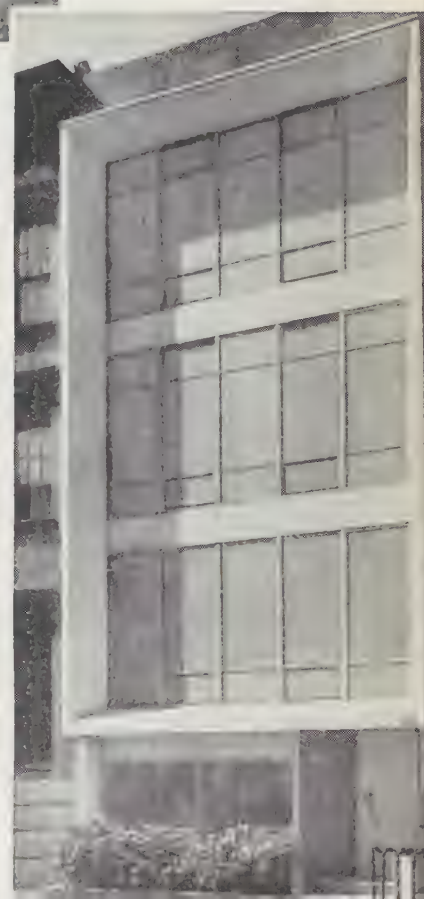


Above: SOLAR HOUSE erected at Kalamazoo, Mich., in 1946, one of 12 demonstration homes designed around the Ingersoll Utility unit. In this unit the water, gas, sewer, electrical, heating and ventilating systems of the house are built into a prefabricated central core. Architect of this house, George Fred Keck



Above: MODEL OF THE FULLER HOUSE, a family dwelling of revolutionary design, planned for assembly line mass production

Right: REMODELED BROWNSTONE in New York city showing large translucent glass areas, absence of ornament and simple geometric design



Pampullia, in Brazil, by Oscar Niemeyer. This concrete arched building, decorated with tiles, entered under a cantilevered marquee and dominated by a tower narrower at the bottom than the top, is excitingly located on a hill overlooking a lake. It was certain to provoke interest and controversy concerning ecclesiastical forms.

At the year's end a committee of the United Nations accepted a gift of land extending six blocks along the New York water front from John D. Rockefeller as a site for the permanent home of this international organization. A committee including the famous French architect Le Corbusier (Charles Édouard Jeanneret) covered the Atlantic seaboard in search of a suitable site. At the end of the year Wallace K. Harrison of New York was appointed head of design for the buildings of the United Nations in New York.

Once again the septuagenarian, Frank Lloyd Wright, provoked interest and ire by a house to be built in Connecticut. His work was widely published during the year, especially his home and school, Taliesin II, in Arizona. During a year of frustrated building, the prophecies and designs of this great architect took on greater meaning. (See also BUILDING AND CONSTRUCTION INDUSTRY.)

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Archives, National. Established by congress in 1934, the National Archives preserves the valuable noncurrent records of the United States government and makes them available to the government and the people.

There were more than 750,000 cu.ft. of such records in the custody of the archivist by the close of 1946. Ranging in date from the Revolutionary War to 1946, they came from almost every federal agency. Notable among records received in 1946 are the files of the house of representatives, 1789-1940; records relating to the establishment of post offices and the appointment of postmasters, 1790-1930; naval records, 1911-27, collected by the office of naval records and library; and the files of such World War II agencies as the Office of Censorship, the War Relocation authority, the War Refugee board and the office of the chief counsel for the United States (Justice Robert H. Jackson), international military tribunal. A number of Japanese surrender documents and Adolf Hitler's marriage certificate, private will and last political testament, signed the day before he is believed to have died, are documents of particular interest among the records received.

To facilitate the use of records in the archivist's custody, a brief guide to them, *Your Government's Records in the National Archives*, was published and a comprehensive guide was almost completed during the year. A project to describe the recorded experience of the government in World War II, as it is embodied in materials in the National Archives and elsewhere, was also undertaken.

Current government regulations that have general applicability and legal effect and descriptions of the organization and procedures of federal agencies are published by the National Archives in the *Federal Register*. The archivist of the United States is also responsible for the Franklin D. Roosevelt library at Hyde Park, N.Y., which houses the papers of the former president. During 1946 some of these papers were opened for research. (S. J. Bu.)

Areas and Populations of the Countries

of the World. The table that follows gives the area, population and population per square mile for

the various countries of the world. For many countries it was difficult under conditions of 1946 to secure population data which were entirely satisfactory.

The latest available figures relate to different dates in different countries; and in some cases different dates connote different areas.

The table gives figures for practically the entire world, however, with a minimum of overlap or similar complication and with a sufficient degree of accuracy to serve as a source of general information with respect to the relative importance of the several countries.

Areas and Populations of the Countries of the World

Name of Continent and State	Area (in sq.mi.)	Population (in thou- sands)	Popula- tion per sq.mi.
World total	52,177,643	2,231,716	42.7
AFRICA	11,524,825	163,163	14.1
Belgian colony and mandate	925,094	13,767	14.8
British colonies, dependencies, and mandates	2,952,301	52,994	17.9
Egypt	383,000	17,380	45.3
Eritrea, Libya, Somaliland	1,039,429	2,745	2.6
Ethiopia	305,731	9,450	30.9
French colonies and mandates	4,150,770	42,706	10.2
Libia	43,000	2,500	58.1
Portuguese colonies	801,297	9,419	11.7
South-West Africa	323,000	321	1.0
Spanish colonies and dependencies	128,421	890	6.9
Tangier	232	102	441.0
Union of South Africa	472,550	10,889	23.0
ASIA (exclusive of U.S.S.R.)	10,517,845	1,196,720	113.7
Aegean Islands	1,035	121	117.4
Afghanistan	250,000	10,000	40.0
Arabia	609,841	5,250	8.6
Bhutan	18,000	250	13.9
British colonies, dependencies, and mandates	284,317	16,183	56.9
Burma	261,810	16,824	64.3
China and dependencies (incl. Formosa)	3,876,956	475,382	122.6
French India	197	323	1,641.1
India	1,581,410	388,998	246.0
Indo-China	286,119	23,750	83.0
Iran	634,413	15,000	23.6
Iraq	116,600	5,000	42.9
Japan (proper)	147,573	77,998	528.5
Korea	85,225	24,326	285.3
Kuwait	1,930	50	25.9
Lebanon	3,470	1,022	294.6
Nepal	54,000	5,600	103.7
Netherlands Indies	735,000	70,476	95.8
Oman and Muscat (Masqat)	82,000	500	6.1
Outer Mongolia	622,744	850	1.3
Philippines, Republic of the	115,600	16,000	138.4
Portuguese colonies	8,873	1,420	160.0
Siam (Thailand)	198,247	15,717	80.0
Syria	72,560	2,884	39.7
Tannu Tuva	64,000	65	1.0
Trans-Jordan	34,740	371	44.4*
Turkey (incl. Turkey in Europe)	296,185	18,860	63.7
Yemen	75,000	3,500	46.7
EUROPE (exclusive of U.S.S.R.)	2,648,626	394,308	148.1
Albania	11,100	1,128	101.6
Andorra	174	6	34.5
Austria (1937 area)	32,639	6,695	205.1
Belgium	11,774	8,396	713.0
Bulgaria	39,814	6,370	159.9
British possessions	124	287	2,314.5
Czechoslovakia (Bohemia, Moravia and Silesia, Slovakia, 1945)	49,380	13,936	282.2
Danzig	730	403	552.1
Denmark (excl. Greenland, incl. Faroe Isls.)	17,113	3,819	223.1
Estonia (absorbed by U.S.S.R. in 1940)	18,357	1,122	61.1
Finland	134,000	3,850	28.7
France	212,737	41,980	197.4
Germany (1937)	182,471	69,622	381.5
Germany (1945)	143,243	63,200	441.2
Great Britain and Northern Ireland	93,991	47,735	507.8
Greece	50,269	7,336	145.9
Hungary (1945 area)	35,911	10,817	301.2
Iceland	39,688	120	3.0
Ireland (Eire)	26,602	2,938	110.4
Italy	119,764	45,681	381.4
Latvia (absorbed by U.S.S.R. in 1940)	25,016	1,995	79.7
Liechtenstein	65	11	169.2
Lithuania (absorbed by U.S.S.R. in 1940)	22,959	2,879	125.4
Luxembourg	999	301	301.3
Monaco	0.6	24	38,452.6
Netherlands	12,742	9,076	712.2
Norway (incl. Spitzbergen)	143,379	2,922	20.3
Poland (1939)	150,820	35,100	232.7
Portugal (incl. Azores and Madeira Isls.)	35,413	7,722	218.1
Rumania (1941)	74,000	16,000	216.2
San Marino	38	14	368.4
Spain (incl. Balearic and Canary Isls.)	194,945	25,878	132.7
Sweden	173,341	6,597	38.0
Switzerland	15,940	4,266	267.6
Vatican City	0.5	1	1,500.0
Yugoslavia	95,558	15,703	164.3
U.S.S.R.	8,173,666	170,467	20.9
OCEANIA	3,305,704	11,287	3.4
Australian colonies and mandate	183,562	1,002	5.4
Australia	2,974,581	7,342	2.4
British colonies, mandates, and dependencies	20,050	419	20.8
Caroline, Marshall, and Mariana Islands (former Japanese mandates)	830	120	147.2
French colonies and mandates	9,199	98	10.6
New Hebrides (Anglo-French condominium)	5,700	43	7.5

Areas and Populations of the Countries of the World, Continued

Name of Continent and State	Area (in sq. mi.)	Population (in thou- sands)	Popula- tion per sq. mi.
New Zealand (incl. New Zealand dependen- cies)	103,929	1,656	15.9
United States possessions	6,720	537	79.9
Western Samoa (New Zealand mandate). . .	1,133	68	60.0
NORTH AMERICA	9,155,310	198,542	21.6
British colonies	21,259	2,458	115.6
Canada	3,462,103	11,507	3.3
Costa Rica	23,000	725	31.5
Cuba	44,217	4,779	108.1
Curacao (Netherlands)	383	125	326.3
Dominican Republic	19,129	1,999	104.6
El Salvador	13,176	1,896	143.9
French colonies	1,169	574	491.0
Greenland	839,782	18	0.02
Guatemala	42,042	3,547	84.4
Haiti	10,695	3,500	327.2
Honduras	59,145	1,201	20.3
Mexico	767,168	21,673	28.2
Newfoundland and Labrador	153,560	310	2.0
Nicaragua	57,143	1,049	18.3
Panama (excl. Canal Zone).	28,575	632	22.1
United States	3,022,387	140,387	46.4
United States possessions	590,377	2,162	3.6
SOUTH AMERICA	6,851,667	97,229	12.7
Argentina	1,079,965	14,131	13.0
Bolivia	416,040	3,534	8.4
Brazil	3,291,416	45,300	13.7
British colonies	85,118	367	4.3
Chile	286,323	5,237	18.3
Colombia	438,825	10,702	24.3
Ecuador	103,415	3,171	30.6
French colony	34,740	37	1.1
Paraguay	154,165	1,108	7.1
Peru	482,133	7,396	15.3
Surinam (Netherlands Guiana)	55,212	192	3.5
Uruguay	72,172	2,203	30.3
Venezuela	352,143	3,851	10.9

*Average for settled area only.

†1945 figures used in computing totals.

Argentina. A federal republic in southeastern South America, the second largest on the continent. Area (excluding the Falkland Islands, which Argentina claims), 1,079,965 sq.mi.; pop. (Dec. 31, 1944 est.), 14,130,871. The population is estimated to be 97% of European (mostly Spanish and Italian) descent; the total of foreign-born population in 1940 was 2,355,900. Urban population is approximately 75%. Population density at the beginning of 1944 was 12.96 per sq.mi. The capital and chief port is Buenos Aires (pop., 1945 est.,

2,608,333). Other important cities (with latest official pop. ests.) are Rosario (521,210), Avellaneda (399,021), Córdoba (339,375), La Plata (256,378), Tucumán (169,566), Santa Fé (149,926), Bahía Blanca (121,055), Mendoza (100,429) and Lomas de Zamora (100,000). Under the constitution of 1853 (the oldest in any Latin American state) Argentina includes 14 provinces and 9 territories. The government is headed by a president chosen by an electoral college for a six-year term, and a bicameral congress composed of a senate of 30 and a chamber of deputies of 158 members. Presidents in 1946: Gen. Edelmiro Farrell, until June 4; Juan Domingo Perón, following that date.

History.—The year 1946 opened with Argentina's most dramatic presidential campaign in full progress. Elections had been set for Feb. 24, 1946. The Democratic union, a coalition built around the Radical party and including other opposition groups, gave its presidential and vice-presidential nominations on Dec. 30, 1945, to Sen. José P. Tamborini and Enrique P. Mosca. Juan D. Perón was made the nominee of the Labour party (a group of his own creation) and a dissident wing of the Radical party. Choice of a running-mate finally went to Dr. Hortensio J. Quijano, a dissident Radical. The campaigning from the beginning of January to the election on Feb. 24 proceeded at a furious pace, the opposition charging that the government was throwing all possible hindrances in Tamborini's way. Perón on Jan. 30 made the sensational charge that the U.S. embassy was involved in smuggling arms into Argentina, but the foreign office later repudiated the charge; on Feb. 9, however, Perón made a gesture toward closer relations with the United States. The U.S. state department on Feb. 12 published a startlingly frank memorandum on the Argentine situation in which it charged Argentine-nazi political and social collaboration, negotiations for nazi military assistance to Argentina, efforts by the latter government to subvert the governments of neighbouring countries, and the existence of a strongly fascistic regime in Argentina. The so-called Blue Book was a diplomatic sensation and resulted in strong attacks

JUAN DE PERÓN (left centre) at the ceremony during which he received the presidential sash of office from the outgoing president of Argentina, Edelmiro J. Farrell, at Buenos Aires on June 4, 1946





FOLLOWERS OF PERÓN CELEBRATE HIS VICTORY in the Argentine presidential election in the spring of 1946

by Perón on Spruille Braden, the anti-Perónist U.S. ambassador to Argentina in 1945 and by 1946 the assistant secretary of state, as well as formal repudiation of the charges by the Argentine government. The Blue Book entirely failed to accomplish the hoped-for Argentine reaction against Perón's candidacy. The election was peacefully held on the date scheduled, the votes were apparently freely cast and honestly counted, and Perón won an overwhelming victory. The final electoral vote was announced as 304 for Perón to 72 for Tamborini; the popular vote was relatively closer, 1,474,447 to 1,207,359. The newly elected congress included 26 pro-Perón senators to 4 opposed and 109 favourable deputies against 49. The Democratic union was formally dissolved April 16. On May 23 Perón announced the organization of the National Revolutionary party as a merger of all groups that had supported him.

The U.S. state department on March 21 notified all other American foreign offices except that of Argentina that it would not sign a permanent hemispheric peace and security pact, proposed at Mexico City in 1945, if the Perón government were a signatory; in effect, however, this position was reversed in April. At about the same time, George S. Messersmith, U.S. envoy in Mexico and a pro-Argentine advocate at the San Francisco conference in April 1945, was appointed U.S. ambassador to Argentina. Gestures toward a rapprochement, both by Argentina and the United States, were guarded but positive later in the year. Perón's forces were in full control of the chamber of deputies when it met April 29 for the first time after 1943. The government again lifted the state of siege on May 24. Various nationalistic steps were taken in the early months of 1946: the central bank of the republic was nationalized by decree on March 25; absentee land-owning was heavily penalized by a new tax law in May; stock exchanges and export and insurance businesses were placed under national control on May 30; the Perón-controlled newspaper *El Laborista* predicted that various foreign-owned oil concessions would be expropriated. The Perón-Quirano inauguration took place June 4, the third anniversary of the revolution which brought the army group to power. Pres. Perón declared on Aug. 1 that in case of another world war Argentina would fight alongside the United States.

One of the early actions of the new regime was establishment of relations with the U.S.S.R., despite earlier bitter recriminations between the two governments; a soviet ambassador arrived in Buenos Aires Aug. 31. The United States demanded at various times during the year that Argentina take steps to implement its commitments against nazi Germany but as late as Oct. 30 Ludwig Freude, a prominent German in Argentina, was absolved of charges of nazi activity. Government efforts to reduce the cost of living, begun just after Perón's inauguration, allegedly slowed almost to a halt by mid-August. When the senate and the chamber of deputies, on Aug. 19 and Aug. 30, respectively, approved the Chapultepec and San Francisco agreements of 1945 by large majorities, at Perón's behest, nationalistic demonstrations were set off. The government in September took steps to bring about the impeachment and removal of four of the five members of the supreme court, which had frequently invalidated Perónist measures. Perón in November presented a comprehensive five-year plan for Argentina to the congress. It included 27 basic laws, ranging from complete reorganization of government departments to general reform of the customs laws; proposed legislation on most aspects of agricultural and industrial economy was included. The government also projected a 50-year immigration plan to raise Argentina's population to 100,000,000. The chamber of deputies on Nov. 29 passed a bill providing universal conscription for all men and women from 12 to 50 years.

Education.—School enrolment in 1946 was almost 2,000,000. The literacy rate was estimated at 85%. The government on May 2 seized all six national universities for alleged interference in politics and named interventors for them.

Finance.—The monetary unit is the peso, valued on Nov. 15, 1946, at from 20.24 to 26.81 cents, U.S. currency, depending on the type of exchange. The ordinary budget for 1946 (decreed Jan. 5) estimated revenues at 1,390,000,000 pesos and expenditures at 1,769,000,000 pesos, leaving a deficit of 379,000,000 pesos. The preliminary figures did not include any proposed bond issues. The 1945 budget (not finally decreed until Dec. 17, 1945) indicated total expenditures of 2,849,000,000 pesos, of which 1,155,000,000 pesos came from bond issues and 1,694,000,000 pesos from ordinary revenues; the revenues were estimated at 1,355,000,000 pesos, leaving a deficit for that year of 339,000,000 pesos. Military expenses represented 46% of all 1945 expenditures, public works 12.5%, justice and public instruction 10.5%, other ministries 16.5% and debt service 11.5%. The consolidated debt Jan. 1, 1946 (not including the floating debt) was 12,300,000,000 pesos, an increase of 700,000,000 pesos in one year. Bank deposits on Jan. 1, 1946, were 8,140,000,000 pesos and discounts and loans 3,419,000,000 pesos; postal savings Oct. 31, 1945, totalled 328,000,000 pesos. National revenues in the first quarter of 1946 were 427,000,000 pesos (same period in 1945: 367,000,000 pesos). Commercial banks on Feb. 28 had 7,776,000,000 pesos in loans, advances and investments and 798,000,000 pesos in capital and reserves. The government's nationalization of the central bank on March 25 was followed by a decree April 24 putting all bank deposits under control of the central bank, with the government undertaking to guarantee all deposits. A decree of May 8 gave the central bank control over all foreign exchange operations. The United States agreed on June 25 to release \$700,000,000 of Argentine gold frozen by the federal reserve bank during wartime. The Argentine government in July announced plans to redeem foreign debt amounting to \$135,400,000 and 56,000,000 Swiss francs. A 1,000,000,000-peso bond issue, intended partially for debt retirement, was authorized Nov. 19. Three tax-increase bills were passed just before Perón's inauguration: on personal incomes, on undistributed profits of corporations and on divi-

dends and interest remitted abroad; the government also adopted a capital gains tax. The official cost-of-living index at the beginning of 1946 was 137 as against 100 for 1939; the wholesale price index in March was 228.7 as against 100 in 1926. The cost of living was estimated to have risen 11% for workers and 23% for middle- and upper-income groups in 1945. Inflation continued early in 1946. Argentina on April 26 granted Spain a \$7,500,000 loan for food purchases. Two British financial missions went to Buenos Aires early in the year to explore the whole field of mutual financial relations; they proposed to discuss the liquidation of blocked sterling amounting to about £150,000,000, a new trade agreement, railroad negotiations and other matters. The British put a value of £250,000,000 on their railway investment in Argentina, although others estimated it at £90,000,000. The financing of the proposed five-year plan would require approximately 6,662,000,000 pesos exclusive of national defense expenditures; some of the items included were: organization costs, 72,700,000 pesos; power projects, 2,000,000,000 pesos; public works and transportation, 3,500,000,000 pesos. Each law involved called for funds from special appropriations to be supplemented by new bond issues.

Trade and Communication.—The wartime foreign trade pattern of emphasis on exports of meats, hides, leather goods and mineral products tended in 1946 to shift to a more normal emphasis on grain exports. Total exports in 1945 were 7,046,000 short tons valued at 2,485,200,000 pesos (1944: 2,360,400,000 pesos); imports were valued in 1945 at 1,154,000,000 pesos (1944: 1,007,154,000 pesos); the 1945 export balance was thus 1,331,200,000 pesos (1944: 1,353,200,000 pesos). Exports in the first quarter of 1946 were 1,731,000 short tons (same period in 1945: 1,510,000 tons) and imports 1,988,000 tons (1944: 1,012,000 tons); the favourable trade balance for the quarter was 280,000,000 pesos. The United States was the principal supplier by value in the first quarter of 1946, with 22.4%. Other fractions were: Brazil, 20.8%; Great Britain, 13.4%; Sweden, 5.7%; and Switzerland, 4.7%. Brazil was the principal supplier in 1945. Exports of various products in 1945 included: wheat, 2,357,302 metric tons; quebracho extract, 225,000 metric tons. Various imports in 1945 included: coal, 779,803 long tons (of which 423,014 tons came from South Africa); crude petroleum, 1,002,000 bbl.; fuel oil, 2,800,000 bbl.; gas oil and Diesel oil, 510,000 bbl.; chemicals, 80,483,000 pesos. Wool exports for 1944-45 (on a grease-wool basis) were 136,381 metric tons (1943-44: 121,460 tons); the 1945-46 clip was estimated at 230,000 tons. Grain exports for the first four months of 1946 were 1,226,000 metric tons (same period in 1945: 1,116,000 tons); wheat exports in the first quarter dropped to 285,000 short tons from 760,000 tons in the first quarter of 1945. The estimate of exportable corn for 1946 was about 2,200,000 metric tons. Exports of quebracho extract in the first seven months of 1946 were 176,197 metric tons (same period in 1945: 144,646 tons); cotton exports in the same period were 22,432 metric tons (same period in 1945: 4,085 tons) valued at 28,345,841 pesos (1945: 4,081,525 pesos). Great Britain and Argentina on Mar. 11 extended their trade agreement (the Roca-Runciman pact) to Aug. 21 but it then expired. A new agreement, signed in mid-September, included chiefly financial provisions but revived the lapsed trade pact until Dec. 31, pending later negotiations. Argentina negotiated trade agreements with India on Sept. 27 and with Spain on Oct. 31; Perón received a soviet trade mission on April 10 for discussions and negotiations were also anticipated with Czechoslovakia, Bolivia, Venezuela and Switzerland. The government established a foreign trade institute Aug. 27 as the sole agent for meat exports.

Railways and highways totalled, respectively, 26,384 and 254,370 mi. The Argentine merchant fleet owned 27 ships of 134,811 tons; the coastal trade carried about 500,000 tons per year. The government in 1946 considered plans for a merchant fleet of at least 100 vessels for the inter-American trade. The United States on April 11 lifted various shipping restrictions against Argentina. The government program for aviation development provided for establishment of six zones for domestic air lines, expenditure of 3,500,000 pesos on six major airport projects and other improvements. Air France was authorized to fly to Argentina and through Argentina to Chile. A decree of Jan. 2 established the Flota Aérea Mercante Argentina (F.A.M.A.) to emphasize air express and freight service. Argentina, jointly with Chile, considered plans for a new tunnel under the Andes, for both trains and automobiles, at a length of 12.5 mi. and an estimated cost of 170,000,000 pesos. Freight carried by Argentine railways in the last half of 1945 was 26,845,000 metric tons (same period in 1944: 27,238,000 tons); passengers totalled 138,985,000 (an increase of 15%). The government considered a five-year plan for expanding telephone facilities; telephones totalled more than 500,000.

Agriculture.—Estimates of various crops in the 1945-46 season included: wheat, 4,300,000 metric tons (five-year average: 6,384,000 tons); linseed, 1,401,000 tons (1944-45: 1,405,000 tons); oats, 825,000 tons (1944-45: 719,000 tons); barley, 1,012,000 tons (1944-45: 540,000 tons); rye, 340,000 tons (1944-45: 290,000 tons); corn, 4,700,000 tons; sunflower seed, 979,000 tons (1944-45: 985,000 tons); peanuts, 158,000 tons; cotton, 76,900 tons; flaxseed, 1,200,000 tons. Sugar cane ground in 1945 totalled 6,478,000 metric tons (1944: 5,445,000 tons); sugar production in 1945 was 449,147 tons (1944: 459,000 tons); the estimate of sugar production in 1946 was 530,000 tons. Cereal and linseed prospects were considered good for 1946-47. Slaughter of hogs in 1946 was estimated at 1,850,000 head (only 55% of the 1945 slaughter); the sheep population was estimated July 1, 1945, at 58,181,800; hide production in the first quarter of 1946 included: cattle, 1,428,090; calf and kidskins, 314,832.

Manufacturing and Mining.—All industry closed for a three-day lockout beginning Jan. 14 in protest against the government's bonus decree in Dec. 1945. The average worker's wage reached a six-year peak in Nov. 1945 (index of 144 as against 100 for 1940) and was expected to continue upward in 1946; it was questionable, however, whether real wages showed any gain. Argentina's 191 flour mills with a daily capacity of 9,500 metric tons did not represent the country's total milling capacity; by March 1946, an additional 54 mills with a daily capacity of 1,200 tons were inactive. Yarn and fabric production in 1945 included: cotton yarn, 64,962 metric tons; cotton fabrics, 35,000 tons; wool fabrics, 19,000 short tons; rayon yarn, 4,016,400 kg. of viscose and 178,580 kg. of acetate. Estimate of raw cotton consumption in 1946 was 78,000 metric tons (1945: 74,548 tons). Various strikes in 1946 (especially in *frigoríficos* and shoe factories) considerably reduced industrial production.

Crude oil production in 1945 was 22,880,007 bbl. (1944: 24,229,634 bbl.); of this amount Yacimientos Petrolíferos Fiscales (Y.P.F.), the government petroleum agency, produced 15,453,863 bbl. (a decrease of 751,498 bbl. from 1944) and private firms 7,426,144 bbl. (decrease of 598,129 bbl.). Petroleum reserves were estimated at 238,300,000 bbl. (See also FASCISM.)

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Arizona. The "Grand Canyon state" lies in the southwestern part of the United States. It borders Mexico on the south; the Colorado river forms most of the western boundary. Area 113,909 sq.mi. including 329 sq.mi. of water. Population (1940) 499,261; estimated population (1946) 650,000. The 1940 census showed 65.2% rural population and 34.8% urban; native-born whites 78.1%; foreign-born whites (including Mexicans) 7.3%; Negroes 2.9%; other races (mostly Indians) 11.5%. The capital is Phoenix with an estimated (1946) population of 90,000; chief cities with their estimated populations: Tucson 60,000; Yuma 12,000; Mesa 11,000; Douglas 10,250; Flagstaff 8,100; Prescott 8,000; Bisbee 7,000; Globe 6,500.

History.—The state officials in 1946 were: chief justice, Rawghlie C. Stanford; governor, Sidney P. Osborn; secretary of state, Dan E. Garvey; treasurer, William T. Brooks; attorney-general, John L. Sullivan; superintendent of public instruction, E. D. Ring. All were re-elected on Nov. 5 except the treasurer and the superintendent of public instruction; to these positions Mit Simms and Nolan D. Pulliam were elected. The legislature met in two special sessions, on April 23 and Sept. 9. At the first, provision was made for housing married veterans attending the university and the two state teachers' colleges. At the second, appropriations were made to increase old-age assistance to \$50 per month, to administer the national school lunch program, and to increase state officials' salaries. Among several constitutional amendments presented at the November election, the "right to work" measure carried, although it was most bitterly contested.

Education.—The net enrolment for 1945-46 and the number of teachers in the public schools stood respectively as follows: elementary schools 98,562 and 2,803; high schools 24,330 and 970. In addition there were 50 private and parochial schools.

Social Insurance and Assistance, Public Welfare and Related Programs.—In May 1946, there were 26,022 persons receiving assistance from the state department of social security and welfare. The total appropriation to the department (1946) was \$5,267,475. Other appropriations for 1946 were for: industrial school \$128,000; juvenile girl offenders \$95,000; prison \$220,000; state hospital for insane \$746,969. In June 1946, Arizona ranked 11th among the states with an average of \$38.78 a month for old-age assistance. By October this had been increased to \$49.49, because of the action of the September special session.

Communication.—State and federal aid highways in 1946 totalled 3,825 mi.; county rural roads 15,543 mi.; national forest roads 3,377 mi.; and railroads 2,617 mi. There were four air bases for interstate travel. Telephones numbered 98,000.

Banking and Finance.—National banks in Sept. 1946, had deposits of \$278,592,200; loans and discounts \$73,021,911; U.S. government securities \$152,655,710. State banks had deposits of \$101,047,746; loans and discounts \$18,974,847; U.S. government securities \$63,066,001.

Agriculture.—For the first time in several years the cotton crop was harvested by volunteer labour, German and Italian war prisoners and Mexican nationals having been used during World War II.

Manufacturing.—During 1946, 8.4% of the population was engaged in manufacturing. The number of various establish-

ments was as follows: bread and food products 72; ice, ice cream and ices 47; newspapers and publishers 33; soft drinks 24; meat packing 16; saw mills and lumber mills 16.

Table II.—Mineral Production of Arizona, 1945

Products	Weight	Value
Copper, lb.	574,406,000	\$77,544,810
Gold, oz.	77,223	2,702,805
Silver, oz.	3,558,216	2,530,287
Zinc, lb.	80,452,000	9,251,980
Lead, lb.	45,734,000	3,933,124

Mineral Production.—Because of labour strikes in smelters, which caused a number of mines to stop production, the estimated production for 1946 was decidedly below that of 1945.

(H. A. H.)

Arkansas. Arkansas is an inland state in the south central United States, admitted to the union in 1836. Area 53,102 sq.mi., 377 of which are normally under water.

Pop. (1940) of 1,949,387 amounted to an increase between 1930 and 1940 of 5.1%. The average of inhabitants was 37 persons to the square mile. Population decreased during World War II because of military service and job opportunities in industrial centres elsewhere, but was increasing in 1946. On July 1, 1945, the census bureau estimated the population was 1,779,817. The 1940 census showed 53 towns and cities, 431,910 urban and 1,517,477 rural population. The Negro population, 506,770, was chiefly in the southeast half of the state. Capital, Little Rock (pop. 1940, 88,039). Other cities: Fort Smith, 36,584; Hot Springs, 21,370; Pine Bluff, 21,290; North Little Rock, 21,137.

History.—The principal state officers during 1946 were Ben T. Laney, governor; J. L. Shaver, lieutenant governor; C. G. Hall, secretary of state; J. O. Humphrey, auditor; J. V. Clayton, treasurer; Guy E. Williams, attorney general; C. A. Rankin, land commissioner. All were re-elected in Nov. 1946, for two-year terms, except the lieutenant governor, who was not a candidate. Nathan Gordon became lieutenant governor for 1947 and 1948.

The chief accomplishments of the Laney administration in 1945 and 1946 were the consolidation of the natural resource agencies into one agency, co-operation of the state government with private agencies in economic rejuvenation, improvement in educational funds and improvement in the state's financial position and distribution of state revenues to agencies and services. The governor's program for 1947 and 1948 included continued industrial expansion, new revenues for state highway construction on a cash basis, further debt reduction and expansion of resource protection and development.

Education.—Total expenditures, state and local, for public schools in the school year 1945-46 were \$22,918,587. Total attendance was: white, 245,447; Negro, 76,926; total, 322,373. Per capita expenditure, \$71.90. Teachers totalled 12,242 of which 6,329 were white elementary, 2,040 Negro elementary, 3,362 white high school and 511 Negro high school. The commissioner of education was Ralph B. Jones, beginning his seventh year Jan. 1, 1947.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state in 1946 maintained 30 charitable and correctional institutions, including the state penitentiary farms, the state farm for women, girls' industrial school, boys' industrial school, Negro boys' industrial school, state hospital for nervous diseases, tuberculosis sanatoriums, school for the blind, school for the deaf, Confederate veterans' home and children's home and hospital. The legislature of 1945 appropriated \$4,770,000 for expenditure through the state welfare department for old-age assistance and related benefits in each of the years 1945-46 and 1946-47. Increased appropriations for all these

Table I.—Leading Agricultural Products of Arizona 1946 and 1945

Crop	1946 (est.)	1945
Wheat, bu.	567,000	504,000
Oats, bu.	319,000	384,000
Sorghum grain, bu.	2,088,000	1,815,000
Corn, bu.	448,000	437,000
Cotton lint, bales	140,000	117,000
Grapefruit, boxes	4,300,000	4,100,000
Oranges, boxes	1,270,000	1,210,000
Horses, head	64,000	68,000
Cattle and calves, head	986,000	930,000
Sheep and lambs, head	601,000	586,000

agencies were before the legislature for the next biennium.

Communications.—Highways, local, state and federal, totalled about 75,000 mi. in 1946. About 7,700 mi. of nearly 10,000 mi. on the state system were surfaced with concrete, asphalt or gravel. About \$8,000,000 in contracts for new construction under the federal aid-postwar program were let in 1946. Total highway revenues in 1946 were \$22,000,000, a new high record. Railway mileage was about 5,000 mi. Air service expanded in 1946 and much airport construction work was scheduled for 1947. The corps of engineers, U.S. army, comprehensive plan for navigation of the Arkansas river, across Arkansas and to Tulsa, Okla., was approved by congress in 1946.

Banking and Finance.—In Sept. 1946, there were 210 state and national banks with total deposits of \$754,496,000. Net liquid assets of Arkansas individuals and corporations rose from \$109,000,000 in 1940 to \$1,190,000,000 in 1946, according to the Federal Reserve bank of St. Louis.

The total bonded debt of the state was reduced approximately \$8,000,000 in 1946 to approximately \$125,540,500 on Jan. 1, 1947. Treasury balances totalled approximately \$57,000,000 Jan. 1, 1947, of which about \$27,000,000 was invested in securities earning about \$500,000 annually.

Agriculture.—The total agricultural income in 1946 was estimated at \$435,000,000 gross. Agricultural production was widely diversified, the chief products being cotton, rice, corn, soybeans, peaches, chickens, livestock, berries, truck crops and dairy products. Cotton and rice predominate in the southeast; broilers, fruits, truck and dairy products in the northwest. Canning output increased 300% in the years of World War II, compared with 49% national increase.

Manufactures.—Lumber production from 20,000,000 ac. of forest land was estimated at 1,500,000,000 bd.ft. in 1946.

Gross manufacturing production in 1946 was estimated at \$650,000,000, an increase of \$32,000,000 over 1945. The Arkansas economic council-state chamber of commerce reported a 2-year gain in new industries and important expansions up to Jan. 1, 1947, as: 941 new and expanded enterprises; \$70,183,000 investments; 24,915 jobs; \$42,377,950 annual pay roll. Industrial use of the state's own raw materials predominated in the new plants.

Mineral Production.—Mineral production for 1945 (severance tax records) reflected a total value of \$51,431,536 and included: petroleum 28,567,474 bbl.; natural gas 63,216,688,000 cu.ft.; coal 1,680,035 tons; bauxite 1,000,419 long tons; limestone 299,560 tons; barite 261,406 short tons; cement 711,000 bbl.; chert (roofing) 13,952 short tons; clay 162,658 short tons; gravel 1,726,723 short tons; gypsum 14,446 short tons; manganese and manganiferous ores 7,737 short tons; novaculite (abrasive) 504 tons; dimension and crushed stone 794,286 tons.

(C. F. Bs.)

Arliss, George

(1868–1946), British actor, was born on April 10 in London. He joined a theatrical company at the age of 18 and toured the English provinces. He scored a major triumph in 1900 when he appeared with Mrs. Patrick Campbell in *Mr. and Mrs. Daventry* and in *The Notorious Mrs. Ebbsmith*. He went to New York city in 1901, and appeared in *The Second Mrs. Tanqueray* and in *The Darling of the Gods*. His suave performances captured Broadway, and in the 1907–08 season he was billed with Mrs. Minnie Maddern Fiske in Henrik Ibsen's *Rosmersholm*, Franz Molnar's *The Devil* and in *Septimus*. He made his greatest success, however, in 1911, in the Louis N. Parker play, *Disraeli*. On his return to the London stage after a 22-year absence, he starred in *The Green Goddess*, which ran for 12 months. A superb character actor, Arliss was famed for the skill and finesse of his perform-

ance. He used a minimum of makeup, sported a monocle where possible and preferred the contrasts afforded by sinister characterizations although his comedy roles were enthusiastically received in both England and the United States. In 1929, the adaptation of *Disraeli* in motion pictures brought him new success and he subsequently starred in the screen versions of *The Green Goddess*, *The Man Who Played God*, *Old English*, *The Millionaire*, *Voltaire*, *The House of Rothschild* and *Cardinal Richelieu*. His last film, *Dr. Syn*, was produced in England in 1937. Mr. Arliss was the author of several plays including *The Wild Rabbit* (1899), *There and Back* (1900) and *Widow Weeds* (1910), and two autobiographies, *Up the Years from Bloomsbury* (1927) and *My Ten Years in the Studios* (1940). He died in London on Feb. 5.

Armies of the World.

Statistics covering this subject were not available from official sources during 1946, and the information which was publicly available was not considered reliable. The article was therefore omitted. (For related topics see AVIATION, MILITARY; MUNITIONS OF WAR; SELECTIVE SERVICE, U.S.; WORLD WAR II.)

Arsenic.

Nearly half of the world output of white arsenic comes from the United States and Mexico. The output of the major producing countries is as follows:

World Production of Arsenic

(Thousands of short tons)

	1937	1939	1940	1941	1942	1943	1944	1945
Australia	2.30	1.59	3.73	3.78	3.05	2.56	2.58	?
Belgium (exp.) . . .	3.35	3.67	?	?	?	?	?	?
Brazil	0.79	0.78	1.19	1.29	0.99	0.93	?	?
Canada	0.69	0.87	1.05	1.77	3.92	1.58	1.31	1.02
France	7.17	?	10.16	6.77	2.49	4.12	2.14	?
Germany (exp.) . . .	3.14	1.96	?	?	3.95	6.18	?	?
Italy	—	1.27	1.41	1.32	?	?	?	?
U.S.	11.86	7.79	10.22	14.16	20.41	22.39	16.87	16.55
Mexico	16.81	22.34	24.98	32.48	28.68	31.20	36.09	24.35
United States	16.81	22.34	24.98	32.48	28.68	31.20	36.09	24.35
Total	61.7	69.5	79.2	?	?	?	?	?

United States.—Production declined by one-third in 1945, but remained higher than in any prewar year. Imports increased from 9,965 short tons in 1944 to 13,149 tons in 1945, exports dropped from 2,401 tons in 1944 to 858 tons in 1945, and consumption dropped from 43,500 tons to about 39,000 tons. Insecticides and weed killers absorbed the bulk of the output.

Mexico.—There was only a minor decline in Mexican output in 1945, but the drop after the peak output of 1943 was more than one-quarter, as compared with a one-third drop in the U.S. in 1945.

Canada.—Demand declined, and production decreased from 1,314 short tons in 1944 to 1,016 tons in 1945.

Sweden.—The refining of the byproduct crude arsenic from the Boliden mine was discontinued during the war years, but considerable amounts of the crude were utilized in wood preservation.

(G. A. Ro.)

Art: see AMERICAN LITERATURE; ARCHITECTURE; PAINTING; SCULPTURE; etc.

Art Exhibitions.

Despite transportation difficulties, strikes, and the high cost of labour, there was no curtailment in the number of art exhibitions during 1946. Modern trends became more apparent in the contemporary annuals and in general the chief prizes and honours went to artists working along progressive or experimental lines. Even the staid Pennsylvania Academy of the Fine Arts in its largely invited 141st annual veered very much to the left. Gregorio Prestopino was awarded the much coveted Temple medal for the "Death of Snappy Collins" and Benjamin Kopman's "Landscape" won the Sesnan medal.

Chicago's 50th local annual at the Art Institute inaugurated the new Walter M. Campana prize of \$1,000 which went to Margo Hoff for "Murder Mystery."

Carnegie Institute in Pittsburgh, in an all-invited annual titled "Painting in the United States, 1946," tended in the modern direction despite the sprinkling of conventional portraits. Karl Knaths won the \$1,000 first prize for "Gear," Jack Levine the \$700 second prize for "Welcome Home" and William Gropper the \$500 third prize for "Don Quixote, No. 1."

Industry continued to support art with Pepsi-Cola as the leader in the field. Their third annual "Paintings of the Year," held in the galleries of the National Academy, spread \$15,250 in prize money, the top three being \$2,500 to Boris Deutsch for "What Atomic War Will Do to You," \$2,000 to Carlos Lopez-Rey for "Carnival in Madrid" and \$1,500 to Robert Gwathmey for "Lullaby." The Syracuse Museum, after a respite during World War II, revived the noted ceramic annual on an even more expansive scale. Top ceramic artists from all over the United States submitted their best work and an impressive array of prizes was distributed to such well-known artists as William M. Swallow, Carl Walters, Edward Winter, Marguerite Wildenhaus, Gertrud and Otto Natzler and Henry Varnum Poor.

Important one-man exhibitions featured significant phases in U.S. art. The Whitney Museum assembled 30 canvases by Robert Feke who, next to John Singleton Copley, was the most accomplished portrait painter of the colonial period. George Inness (1825-1894), the noted landscape painter, was given a full-length showing at the George Walter Vincent Smith Art Gallery in Springfield, Mass., later shown at the museums in Brooklyn and Montclair.

Theodore Robinson (1850-1896), who brought the flavour of French Impressionism to U.S. painting, was accorded a comprehensive exhibition at the Brooklyn Museum. In Chicago the Art Institute gave a complete resumé of the work of George Bellows who put new vitality into U.S. painting and revived the art of lithography.

M. Knoedler and Company, veteran New York dealers, celebrated their 100th anniversary with a nostalgic exhibition of the taste of the past century. In like manner the Metropolitan Museum held a 75th anniversary exhibition, the "Taste of the Seventies," featuring such old favourites as Alexandre Cabanel's "Birth of Venus," Rosa Bonheur's "Horse Fair" and paintings by Adolphe Bouguereau and Jean Meissonier. Of far greater importance in the Metropolitan's diamond jubilee was the featuring of three outstanding loans from Europe: Michelangelo's tondo relief of the "Madonna and Child" from the Bargello in Florence; the "Good Shepherd," famous early Christian sculpture from the Vatican in Rome; and Eugène Delacroix' "La Barricade" from the Louvre.

Internationalism was further stressed when 230 U.S. oils and water colours covering the period from colonial times to the present were sent to London for exhibition at the Tate Gallery. British opinion seemed to be that only a few artists like Winslow Homer and Thomas Eakins were truly American, the rest was thought to be inspired by England and France. Two travelling exhibitions were being sponsored by the state department, one being sent to Europe and the near east while the other was to tour Latin America. Seventy-nine pictures were bought outright to make up these good-will art groups.

"Pioneers of Modern Art in America" held at the Whitney Museum gave a most interesting account of the background of progressive movements in the United States. Work by 34 artists were shown including John Marin, Joseph Stella, Max Weber, Marsden Hartley, Man Ray and Alfred Maurer.

One of the most colourful exhibitions of 1946 was the comprehensive showing of the paintings and prints of Marc Chagall

arranged jointly by the Museum of Modern Art and the Art Institute of Chicago. At the latter showing a special installation was designed by Raymond Breinin who was born in the same city in Russia, Vitebsk, as Chagall.

Unquestionably the most dramatic and most unusual exhibition of the year was the "Arts of the South Seas" at the Museum of Modern Art. Carvings, weaving, sculpture and other art expressions of the native tribes inhabiting the islands of the Pacific were arranged and showed the extraordinary sense of suitability of materials, and feeling for colour and design possessed by these islanders.

An important exhibition of paintings by the 19th century French artist, Camille Corot, was arranged at the Philadelphia Museum.

The climax of the year was the loan of paintings by William Hogarth (1697-1764), John Constable (1776-1837) and J. M. W. Turner (1775-1851) from King George VI and the great museums in London, the National Gallery, the Tate Gallery and the Victoria and Albert Museum. This was arranged by the Art Institute of Chicago and, after being shown there, was scheduled for early 1947 at the Metropolitan Museum in New York.

(F. A. Sw.)

Art Galleries and Art Museums.

For the third time Samuel H.

Kress made a gift of major importance to the National Gallery of Art in Washington. Wide variety was shown in the collection numbering 110 works ranging from the 15th to 19th century. Among the outstanding paintings are "The Healing of Palladia by St. Cosmas and St. Damian" by Fra Angelico; a Madonna by Sandro Botticelli; "Adoration" by Fra Filippo Lippi; two pictures by the Sienese master, Stefano di Giovanni Sassetta; "Christ on the Sea of Galilee" by Jacopo Tintoretto; "Cardinal Pietro Bembo" by Titian (Tiziano Vecellio); "Portrait of an Old Woman" by Jean-Baptiste Chardin; "Portrait of Madame Bergeret" by François Boucher; "Madame Moitessier" by Jean Ingres.

Drawings came into prominence as both the Art Institute of Chicago and the Metropolitan Museum displayed the cream of their collections. Chicago's varied group, mostly recent purchases made possible by Mrs. Tiffany Blake, Mrs. Potter Palmer and Carter Harrison, included Paul Gauguin's "Tahitian Woman," Paul Cézanne's "Harlequin," Vincent van Gogh's "Tree in a Meadow," as well as Canaletto's "Ruins of a Courtyard" and a notable 18th century French drawing, "The Letter," by Jean-Honoré Fragonard.

At the Metropolitan, Leonardo to Ingres included such highlights as "Two Nude Figures" by Filippino Lippi; "Cupid Bending a Bow," by Giorgione; "Madonna Adoring the Child" by Leonardo da Vinci; "Study for the Libyan Sibyl" by Michelangelo (Michelagnolo Buonarroti); and six drawings by Ingres.

One of the great acquisitions of the year occurred when the Museum of Fine Arts in Boston purchased a 14th century triptych "The Crucifixion" by Duccio di Buoninsegna, formerly owned by J. P. Morgan and seldom seen as it hung in his English country home at Aldenham. A monumental still life by Jean-Baptiste Chardin was acquired for the Springfield (Mass.) Museum. Signed and dated 1764 it was formerly in the Jacques Doucet collection. After ten years of litigation the John and Mable Ringling Museum at Sarasota was turned over to the state of Florida. With this went the fabulous home of the circus owner which is destined to become a Venetian museum; the two properties together are valued at \$15,000,000.

William Randolph Hearst donated \$100,000 to the Los Angeles County Museum whose collections, as a result, were greatly enriched with purchases which include a 13th century

French Romanesque capital, a 14th century French carved "Madonna and Child," Jacob Jordaens' "Satyr Visiting a Peasant Family" and Peter Paul Rubens' "Sketch of Hercules Killing the Lion."

Edgar Degas' "Frieze of Dancers," an important work dating from about 1880, was purchased for the Cleveland museum. This painting was for many years in the collection of the noted German Impressionist painter, Max Liebermann.

The first major postwar museum building construction to get under way was the Des Moines Art centre. Designed by Eliel Saarinen, the structure measures 380 by 224 ft. and was expected to be completed in 1947.

Major reconstruction was started at the Cincinnati museum where a newly acquired collection of sculpture of first quality was a feature at the fall opening. Egypt, ancient Greece and Rome, China, mediaeval France and Renaissance Italy are represented by sculpture of the best periods in their artistic development.

In Philadelphia the Pennsylvania Academy of the Fine Arts purchased more than \$10,000 worth of contemporary U.S. art. In the group were "Seated Girl" (stone) by Concetta Scaravaglione, "Magic Forest" by John Atherton, "The Round Table" by Abraham Rattner and "Lime Kiln" by Julian Levi.

Nineteenth century U.S. paintings were a feature of purchases during the year 1946 at the St. Louis museum: Thomas Cole's "Dream of Arcadia," George Inness' "Roman Campagna," William Harnett's "With the Staats Zeitung" and a well-known early Winslow Homer, "The Country School" (1871).

A varied group of paintings entered the collection of the Museum of Modern Art in New York and included "The Card Players," (1913-14) by Pablo Picasso, "Front Page" by Stuart Davis, "Two Witnesses" by Ben Shahn and "Republican Automats" by George Grosz. A significant group of U.S. paintings was acquired by the Butler Art institute in Youngstown, O., and included "Street Urchins" by the 19th century genre painter, David Blythe, "Sugaring Off" by Eastman Johnson, "The Oregon Trail" by Albert Bierstadt and "The Portrait of General Cadwalader" by Thomas Eakins.

Progressive trends in contemporary art were stressed in the new acquisitions at the Walker Art centre in Minneapolis. In the group were a wholly abstract composition by Irene Rice Pereira called "Rose Planes," "Landscape with Drying Sails," by Stuart Davis and "The Sleeping Canyon" by Amedee Ozenfant.

With the return of precious objects from war storage, museums had an opportunity to rearrange their collections to advantage. One of the most distinguished new installations was in the department of Egyptology at the Metropolitan museum. The visitor could not only enjoy the finest examples of the art of Egypt but also, through many small objects of every day life, could obtain a clear idea about the customs and beliefs of these ancient inhabitants of the Nile.

Art Treasures and World War II.—Reconstruction of buildings damaged by bombing was proceeding in all the devastated sections of Europe. The vast amount of movable works of art which were carried off by the nazis and secreted in various mines and castles in Germany and Austria were in 1946 fairly well located and catalogued. Three central collecting points were set up at Munich, Frankfurt and Wiesbaden, where displaced art was assembled for examination and identification. Germany's own great collections were stored with the loot from other countries. The best things from the Kaiser Friedrich museum, Berlin, were found in the Merkers mine. In the monastery at Hoenfurth were found two of the greatest private collections in Europe, the Rothschild of Vienna and the Mannheimer of

Amsterdam.

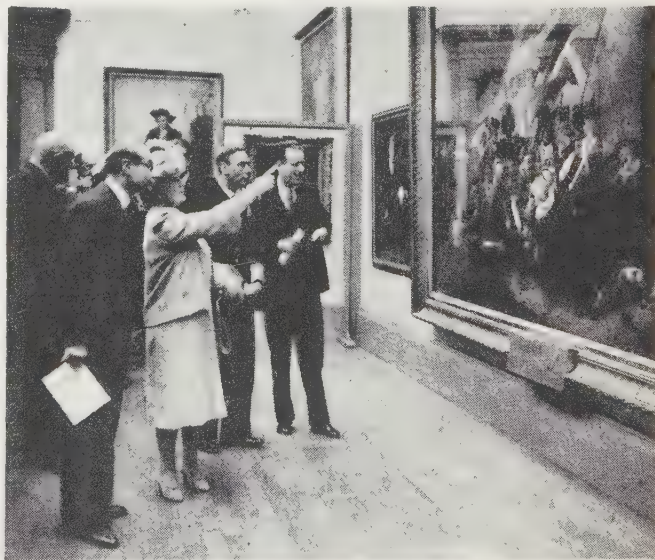
One of the most fabulous discoveries was in the salt mine at Alt Aussee. Here had been placed the objects which Adolf Hitler intended to install in the proposed Fuehrer museum at Linz, the birthplace of his mother. The famous Michelangelo marble Madonna from Bruges was found and was almost immediately returned to Belgium. Nearby was the Ghent altarpiece, masterpiece of Hubert and Jan van Eyck, painted in 1432. Another section of the mine contained 2,000 paintings, among which were collections taken from Amsterdam and Bruges including outstanding works by Frans Hals, Pieter Brueghel, Titian, Rembrandt, Rubens, and Van Dyck. In another section were 6,000 paintings, many from famous Jewish collections, Rothschild, Gutmann and Mannheimer; Jan Vermeer's "Portrait of the Artist in His Studio," from the Count Czernin collection, Vienna; 15 cases of painting and sculpture from Monte Cassino, Italy; and the great treasures of the Naples Museum: "The Annunciation" by Filippino Lippi, "The Crucifixion" by Van Dyck, "Danaë" by Titian, "The Madonna of Divine Love" by Raphael and the "Blind Leading the Blind" by Pieter Brueghel.

Hermann Goering's private collection had been sent by special train to Berchtesgaden just ahead of the French troops, so most of it was still in the train at the time of surrender. Thirty-one trucks were required to transport the collection to the collecting point in Munich. Included was "Christ and the Woman Taken in Adultery," the fake Jan Vermeer made by Hans von Meegeren.

At the castle of Neuschwanstein were found the paintings from the museums of Munich, 2,000 gold objects from the David-Weill collection in Paris and all the records of Alfred Rosenberg who was at the head of the nazi looting task force.

Hidden in a cellar in Nuernberg across the street from Albrecht Duerer's house, was found the great carved altarpiece by Veit Stoss from the church of St. Mary at Cracow, Poland, and the coronation regalia of the Holy Roman empire, a shield, an orb, two swords and the crown of Emperor Conrad (so-called "Crown of Charlemagne").

High lights of the objects assembled at Wiesbaden were the Egyptian head of Queen Nefertete and the crown of St. Stephen of Hungary, dating from the year 1000. (F. A. Sw.)



THE KING AND QUEEN OF ENGLAND inspecting an exhibition of representative U.S. painting at the Tate gallery, London, on June 13, 1946. The exhibit was organized by the National Gallery of Art in Washington, D.C. On the left is John Rothenstein, director of Tate gallery, and on the right is John Walker, curator of the National Gallery of Art

Arthritis. Probably the greatest advance in rheumatoid arthritis has been its recognition and segregation as a condition entirely separate from other disorders of the joints. Consequently, it is possible to classify this disease according to the stage of severity and to weigh the results of treatment according to definite yardsticks. Two investigators set up a "score card" for judging the response to treatment. Several features of rheumatoid arthritis were selected and given set values so that the degree of improvement could be calculated in percentage figures. The criteria chosen included the amount of joint swelling, the degree of joint motion, the amount of joint tenderness, the amount of pain present, the feeling of well-being, the weight loss, and results of certain tests of the blood. By following a method such as this it was believed that different physicians could furnish more consistent information on the value of the various methods of treatment available.

The cause of rheumatoid arthritis remained unknown. For many years workers pointed out that many patients with this type of joint disease developed in their blood a special power to agglutinate certain streptococci. The possible relation of these streptococci to rheumatoid arthritis was considered suspicious. In one study of this factor, about 60% of the patients with rheumatoid arthritis were found to possess an increased agglutination for streptococci. Although gold did not have any specific effect on the agglutination power of the blood there was a lessening or disappearance of the agglutinins of those patients who showed great improvement in the rheumatoid arthritis whether they had received gold treatment or something else.

Although considered a specific disease of the joints, rheumatoid arthritis involves other tissues as well. An inflammation of the muscles, together with nodule formation, was found associated with that disease. These changes were believed to be specific for rheumatoid arthritis and fitted into the general pattern of the other lesions known to occur in the disease.

In arthritis other than the rheumatoid variety, some attention was paid to an epidemic form of arthritis which occurred in Australia, the cause of which was not determined. Also a condition called Reiter's disease, consisting of the combination of inflammation of the urethra, of the conjunctiva and arthritis received attention. Neither the epidemic arthritis of Australia nor Reiter's disease were probably related to rheumatoid arthritis.

Not much progress was made in the treatment of most forms of arthritis. Those types which are due to known germs, such as the pneumococcus, streptococcus, or the gonococcus, could be successfully treated in almost all cases with penicillin or the sulfonamide drugs. Penicillin and the sulfonamides, however, were not effective in rheumatoid arthritis. Gold salts continued to be used with some success in rheumatoid arthritis, although serious side effects were common and gold must be employed with great caution. Muscle spasm is common in rheumatoid arthritis and is the cause of some pain and deformity. Previously neostigmine had been used to relieve spasm. Lately, a drug called physostigmine was tried as a means of helping to prevent some of the deformities of rheumatoid arthritis, to lessen the severity of deformity already present, to simplify the drug used, to lessen the cost to the patient and to relieve pain.

Increased recognition was given to the need for organized research on arthritis and the desirability of increasing the facilities available for the care of patients. With this in mind a National Research Foundation for Arthritis, sponsored by prominent physicians and laymen, was in process of organization at the end of 1946.

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Artillery: see MUNITIONS OF WAR.

Art Sales. An all-time high was reached in auction totals for the 1945-46 season and probably was the peak, for a slight decline in prices was already beginning at the close of the year 1946. The Parke-Bernet galleries in New York announced a total of \$6,684,045. Aside from the fact that prices in general were high, there was an increase in attendance at auctions because of greater interest in painting and art objects and people seem to have become more discriminating in their taste.

Paintings accounted for \$1,210,215 of the Parke-Bernet total, the highest single picture being Rembrandt's "A Pilgrim at Prayer," acquired by Billy Rose at the Willys sale for \$75,000. Frans Hals' "Portrait of Joseph Coymans" went to a New York dealer for \$34,250 and Diego Velasquez' "Portrait of a Girl" brought \$30,000.

Twenty-five paintings from the collection of Sir William Van Horne of Montreal fetched a total of \$221,500. At the top of the list were Henri de Toulouse-Lautrec's "Gueule de Bois" which went for \$30,000, and his "Femme Rousse Assise dans le Jardin de M. Forest" for \$27,500. Paul Cézanne's "Portrait of Madame Cézanne" brought \$34,500. Albert Pinkham Ryder's famous "Siegfried and the Rhine Maidens" was purchased by the National gallery, Washington, for \$23,500, highest price ever paid for a Ryder.

The Eldridge R. Johnson collection of books, prints and drawings brought \$270,499. In this sale a Rembrandt etching, "Presentation in the Temple," sold for \$6,300. Parts 3 and 4 of the Frank J. Hogan library on early English literature sold for \$209,888, and early American furniture, Georgian silver and English china belonging to the actress, Marion Davies, brought \$204,772.

The Plaza Art galleries totalled \$1,441,471.95. Their highest single painting, Jean Baptiste Greuze's "Portrait of a Child" went for \$7,200 at the Maurice Baudler sale. Their most unusual item was a carved stone 17th century French cloister from the collection of George Grey Barnard which sold for \$2,550. A pair of Dresden porcelain vases brought \$1,500 and a dozen Hepplewhite chairs, \$1,650.

In London auction prices maintained a high level. Sotheby sold a full-length portrait, "George Washington as Commander-in-Chief" by Charles Willson Peale, dated 1779 (Earl of Albemarle collection) for £5,700. A "Madonna and Child with Donor" by the rare Venetian master, Bartolomeo Montagna (estate of Violet, Lady Melchett) sold for £8,200. An 87 piece Sèvres dessert set decorated by Pierre Aîné (dated 1767) brought £950.

At Christie's the furniture of Lionel de Rothschild brought top prices, a French Louis XV commode going for £3,990. Furniture and porcelain of the late W. J. Holt totalled £37,806 with £966 for a Queen Anne bureau-bookcase. An Italian gold chalice, dated 1648, brought £1,100 and a silver Monteith (1691) £1,250. Silver belonging to Captain Frederick Montagu totalled £17,977 with six silver-gilt dishes of 1573 bringing £7,000.

Pictures at the Earl of Crawford sale went for £26,769 with top item a "Madonna and Child" attributed to Sandro Botticelli bringing £5,880. Most important was the Lord Swaythling

sale (total £121,996) in which John Constable's famous "Stratford Mill on the Stour," dated 1820, brought £43,050. Thomas Gainsborough's "The Harvest Wagon" brought less than expected, £20,475, and Meindert Hobbema's "Woody Landscape" £11,025. (F. A. Sw.)

Aruba: see CURAÇAO.

Asbestos. In 1945 the sales of domestic asbestos in the U.S. recovered from the decline suffered in 1942-44, reaching 12,226 short tons, double the 1943 low, but only half of the 1941 high. Demand had been declining after 1943, and imports were 374,199 tons in 1945, as compared with 383,049 tons in 1944 and a high of 440,255 tons in 1943. While most of the imports were from Canada, certain war uses required the special properties found only in the South African and Southern Rhodesian products.

In Canada, production increased from 419,265 tons in 1944 to 460,051 tons in 1945, and to 250,217 tons in the first half of 1946. The 1946 rate exceeded the former record high of 477,846 tons in 1941.

The Southern Rhodesian output dropped from 58,293 tons in 1944 to 56,348 tons in 1945, a figure close to that of 1943, but 10% lower than the high of 1942. South African production declined sharply, from 34,582 tons in 1944 and a high of 35,656 tons in 1943, to 21,821 tons in 1945. Swaziland, appearing as a new producer with 7,973 tons in 1939, expanded to 32,659 tons in 1944. No data was available on production in 1945.

The building industry is an extensive user of asbestos in so many forms that the demand in the expanded building program of the next five years was expected to help greatly in cushioning the shock of reduced consumption for war uses.

(G. A. Ro.)

ASCAP (American Society of Composers, Authors and Publishers): see SOCIETIES AND ASSOCIATIONS.

Ascension: see BRITISH WEST AFRICA.

Asia: see AFGHANISTAN; CHINA; INDIA; etc.

Asphalt. Production of petroleum asphalt in the United States rose from 6,996,100 short tons in 1944 to 7,126,600 tons in 1945, while sales rose from 6,735,200 tons to 6,851,000 tons. Highway and street construction took 64% of the domestic sales, and roofing 26%. Bituminous rock production dropped from 740,454 tons in 1944 to 642,600 tons in 1945. The native asphalt gilsonite, produced only in Utah, increased from 49,051 tons in 1944 to 61,273 tons in 1945.

Imports of asphalts amount to only a few thousand tons a year, mostly from Trinidad and Cuba, but exports of petroleum asphalt in prewar years exceeded 200,000 tons annually.

(G. A. Ro.)

Assassinations. The assassinations of 1946, actual or attempted, included the following:

Jan. 5. Sir Amin Osman Pasha, Egyptian political leader, was shot and killed by an unidentified assassin.

July 21. La Paz, Bolivia. Young Bolivian student revolutionaries hurled Pres. Gualberto Villarroel from balcony; Villarroel died immediately and his body was hung from a lamp post in the plaza facing the presidential palace.

Nov. 23. Fawzi Hussein, cousin of Jamal Bey Hussein, chairman of the Arab higher committee, was murdered in Palestine, reportedly by Arabs for selling land to the Jews.

Association for the Advancement of Science, American: see SOCIETIES AND ASSOCIATIONS.

Association of Research Libraries: see SOCIETIES AND ASSOCIATIONS.

Astronomy. New instruments for scientific investigation have often marked the beginning of new eras of scientific discovery and progress. Developments in the field of electronics contributed new instruments to the astronomer during 1946. The application of radar to astronomical observation was dramatized by officers of the signal corps, U.S. army, when they successfully observed radar signals reflected from the moon. Successful radar observation of meteors and microwave radio observation of the sun established radio as an effective instrument for astronomical observation.

* New photoelectric cells of the electron multiplier type provided a marked advance in the precise photometry of stars. These new tubes, which have an antimony-caesium sensitive surface, amplify the photocurrent by means of nine stages of amplification within the tube. Thorough tests of these tubes by G. E. Kron showed them to be about 25 times more sensitive than the photoelectric cells formerly in use. Using the 36-in. refractor of the Lick observatory, Mount Hamilton, Calif., and one of the new multiplier cells, Kron found that he could observe photoelectrically any star he could see visually with the telescope. This was a truly remarkable gain in sensitivity over the cells formerly used. Kron predicted that a few improvements would make it possible to measure the light of faint stars by actually counting the number of photoelectrons. He estimated that a star of magnitude 21.4 at the focus of the 100-in. telescope should give a photocurrent of about 20 electrons per second. This could easily be measured by commercially available counters. An exposure time of 90 minutes is required to photograph a star of magnitude 21.0 with the 100-in. reflector. It seemed likely that the sensitivity of the photoelectric method might soon equal or surpass that of the photographic emulsion.

Another new type of photoelectric cell which is particularly sensitive to infra-red light was developed by R. J. Cashman. This new cell is of the photoconductive type with a sensitive surface of lead sulphide. Preliminary tests of this cell were made at the McDonald observatory, Mount Locke, Texas, by W. A. Hiltner and G. P. Kuiper. The tests showed the cell to be satisfactory for infra-red stellar photometry, with a sensitivity in this region of the spectrum hitherto unattainable.

Solar System.—*The Sun.*—The largest sunspot group ever observed was seen in Jan. 1946. The leading spot of this group appeared around the east limb of the sun on the morning of Jan. 29, but so large was the entire spot group that two days were required for the sun's rotation to bring the entire group into view. The spot group consisted of two large spots and a number of smaller ones. The large following spot had an area of 4,440,000,000 sq.mi., the largest single spot ever observed. The area of the entire sunspot group was 6,300,000,000 sq.mi. Brilliant flares were observed in the neighbourhood of the spots on Feb. 6 and 7. At 10^h. 20^m. Greenwich time on Feb. 7 a magnetic storm began. This magnetic disturbance reached its greatest intensity between 0^h. and 3^h. on Feb. 8, and caused interference in short-wave communications to South America and Europe. The magnetic storm began about 16 hours after the appearance of the intense flares of Feb. 6. The spot group was much diminished in area when it returned to the east limb of the sun on Feb. 26. A bright prominence was observed above the group at that time.

Magnetic storms resulting from the appearance of intense solar flares have been observed many times. The consequent interruption of radio communication is in effect an indirect observation of solar activity by means of radio. The appearance of solar flares affects the ionized layers of the earth's upper atmosphere, and the radio waves which are reflected from these ionized layers are thus likewise affected. During 1946 direct observation of the varying radiation of the sun was made in

radio frequencies. Australian scientists used a microwave radio receiver equipped with a parabolic antenna which had exceptional directional characteristics. When this antenna was pointed toward the sun the microwave radiation of the sun and even the disturbance of the radiation produced by sunspot groups were observed. Similar observations were made in the United States by R. H. Dicke and R. Beringer. Using a carefully calibrated microwave radiometer they were able to measure the effective black body temperature of the sun in radiation having a wave length of 1.25 cm. They found the temperature to be approximately $10,000^{\circ}$ K.

Planetary System.—On the night of Oct. 9–10, 1946, the earth passed close to the orbit of the Giacobini-Zinner comet. A brilliant meteor shower had been predicted, for it was expected that the earth would sweep up some of the swarms of meteoroids which travel in orbits nearly coincident with that of the comet. Bright moonlight made many of the faint meteors invisible. Even so a spectacular shower was observed in the western United States where skies were clear. At some stations observers counted meteors at the rate of one per second. In the eastern United States clouds prevented visual observation, but successful observations were made by radio and radar.

Ten comets were observed during 1946, none of them being of naked-eye brightness. Five were new comets not previously observed. The others had been observed at earlier approaches and special search for them had been made. One of these was the Giacobini-Zinner comet whose accompanying swarm of meteoroids was responsible for the brilliant meteor shower. The discovery of an additional object was announced in Argentina, but this object turned out to be the asteroid Hertha.

Stars.—*Special Stars and Stellar Structure.*—Diameters of a few of the largest stars were measured directly with the beam interferometer, and diameters of a considerable number of eclipsing stars were determined from their light and velocity curves. During 1946 A. E. Whitford succeeded in measuring the angular diameters of four stars by a new method. By using one of the new electron multiplier phototubes with an oscilloscope and motion picture camera, he obtained a high speed record of the variation of a star's light as the star was occulted by the moon. Measurement of the recorded diffraction pattern, provided the star's distance is known, yields the angular diameter. Whitford found that he could successfully measure stellar diameters of from $0''.005$ to $0''.018$ with a probable error of about 10%.

Many attempts were made to explain the observed distribution of energy in the continuous spectrum of the sun and stars. A satisfactory explanation must identify a source of continuous absorption in the stellar atmosphere which will produce the observed distribution of energy in the continuous spectrum and also the observed law of darkening at different wave lengths. It is also necessary to explain the observed relations between colour and effective temperature. Rupert Wildt suggested in 1941 that some of the continuous absorption in stellar atmospheres might be produced by negative hydrogen ions. His preliminary computations were based on poorly determined absorption coefficients, however, and failed to give a satisfactory explanation of the observed energy distribution. During 1946 S. Chandrasekhar and F. H. Breen redetermined the absorption coefficient for negative hydrogen ions. Chandrasekhar showed that with the new coefficient the distribution of energy in the continuous spectrum can be quantitatively accounted for as due to these ions. He also found that observed colour temperatures of main sequence stars of types AO to GO can be explained in terms of continuous absorption produced by neutral hydrogen atoms and negative hydrogen ions. These new results require a very considerable revision and extension of the general theory

of stellar atmospheres. It seemed likely that Wildt's discovery of the continuous absorption of negative hydrogen ions provided the key for the solution of a number of the problems of stellar atmospheres.

The Cepheid variable Polaris has the smallest amplitude of light variation of any Cepheid of its spectral type. Joel Stebbins observed this star photoelectrically in six wave length regions from the ultra-violet to the infra-red. He found a range of amplitude of from 0.166 magnitude at 3530A to 0.036 magnitude at 10,300A. This means that the star changes colour during the light variation, and this corresponds to a change of spectral type from cF6 to cF7.

Phenomena Visible in 1947.—*May 20, 1947. Total Eclipse of the Sun.*—Total phase visible in Chile, Argentina, Brazil, the Atlantic ocean and central Africa. Maximum duration of totality $5^m. 14^s.$ in latitude $1^{\circ} 22'$ north and longitude $19^{\circ} 15'$ west.

June 3, 1947. Partial Eclipse of the Moon.—Visible in Europe, the eastern south Atlantic ocean, Africa, southern Asia, the Indian ocean and Antarctica; the ending also visible in the southwest Pacific ocean and Australia. Maximum eclipse 0.024 moon's diameter.

Nov. 12, 1947. Annular Eclipse of the Sun.—The annular phase visible in the eastern Pacific ocean, Peru and northwestern Brazil. Partial phases visible in western and southern United States, Cuba, Mexico, Central America and northwestern South America. Maximum duration of annular phase $4^m. 3^s.$ in latitude $1^{\circ} 41'$ south and longitude $110^{\circ} 13'$ west.

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ATC: see AIR TRANSPORT COMMAND.

Athletics: see TRACK AND FIELD SPORTS; etc.

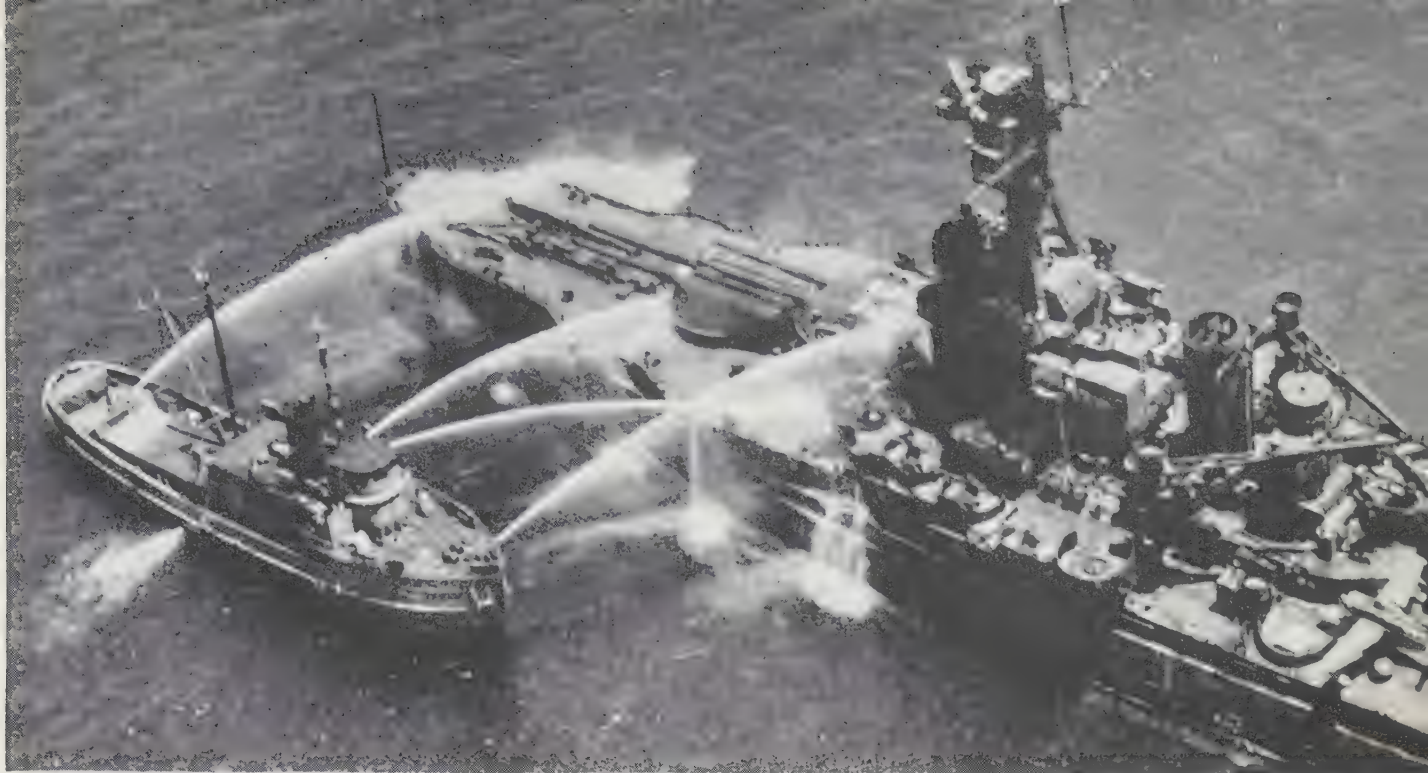
Atomic Energy. By the start of 1946 it was apparent to the whole world that the control of atomic energy constituted in many ways the most important problem facing the human race. Used in another war it would result in the destruction of civilization. But in its peacetime applications to industry, transportation and other activities, it promised the start of a new era, the Era of Atomic Energy, capable of becoming the most glorious period in the history of mankind.

Three major trains of events in the field of atomic energy held the attention of the world in 1946. The first was the battle in the United States congress over the adoption of a law for the domestic control of atomic energy. The second was the effort of the United Nations Atomic Energy commission to deal with the problem of international control. The third was the atomic bomb tests held by the United States joint army-navy task force 1 at Bikini Atoll. The author was an observer at the first of the two tests at Bikini.

Although there was a general appreciation of the power of the atomic bomb in 1945, its full fury was not appreciated until detailed reports of studies of Hiroshima and Nagasaki were made public in 1946.

Casualties at Hiroshima and Nagasaki.—On June 30, 1946, the war department made public the results of the official investigation of the bombing of Hiroshima and Nagasaki. The report had been compiled by engineers and scientists of the Manhattan project who had access also to data assembled by the U.S. Strategic Bombing survey, the British mission to Japan and the Joint Atomic Bomb Investigating group (medical).

This report stated that Hiroshima suffered 135,000 casualties or more than half of its population. Nearly half, or 66,000, of



Above: NAVY FIREBOAT flushing radioactive materials from the surviving target battleship "New York" after the July 25, 1946, explosion



Above: BOW OF THE U.S. CARRIER "INDEPENDENCE" showing damage done by the blast of the atomic bomb during the first test explosion at Bikini lagoon, July 1, 1946

Below: AIRCRAFT CARRIER "SARATOGA" slowly settling beneath the waters of Bikini lagoon approximately seven and one-half hours after the underwater explosion of the second test bomb on July 25, 1946; radioactivity was too intense to permit salvage men to board it and prevent it from sinking



the casualties were deaths. The greatest number of these occurred immediately after the bombing.

Nagasaki, a city of 195,000, suffered 64,000 casualties according to this report, of which 39,000 were deaths.

The effects of the atomic bombs on human beings were of three main types, the report states: (1) burns, including "flash" burns caused by the instantaneous heat and light radiations, (2) mechanical injuries, resulting from flying debris, falling buildings and blast effects, and (3) radiation injuries due entirely to gamma rays and neutrons emitted at the instant of explosion and similar to the results of severe X-ray over-exposure. The wide ground area over which burns were inflicted was particularly remarkable.

Burns caused about 60% of the deaths in Hiroshima and about 80% in Nagasaki. Falling debris and flying glass caused 30% of the deaths in Hiroshima and 14% in Nagasaki. Radiation caused 10% of the deaths in Hiroshima and 6% in Nagasaki. The investigators reported that no harmful amounts of persistent radioactivity were found in either of the two cities.

Destructive Effects.—The investigators were convinced that the destruction at both Hiroshima and Nagasaki was such as to justify the original statement that the general effect of the atomic bomb would be equivalent to an explosion of 20,000 tons of T.N.T.

In Hiroshima almost everything up to about one mile from the point on the ground directly below the burst was completely destroyed except for the buildings of reinforced concrete. In them, however, the interiors were gutted and doors, sashes, frames and all windows were ripped out. More than 60,000 of the estimated 90,000 buildings in the city were destroyed or severely damaged.

In Nagasaki, reinforced concrete buildings with 10-inch walls and 6-inch floors, situated 2,000 ft. from the point on the ground below the bomb burst, collapsed. At the same distance some 9-inch concrete walls were completely destroyed.

A Weapon of Saturation.—Dr. Philip Morrison, professor of physics at Cornell university and one of the scientists who worked on the bomb, went to Japan at the request of the war department to visit Hiroshima and study the effect of the atomic bomb. He said that the bomb is "pre-eminently the weapon of saturation." He pointed out that it destroys so large an area so completely and so suddenly that the defense is overwhelmed. The bomb knocked out 27 of the 33 fire stations in Hiroshima, killing or severely injuring three-fourths of the fire-fighting personnel. At the same time the bomb started hundreds of fires in the city. Of 298 registered physicians, only 30 escaped injury and were able to care for the survivors. Only 600 of the city's 2,400 nurses and orderlies escaped injury. Every hospital in the city but one was badly damaged. Electric power plants, railroads, telephones and telegraph lines were all put out of commission. Every citizen of Hiroshima had the impression that the bomb had exploded over his own house.

The Battle in the U.S. Congress.—The United States congress was the scene of a protracted battle during 1946 over the adoption of a law for the domestic control of atomic energy. While a considerable number of bills for this purpose had been introduced into congress in 1945, the fight centred about two of them. One was the May-Johnson bill introduced on Oct. 3, 1945 by Senator Edwin C. Johnson (Democrat, Colo.) and Representative Andrew J. May (Democrat, Ky.), chairman of the House Military Affairs committee. May stated that the bill was being introduced at the request of Secretary of War Robert P. Patterson. The other bill, known as the McMahon bill, was introduced on Dec. 20, 1945 by Senator Brien McMahon (Democrat, Conn.), chairman of the senate Special Committee on Atomic Energy, the so-called "McMahon committee."

On Feb. 3, 1946, President Truman issued an endorsement of the McMahon bill. He had originally let the impression be created that he favoured passage of the May-Johnson bill. Major opposition to the May-Johnson bill in the nation came from the great majority of scientists who had worked on the atomic bomb. Almost immediately after the introduction of this bill in 1945 they began to make vocal their objections through hastily formed organizations such as the Atomic Scientists of Chicago, the Association of Oak Ridge Scientists and the Federation of Atomic Scientists. This sudden entrance of scientists into the arena of public affairs was unique in United States history.

The Scientists' Charges.—The scientists charged that the May-Johnson bill had been drawn up to perpetuate the military control over atomic energy which had developed during World War II. They declared that the continuation of such control would make it impossible for atomic scientists to continue their work, that it would destroy the foundations of American democracy and that it would lead to an international atomic bomb race certain to end in World War III.

The Vandenberg Amendment.—Scientists favoured the McMahon bill but the charge arose from other quarters that this bill erred in the opposite direction from the May-Johnson bill, giving the army and navy no voice in matters of direct concern to them.

An amendment to the McMahon bill, first proposed by Senator Vandenberg (Republican, Mich.), on March 12, sought to remedy this by creating a military committee to pass on acts of the proposed Atomic Energy commission. A revised Vandenberg amendment was unanimously adopted by the McMahon committee on April 2 and the bill was reported out by the committee on April 11.

The Bill Is Passed.—The senate unanimously passed the McMahon bill by a voice vote on June 1 after less than two and a half hours of debate.

Continued resistance to the bill was still expressed in the house of representatives and on June 12 the House Military Affairs committee amended the bill to stipulate that two members of the five-man Atomic Energy commission must be military men. Subsequently a stormy fight broke out in the house and on July 20 the house passed the bill after loading it down with amendments unacceptable to Senator McMahon.

The core of resistance to civilian control of atomic energy came from the members of the House Military Affairs committee and the House Un-American Activities committee which insisted that there were spies in the atomic bomb project and that maximum influence in the proposed commission must be given to the army and navy.

The task of ironing out the difference between the two versions of the bill was undertaken by senate and house conferees. A compromise was reached and an amended bill, much more nearly in line with the original bill than with the house version, was adopted by both senate and house on July 26. Thus ended a congressional battle of exceptional length and bitterness.

The McMahon Bill.—On Aug. 1, 1946, President Truman signed the McMahon bill and it became the law of the land under the title of "The Atomic Energy Act of 1946." This act stated that "subject at all times to the paramount objective of assuring the common defense and security, the development and utilization of atomic energy shall, so far as practicable, be directed toward improving the public welfare, increasing the standard of living, strengthening free competition in private enterprise and promoting world peace."

The bill provided for five major programs, namely, the assistance of private research in the field of atomic energy, the dissemination of technical information consistent with national se-

curity, the establishment of federally conducted research and development, the control of the production, ownership and use of fissionable material and the administration necessary to achieving the foregoing purposes.

The principal administrative body established by the bill is the Atomic Energy commission consisting of five full-time civilian members appointed by the president and confirmed by the senate. The chairman is to be paid \$17,500 a year as salary and each of the other four members \$15,000. Only civilians are eligible for these appointments. Subordinate to the commission there is a general manager who is also appointed by the president and confirmed by the senate. The commission is to appoint four division directors to head the division of research, production, engineering and military application. The director of military application, however, may be an army or navy officer.

The bill also provides for a board of civilian advisers to be appointed by the president. This board is to meet four times a year.

Finally, as first proposed in the Vandenberg amendment, there is a military liaison committee appointed by the secretaries of war and navy. This committee is to consult with the commission on all activities relating to the military applications of atomic energy. Upon recommendation from this committee or at their own discretion, the secretaries of war and navy may carry to the president a protest against any act of the commission or any failure to act. In such an event the final decision will be made by the president.

Progress in the United States.—While congress was debating the control of atomic energy, the Manhattan district took a number of important steps to further research into atomic energy and its peacetime applications and to make radioactive isotopes available for medical and other types of research. With the appointment of an Atomic Energy commission by President Truman, as provided for in the McMahon bill, arrangements were made to transfer all activities of the Manhattan district to the commission. This transfer took place on Jan. 1, 1947.

Atomic Energy Commission.—On Oct. 28, 1946, President Truman announced the membership of the Atomic Energy commission. As chairman of the commission he appointed David E. Lilienthal who had made a distinguished record as chairman of the Tennessee Valley authority. The other members appointed to the commission were Dr. Robert Fox Bacher, Cornell university physicist who had worked in the Los Alamos atomic bomb laboratory and later served as scientific adviser to Bernard M. Baruch, American representative on the United Nations Atomic Energy commission; Sumner T. Pike of Maine, business man who had recently been a member of the Securities and Exchange commission; Lewis L. Strauss, New York banker and a rear admiral during World War II in charge of ordnance inspection; and William Wesley Waymack of Illinois, newspaper editor, Pulitzer Prize winner, and an economic and fiscal adviser to various government agencies in World War II.

General approval was expressed in the United States with the president's choice of members of the commission.

On Nov. 4, Secretary of War Patterson and Secretary of the Navy Forrestal announced the appointment of the six-man Military Liaison committee to the Atomic Energy commission. The army membership was headed by Lieut. Gen. Lewis H. Brereton, wartime chief of the Far East 9th and 10th air forces. The other army members were Major Gen. Lunsford E. Oliver and Col. John H. Hinds. Heading the navy membership was Rear Admiral Thorvald A. Solberg, head of the research and standards branch of the shipbuilding division of the bureau of ships. Other members representing the navy were Rear Admiral Ralph A. Ofstie, and Rear Admiral William S. Parsons.

On Dec. 12, President Truman appointed the nine-man Gen-

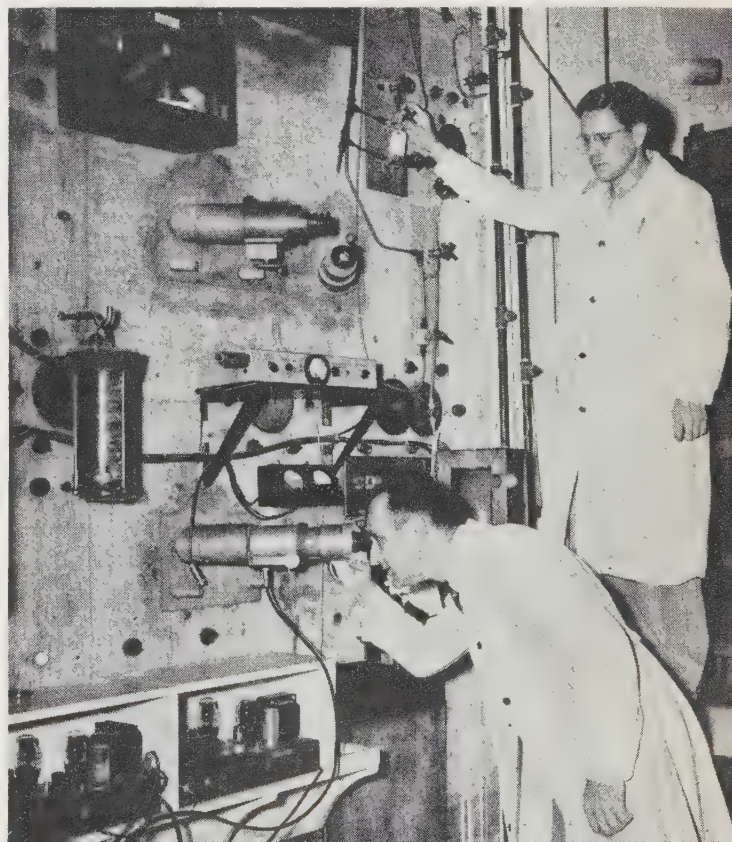
eral Advisory committee to the Atomic Energy commission. It consisted of James B. Conant, Lee A. Du Bridge, Enrico Fermi, I. I. Rabi, J. R. Oppenheimer, Glenn T. Seaborg, C. S. Smith, Hartley Rowe and Hood Worthington.

Plans for Research.—During the latter half of 1946 the Manhattan district instituted a number of additional steps to expand research in atomic energy. Camp Upton, N.Y., was acquired for the site of an institution to be known as the Brookhaven National laboratory. The contract for its operation was given to nine eastern universities which organized the Associated Universities, Inc., for this purpose. Dr. Philip M. Morse was appointed director. The General Electric co. was authorized to establish a laboratory at the Hanford Engineer works, Pasco, Wash., under the direction of William D. Coolidge. A training school in nuclear physics was organized at the Clinton laboratories at Oak Ridge, Tenn. A contract was given to the Monsanto Chemical Co. to build a \$2,500,000 uranium pile at Oak Ridge for experiments in the development of electric power with atomic energy. The Metallurgical laboratory at the University of Chicago was renamed the Argonne National laboratory and its program expanded. A contract was given to General Electric co. to build a \$20,000,000 research laboratory near Schenectady, N.Y., to be called the Knolls Atomic Power laboratory.

Release of Information.—One of the important problems before the nation in 1946 was the release of some of the information on atomic research in the secret files of the Manhattan district. On Nov. 7, announcement was made that nearly 500 papers, totalling some 2,000,000 words of atomic information had been cleared through the district's "declassification" procedure.

It was planned eventually to publish many of these papers in a Manhattan Project Technical series. It was believed that this series would form a library of more than 100 volumes.

VIEW OF ACTUAL WORK being done within the atomic bomb plant at Oak Ridge, Tenn., during 1946. Dr. Edward Tompkins (right), designer of fission product separation units at Clinton laboratories, demonstrates the remote control operations to Dr. Waldo Cohn, who is observing the course of a reaction taking place inside a heavy concrete cubicle



The declassification policy was based on recommendations of a committee headed by Richard C. Tolman, dean of the graduate school of California Institute of Technology.

Medical and Biological By-products.—As is well known, the medical profession has long made use of both X-rays and radium in the treatment of many diseases including cancer. After the discovery of artificial radioactivity there was considerable research upon the use of radioactive isotopes both as a means of treating disease and as a tool for biological and medical research. Very small amounts of such isotopes were created with the aid of cyclotrons starting in 1934.

Radioactive Isotopes Delivered.—The first delivery to the nation's medical research institutions of radioactive isotopes produced with the aid of uranium piles was announced by the Manhattan district on Aug. 2, 1946. This consisted of pea-sized units of Carbon 14. Barnard Free Skin and Cancer hospital of St. Louis received the first unit for use in cancer research. This small bit of Carbon 14 represented from 100 to 1,000 times as much of the isotope as had ever been made available previously by any single order for a cyclotron-produced isotope. Similar amounts of the isotope were subsequently furnished to a number of other institutions.

National Institute of Health.—The U.S. public health service joined the program of the Clinton laboratories at Oak Ridge on Nov. 5, 1946, with the announcement of the formation of a new division in the National Institute of Health. Dr. Alexander Hollaender, principal biophysicist of the institute, was assigned to Oak Ridge to direct a research into the effect of nuclear radiation upon living cells. The work is to be divided into five general fields, biochemistry, cytogenetics, general physiology, experimental radiology and co-operative studies.

The International Scene.—The way for international action on the control of atomic energy during 1946 was opened when the foreign ministers of the United States, Great Britain and the U.S.S.R., meeting in Moscow, made public the text of an agreement on Dec. 27, 1945. This called upon the general assembly of the United Nations to create an Atomic Energy commission.

The Assembly Acts.—On Jan. 24, 1946, the general assembly of the United Nations, meeting in London, unanimously adopted the resolution proposed by the foreign ministers at Moscow for the creation of an Atomic Energy commission.

Twelve nations were accorded representation on the Atomic Energy

commission. They were the United States, the U.S.S.R., Great Britain, France, China, Canada, Australia, Poland, the Netherlands, Mexico, Egypt and Brazil.

The Acheson-Lilienthal Report.—On March 28, 1946, the U.S. state department made public its "Report on the International Control of Atomic Energy," known also as the Acheson-Lilienthal or the Lilienthal report. It was drawn up for the state department's Committee on Atomic Energy of which Dean Acheson, the undersecretary of state, was chairman, by a board of consultants headed by David E. Lilienthal who, at the time, was chairman of the Tennessee Valley authority.

The members of Lilienthal's board of consultants were J. Robert Oppenheimer, wartime head of the Los Alamos atomic bomb laboratory, Charles Allen Thomas, vice-president and technical director of the Monsanto Chemical co., Harry A. Winne, vice-president in charge of engineering of the General Electric co. and Chester L. Barnard, president of the New Jersey Bell Telephone co.

The members of Acheson's committee were Vannevar Bush, James B. Conant, Maj. Gen. Leslie R. Groves and John J. McCloy, former assistant secretary of war.

Treaties Are Inadequate.—The Acheson-Lilienthal report took the stand that any mere agreement to outlaw the atomic bomb is insufficient and will not work, largely due to the fact that the development of atomic energy for peaceful purposes and the development of atomic energy for bombs are in much of their course interchangeable and interdependent. Thus the only assurance that atomic plants would not be converted to destructive purposes would be the pledged word and good faith of each nation involved. This fact put an enormous pressure upon national good faith and created suspicion on the part of other nations that their neighbours' pledged word would not be kept.

The Denaturing Process.—At the heart of the plan for the control of atomic energy proposed by the Acheson-Lilienthal report is the so-called denaturing process discovered in 1943 but never disclosed until the publication of the report. Even so the report gives no technical details of the process, describing it only in the broadest general terms.

It appears that both Uranium 235 and plutonium can be "denatured." That is, they can be mixed with some substance which has the effect of slowing down the rate at which nuclear fission can take place in these substances. As a result they can be used for the release of nuclear energy for industrial or experimental purposes but they cannot be used for the manufacture of a bomb, for the bomb depends upon a lightning-like chain reaction in which the process of nuclear fission takes place in the entire mass of material in about one ten-millionth of a second.

The denaturants, the report stated, are so difficult to remove that plants comparable to the one at Oak Ridge, Tenn., would have to be built by any nation which sought to purify denatured uranium or plutonium in order to construct a bomb.

The Atomic Development Authority.—Making use of this possibility of denaturing fissionable materials, the report sought to set up a plan whereby every nation could develop the use of atomic energy to the fullest for peacetime purposes while at the same time it would be impossible for any nation to produce an atomic bomb. To accomplish this, it proposed the creation of an international Atomic Development authority or A.D.A.

Every nation would turn over to this A.D.A. the ownership of its uranium deposits. Only the A.D.A. would be permitted to mine uranium or related substances and to purify them. All plants and factories operated by the A.D.A. would be under the jurisdiction of the United Nations and not the nation in which it was located. All Uranium 235 and plutonium manufactured at these plants would be immediately denatured and the denatured material would then be made available to the nations of the world for any peaceable purpose that they saw fit.

The plants for the separation of the fissionable materials and their subsequent denaturing would be distributed strategically throughout the world so that no one nation would contain an undue proportion of them. Should any nation seize an A.D.A. plant for warlike purposes, it would be at the disadvantage of knowing that the rest of the world could immediately convert the other plants to the production of bombs. The fact that it would thus be in a weak position with the rest of the world arrayed against it, would deter any nation from such action, it was believed.

The report advocated that thorium as well as uranium be placed under the jurisdiction of the A.D.A. The reason for this is that thorium undergoes nuclear fission like uranium. A chain reaction cannot be maintained in thorium alone but it can be in a mixture of uranium and thorium. By the use of such a mixture, thorium can be converted into a dangerous fissionable material just as ordinary uranium can be converted into plutonium.

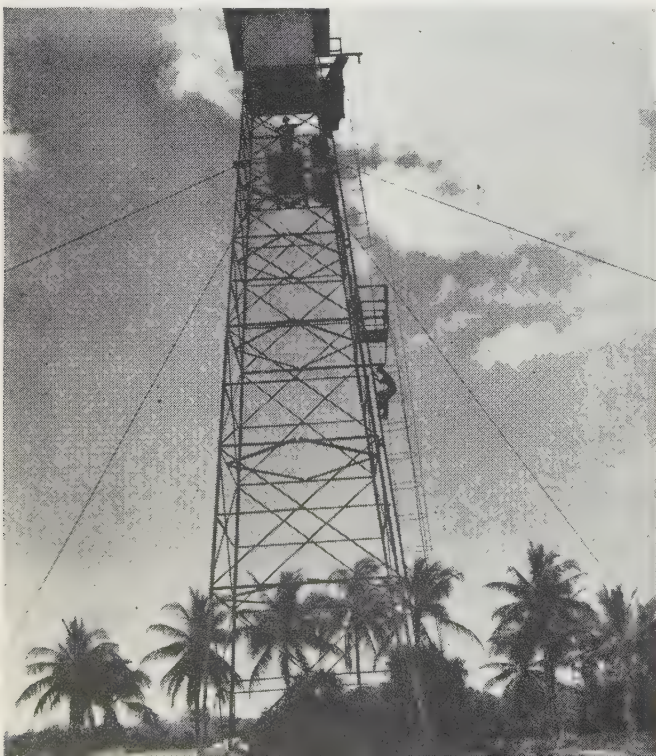
Safe vs. Dangerous Activities.—The plan divided all activities involving atomic energy into two categories—"safe" and "dangerous." All "dangerous" activities would be placed in the hands of the A.D.A. Each nation would be left free to do exactly as it pleased in the realm of "safe" activities. Any activity would be regarded as dangerous if it could contribute to the manufacture of an atomic bomb.

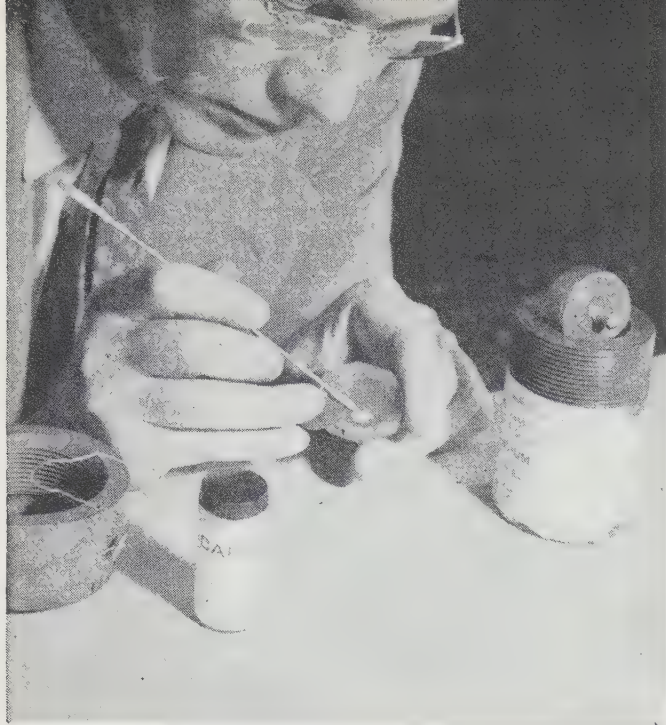
Baruch Appointed.—Bernard M. Baruch, America's "elder statesman," was appointed the United States representative to the United Nations Atomic Energy commission on March 18, ten days before the issuance of the Acheson-Lilienthal report.

On June 14, Baruch presented the "United States Atomic Energy Proposals" to the commission. These closely paralleled the Acheson-Lilienthal report but differed in some respects. They were elaborated in three official memoranda presented later to the commission, "The Control and Development of Atomic Energy" on July 2, "The Functions and Powers of the Atomic Development Authority" on July 5, and "The Relation of the A.D.A. to Other Organs of the United Nations" on July 12.

The Baruch Proposals.—These memoranda proposed the creation of an international Atomic Development authority to control the production and use of uranium and thorium, all fissionable materials and their products. Free access for international inspection was stipulated. There were provisions for specific punishment for illegal possession or use of atomic bombs or materials from which bombs could be made or for seizure of

PHOTOGRAPHIC TOWER AT BIKINI ISLAND, where, six hours after the underwater bomb burst on July 25, 1946, technicians climbed to recover equipment and films





RADIOACTIVE CARBON 14, produced in the Oak Ridge, Tenn., plant, being inspected by Dr. William L. Doyle at the University of Chicago, where it was secured in Aug. 1946 for use in scientific investigation

property belonging to the A.D.A. or for other willful interference with the activities of the A.D.A.

An important feature of the Baruch proposals was that no nation could be protected from punishment for violation of the proposed international control treaty through the use of the veto whether this veto was cast by the violating nation or any other nation possessing the veto power.

The Soviet Proposal.—Andrei A. Gromyko, representative of the soviet union on the United Nations Atomic Energy commission, presented a Russian counter-proposal to the commission on June 19. He stated that the continued production of atomic bombs in the United States was serving to intensify mistrust between nations. He proposed an international agreement to outlaw the production of atomic bombs and to provide for the destruction of all existing stocks of bombs within three months. It seemed clear that the soviet union was resisting the idea of international inspection and that it also opposed any impairment of the veto power.

Position of Other Nations.—The Baruch proposal was supported in principle by the delegates of Australia, Brazil, Canada, China, Egypt, France and the Netherlands. Great Britain and Mexico also went along to a lesser degree. The representative of Poland urged immediate steps to outlaw the atomic bomb as proposed by the Russian delegate.

Two Opposing Views.—It was immediately clear that a wide gulf separated the official views of the United States and the U.S.S.R. The difference of opinion was so wide that many observers feared that it might split the entire United Nations organization. As 1946 drew to a close, however, it seemed as though the tension was beginning to decrease.

A repercussion of the international situation was a sharp interchange of opinion between Baruch and former Vice-President Wallace in September. Wallace's criticism of the American policy brought a caustic reply from Baruch.

The situation looked brighter in December when Foreign Minister Molotov indicated that Russia might decide to agree to a system of international inspection. The situation was also brightened by Russian proposals on disarmament in general which the American delegate to the United Nations general assembly indicated would be acceptable to the United States if they also were extended to include the principle of inspection. While 1946 ended without an international solution of the atomic energy problem, most observers looked forward to 1947 with hope that the year might see decisive action.

The Canadian Spy Case.—The international situation was further disturbed during 1946 by charges of soviet espionage in Canada. On Feb. 15 the Canadian government announced that it had made a number of arrests. In a radio broadcast from Moscow on Feb. 20 the soviet government stated that an attaché in Canada had received "from acquaintances among Canadian citizens certain information which, however, did not present a special interest to soviet authorities." It said the attaché had been recalled and accused the Canadian government of handling the affair in a manner "directly calculated to encourage a campaign hostile to the soviet union in the press and over the radio." The Canadian Royal commission appointed to investigate the incident made two reports, one in March and another in June. No charges were made against the soviet government except that the order for the espionage came directly from Moscow.

Arrest of Dr. May.—British authorities in March 1946 arrested Dr. Alan Nunn May, 34-year-old atomic physicist on charges of disclosing secret information. Appearing in the Bow street police court in London on March 19, May pleaded not guilty.

The Bikini Bomb Tests.—The U.S. navy suggested on Sept. 16, 1945, that the captured Japanese battleship, "Nagato," be used to test the effect of an atomic bomb upon a battleship. This proposal set in motion a train of events that culminated in the summer of 1946 in the atomic bomb tests

at Bikini Atoll in the Pacific. Soon after the navy announcement the army air forces demanded a share in the tests and as a result it was decided to make the event a joint venture of the war and navy departments. The joint chiefs of staff created joint army-navy task force 1 and appointed Vice Admiral William H. P. Blandy as its commander. The name "Operation Crossroads" was chosen for the tests. Bikini Atoll was selected as the site and three tests were contemplated. In the first a bomb was to be exploded in the air, in the second in shallow water, and in the third in deep water.

Bikini Atoll.—Located in the Marshall Islands in the Pacific, six degrees north of the equator, the Bikini Atoll was known prior to World War II as the Escholtz Atoll. It is about 190 mi. east of the island of Eniwetok and about 250 mi. northwest of Kwajalein. The atoll is a coral ring of more than 20 islands of which the principal one is Bikini Island. It is 2½ mi. long. The lagoon inside the atoll is 20 mi. long and 12 mi. wide.

Plans for Operation Crossroads made it necessary to evacuate the natives from Bikini island and accordingly "King" Juda and his 160 followers were moved on March 7 on the LST 1108 to Rongerik island, 130 mi. east of Bikini.

Purpose of the Test.—Admiral Blandy made it clear that there was no intention of any attempt to simulate battle conditions in the test. The chief purpose of the test was "to provide the data which are needed by the army and navy in planning for the future along sound and economical lines." A secondary purpose was "to provide the data which scientists desire" insofar as this did not conflict with the primary purpose.

The Tests Are Postponed.—On March 22, when preparations for the Bikini tests were well advanced with a large part of joint task force 1 at work at Bikini, President Truman announced, without warning, that the first bomb explosion, then set for May 15, would be delayed for about six weeks. The White House announced that this was done to enable congress to keep at work on the legislative program since a large number of senators and representatives wished to see the test.

Joint Task Force 1.—The magnitude of Operation Crossroads was exemplified by the fact that joint army-navy task force 1 included 200 ships and a personnel of 42,000 men. One hundred and fifty aeroplanes were included in the force.

The United States invited each of the nations represented on the United Nations Atomic Energy commission to send official observers and press representatives to the test. American press associations, newspapers, magazines and radio networks were also invited to send a limited number of correspondents.

The Target Ships.—Seventy-five ships were placed in the target area for the first test. The battleship, "Nevada," at the centre of the target area, had been painted with bright orange and white stripes as an aid to the bombardier who was to drop the atomic bomb. The "Nevada" was approximately three miles from the white sands of the palm-fringed beach of Bikini island.

Four other battleships and two aeroplane carriers were placed close to the "Nevada." These included the "Pennsylvania," the "Arkansas," the "New York," the captured Japanese battleship, "Nagato," and two aeroplane carriers, the "Saratoga," and the "Independence."

The other ships were arranged around these seven in an area with a radius of approximately 1,000 yards. They included battleships, cruisers, destroyers, attack transports, submarines and various smaller craft. Among them were two of the oldest and heaviest U.S. cruisers, the "Pensacola" and the "Salt Lake City," and the German heavy cruiser, "Prinz Eugen."

Devices ranging from complex scientific apparatus whose exact nature was a military secret to simple pressure gauges were included in the 10,000 scientific instruments distributed on the 75 target ships and the shore of Bikini Island.

These were supplemented with live animals including goats, pigs and rats. All sorts of equipment ranging from aeroplanes to samples of paint were exposed on the decks of the target ships. Still and motion picture cameras, controlled by automatic devices, were installed on towers on Bikini island and other islands of the atoll.

Drone Planes and Boats.—A spectacular feature of the plans for Operation Crossroads was the use of drone planes and boats. It was planned to fly pilotless planes or "drones" closer to the atomic cloud than a pilot could safely fly.

Plans were also made to use drone boats, controlled from aeroplanes, to take samples of the water in the lagoon immediately after the bomb explosion.

Test A.—The first bomb test at Bikini took place on July 1 (Bikini time). This was usually spoken of as "Test Able" ("Able" is the navy code word for the letter "A"). The ships of task force 1 stood off to sea, approximately 20 mi. northeast of Bikini for the test. At exactly 20 seconds after 9 A.M., the atomic bomb was dropped from the B-29, "Dave's Dream." Major Woodrow P. Swancutt was the pilot and Major Harold H. Wood, the bombardier.

Observers with the task force saw a bright lightning-like flash when the bomb exploded. A ball of fire appeared on the horizon in the direction of Bikini island. It grew rapidly until it appeared three miles in diameter. Then it collapsed as quickly and in its place was seen the atomic bomb cloud climbing into the sky. It rose to a height of five miles in about two and a half minutes. It was a luminous, creamy white in colour, marked with streaks of pink, old rose, apricot, salmon and other pastel colors. The top of the cloud quickly fanned out into the familiar "mushroom."

Ten minutes after the bomb explosion, black smoke began to rise on the horizon, indicating that the bomb had set a number of ships on fire.

The Damage Done.—On July 11, the reports of the two evaluation boards were made public. The members of the evaluation board of the joint chiefs of staff were Karl T. Compton, chairman, Bradley Dewey, deputy chairman, Thomas F. Farrell, Gen. Joseph W. Stilwell, Lieut. Gen. Lewis H. Brereton, Rear Admiral W. R. Purnell and Rear Admiral R. A. Oistie. Their report can be summarized as follows:

When the bomb exploded, a destroyer and two transports sank promptly and another destroyer capsized. It sank later, and the Japanese cruiser "Sakawa" sank the following day. The superstructure of the submarine "Skate" was badly damaged. The light carrier "Independence" was badly

wrecked by the explosion and gutted by fire. All of these vessels were within one-half mile of the explosion point. Numerous fires were started on other ships. The only major combatant ships within one-half mile of the explosion point were the battleships "Nevada" and "Arkansas" and the heavy cruiser "Pensacola." The superstructures of these were badly wrecked and they were unquestionably put out of action and would, along with many others within three-fourths of a mile, have required extensive repairs at a principal naval base.

Examination of the flashburn effects produced by the initial radiation from the explosion indicate that casualties would have been high among exposed personnel but persons sheltered within the hull of a ship or on deck in a shadow would not have been immediately incapacitated by burns alone. However persons within the area of extensive blast damage to ship superstructures, even though within the ships, would have been exposed to a lethal dosage of radiological effects.

Essentially the same conclusions were given in the report of the president's evaluation board. The members of this board were Senator Carl A. Hatch (Democrat, New Mexico), Representative Walter G. Andrews (Democrat, New York), Edward U. Condon, Karl T. Compton, Bradley Dewey, William S. Newell and Fred Searls.

Test B.—The second test at Bikini, frequently referred to as "Test Baker" ("Baker" is the navy code word for "B"), took place at 8:35 A.M. on July 25 (Bikini time). The bomb was exploded "well below" the surface of the lagoon. It had been suspended from LSM-60 near the centre of the target array.

At the moment of explosion, a luminous dome rose on the surface of the lagoon, followed by an opaque cloud that enveloped about half of the target area. The cloud disappeared in two seconds, revealing a column of ascending water which lifted the 26,000-ton battleship "Arkansas" into the air for a brief moment. The diameter of the column of water was about 2,200 feet and it rose to a height of 5,500 feet, sending spray still higher. It was estimated that the column contained 10,000,000 tons of water.

The base of the column was surrounded by a wall of water several hundred feet high, while waves going outward from the explosion were from 30 to 100 ft. high even at a distance of 1,000 ft. However the waves diminished rapidly and were only seven feet high at Bikini Island, about three miles from the explosion point.

Reports of Damage.—The evaluation board of the joint chiefs of staff, reported that two major ships sank, the battleship "Arkansas" immediately, and the heavy-hulled aircraft carrier, "Saratoga," 7½ hours later. A landing ship, a landing craft and an oiler also sank immediately while the destroyer "Hughes," in sinking condition and the transport, "Falcon," badly listing, were later beached. The submerged submarine "Apogon" went to the bottom and one to three other submarines were believed to have sunk. The badly damaged Japanese battleship, "Nagato," sank five days later.

The board reported that the explosion produced intense radioactivity in the waters of the lagoon. The radioactivity immediately after the burst is estimated to have been the equivalent of many hundreds of tons of radium. Exposure to it would have incapacitated personnel and caused death within a few days or weeks.

The target ships were showered with radioactive water so lethal that four days after the test it was still unsafe for inspection parties to spend "any useful length of time" in the centre of the target area or on the ships anchored there.

Comparison of the Tests.—The president's evaluation board devoted part of its second report to a comparison of Test A and Test B. After calling attention to the fact that both bombs sank some ships, it concluded that the ships remaining afloat appeared to suffer more damage from the aerial explosion but that the effects of persistent radioactivity on personnel would have been much greater in the second.

Test C Is Cancelled.—On Sept. 7, 1946, President Truman announced that the contemplated "Test Charlie" (navy code-word for "C"), had been cancelled. The original plan was to explode a bomb at a considerable depth below the surface of the open ocean in this test.

The Future of Atomic Energy.—Scientists agree with Admiral Blandy that Operation Crossroads was well named. They feel that all mankind stands today at the crossroads. One road leads to an international atomic armament race certain to end in World War III and the destruction of civilization. The other road leads to the peaceful development of atomic energy for the good of all humanity.

Defenses Against the Bomb.—Scientists were convinced that there are no defenses against the atomic bomb itself, only against possible carriers such as planes or rockets. In addition there exists the danger of bombs smuggled in by saboteurs. Scientists believed that in the event of an atomic bomb race it would be necessary to abandon all large cities and spread the population throughout the countryside so that a bomb might destroy a village but not a city. Factories would have to go underground in deep mines or in tunnels under mountains.

The Future of Navies.—It is apparent that the future of navies must be studied in the light of the Bikini tests. Scientists pointed out that it is not enough to consider the problem of one atomic bomb against a fleet but the combination of several, some exploding in the air, some in the water. It seemed obvious that two atomic bombs, one exploding in air and the other under water, would completely wreck any attempt at an amphibious landing. One question that arose was whether a fleet would dare enter a harbour or even narrow waters in time of war.

In Another World War.—Scientists visualized the combination of atomic bombs with many other types of offensive weapons, for example, rockets travelling in the stratosphere with supersonic speeds. They were convinced that the first 24 hours of World War III would see the complete destruction of the principal cities of the contending nations. They were certain that World War III would be fought with rockets bearing atomic bombs, with radioactive poison gases which are easily made as by-products in atomic bomb plants and with methods of biological warfare for the wholesale distribution of blights and rusts capable of destroying crops and of disease germs and viruses capable of starting terrific epidemics among farm animals and human beings.

Peacetime Possibilities.—Physicists believed in 1946 that the development of uranium piles for the generation of power was possible in the near future. The simplest method proposed was to use the energy to heat water to steam which would operate turbine-generators for the production of electricity. Such piles would need extremely careful shielding to prevent the escape of neutrons and harmful radiations into the surrounding neighbourhood.

Many physicists believed that such power plants might be made small enough to be installed in ocean liners but they did not see how they could be made small enough for use in automobiles or aeroplanes. (See also CHEMISTRY; METALLURGY; PHYSICS; URANIUM.)

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Attlee, Clement Richard (1883–), British prime minister, was born in London on Jan. 3, 1883. He was educated at Haileybury college, Hertfordshire, and at University college, Oxford. As a young man he earned his living as a docker in the East End of London in order to study social conditions there. In 1905 he was admitted as a barrister to the Inner Temple, and in 1913 he became lecturer in social science at the London School of Economics. Returning from World War I with the rank of major, he was elected mayor of Stepney in 1919 and member of parliament for Limehouse in 1922. After a brief term of office in the first Labour government he went to India as a member of the Simon commission in 1927. He held office again in the second Labour government, first as chancellor of the duchy of Lancaster and then as postmaster general, and in 1931 became deputy leader of the party in the house of commons. In 1935 he was made leader of the party and remained as leader of the opposition until he joined the Churchill coalition government in 1940 as lord privy seal, later to become deputy prime minister. On the victory of the Labour party in the general election of July 1945 he automatically became prime minister and at the same time first lord of the treasury and minister of defense. Two days after his appointment he flew to Potsdam to complete the discussions of the Big Three in Churchill's place.

On Jan. 10, 1946, Attlee welcomed delegates to the London meeting of the United Nations general assembly on behalf of the government, and in July he led the British delegation to the Paris peace conference in place of Ernest Bevin, who was prevented by illness from attending. During April and May he presided over meetings of the Commonwealth ministers at 10 Downing street. In December he received the Indian leaders and the viceroy in London, taking the chair at the final discussion on Dec. 6.

At the end of the year he relinquished his post as minister of defense to A. V. Alexander.

Auriol, Vincent (1884–), French statesman, was born on Aug. 27 at Revel (Haute-Garonne department), France. After receiving his degree of doctor of laws at the Faculty of Law in Toulouse, he practised law in that city. In the early 1900s, Auriol founded the newspaper, *Le Midi*. Entering politics, he was elected to the chamber of deputies as Socialist member for Muret in 1904, and was successively re-elected up to the collapse of France in June 1940.

Auriol's first cabinet post was in Blum's popular front government in 1936 when he was appointed minister of finance. In that capacity he negotiated the tripartite monetary accord with the U.S. and Great Britain. He was minister of justice in the Chautemps government, 1937–38, and held a cabinet post in the second and short-lived Blum government in 1938.

Auriol, who was among the French parliamentarians who protested against Marshal Henri Pétain's efforts to establish totalitarian rule after the armistice of 1940, was imprisoned

by Vichy authorities for several months but was later released. In Oct. 1943, he escaped to London where he joined Gen. Charles de Gaulle's movement. He became a member of the assembly set up in Paris after its liberation in Aug. 1944.

In Nov. 1945 he was appointed minister of state without portfolio in the De Gaulle government. He was named president of the French constituent assembly on Jan. 31, 1946, and was twice renamed to the post during 1946. On Jan. 16, 1947, Auriol became the first president under the constitution of the Fourth Republic; he was elected by 452 votes out of 883 cast by the combined houses of the national assembly meeting at the Palais de Versailles.

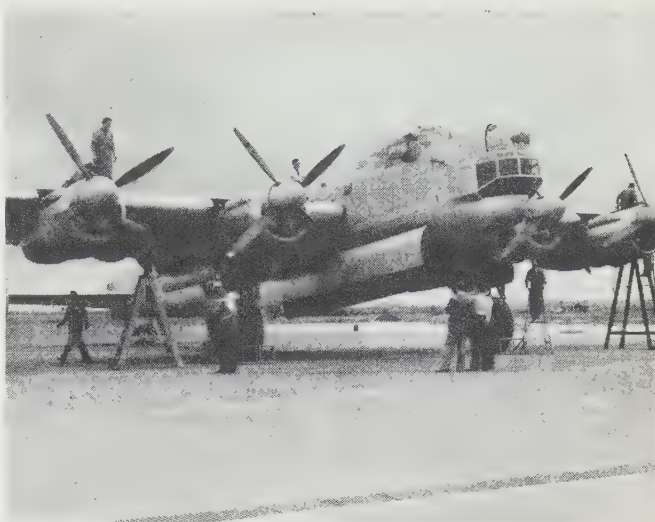
Austin, Warren Robinson (1877—), U.S. statesman and politician, was born in Highgate, Vt., Nov. 12. He was graduated with a Ph.B. degree from the University of Vermont at Burlington in 1899 and was admitted to the bar in 1902. He was elected to the U.S. senate on the Republican ticket in 1931 to fill out an unexpired term and was re-elected in 1934 and 1940.

Austin, who campaigned against the League of Nations in the aftermath of World War I, altered his views on U.S. participation in a world peace organization during his membership on the senate foreign relations and military affairs committee. He took a major role in the fight to amend the Lend-Lease act and was co-author of the first Selective Service act legislated in 1940.

On June 5, 1946, President Harry S. Truman appointed Austin as U.S. representative on the United Nations Security council and the following month (July 18) he was named head of the U.S. delegation to the general assembly. Austin resigned from the senate Aug. 2 to devote his time to his new duties. On Jan. 8, 1947, Pres. Truman nominated Austin as U.S. representative on the U.N. Security council, and on Jan. 10 the president, following the recommendation of Bernard Baruch, also named Austin as U.S. member on the U.N. Atomic Energy commission.

Australia, Commonwealth of. A self-governing member of the British commonwealth of nations, situated in the southern hemisphere. Area: 2,974,581 sq.mi.; pop. (est. June 30, 1946) 7,446,300. Chief cities (pop. Dec. 31, 1943): Canberra (capital) (12,200); Sydney (1,398,000); Melbourne (1,170,000); Adelaide (362,500); Brisbane (370,500); Perth (263,000); Hobart (70,800); Newcastle (120,000). Language, English. Religion, Christian (census 1933: Anglican 2,565,118; Roman Catholic 1,161,455; Presbyterian 713,229; Methodist 684,022; other Christians 603,914). Ruler, King George VI. Governor general in 1946, the duke of Gloucester. Prime minister, Joseph Benedict Chifley.

History.—On Sept. 28, 1946, general elections took place for all seats in the house of representatives and for 19 of the 36 seats in the senate. At the same time, electors were called upon to vote in three referenda to empower the commonwealth parliament to legislate on (1) social services, (2) organized marketing of primary produce, and (3) terms and conditions of service in industry. The result of the elections was that the Labour government was returned to power for a further term of three years. This was the first time in history that the Australian Labour party, having won a general election, had been given a renewed mandate three years later. In the house of representatives Labour lost seven seats, three to the Liberal party, two to the Country party and two to independents, and gained one seat from the Liberals. Strengths in the new parliament were to be Labour 43; Liberal 17; Country party 12; independents 2. All states except Queensland returned labour members to the senate so that, after July 1, 1947, the government majority in the upper house would be 33-3, compared with 21-15 in 1946. In



FIRST AUSTRALIAN-BUILT LINCOLN BOMBER receiving final adjustments prior to a test flight at Melbourne in March 1946

the referendum, the proposal to increase commonwealth powers for social service legislation was accepted, but the other two proposals were rejected.

The most important legislation enacted during the year included wheat stabilization, which guaranteed farmers a fixed home price of 5s.2d. a bushel for the next five seasons (if the export price exceeded the guaranteed price, 60% of such excess was to be paid into a fund to assist in paying the guaranteed price when export prices fell below it); coal industry control; atomic energy control (of materials); and the telecommunications bill, which provided for government ownership of overseas telecommunications. An important amendment was also made to the Patents act, which provided protection to the patentee during the waiting period, during which his patent specifications were open to examination prior to the grant of patent.

A government-assisted migration scheme was announced which provided free passages for suitable men and women who had served in the armed forces and merchant navy and for their dependents, and assisted passages to approved migrants resident in Great Britain. The cost was to be shared by the Australian and British governments and aimed at a flow of 70,000 migrants per annum as soon as shipping facilities became available, to operate so long as favourable conditions for settlement in Australia were known to exist.

At the premiers' conference a plan for the standardization and modernization of Australian railways at a cost of £A200,000,000 was approved, as was the wheat stabilization plan. The states also agreed to the indefinite extension of a uniform tax by which the commonwealth remained the sole authority for levying income tax.

External Affairs.—Australia was strongly represented at the Paris Peace conference, as well as at the various other international conferences which were held both in America and Europe. The government regarded an international agreement on employment policies as the foundation stone of international economic collaboration and the achievement by all nations of full employment as the prerequisite to the restoration of international trade. Australia was also anxious to see some agreement reached for the removal of unrestricted trade barriers, but would concede tariffs and preferences only in return for fully-compensating concessions by other nations. In framing peace treaties, Australia's attitude was that all nations which took an active and sustained part in the war against the axis had both the right and the obligation to take part in the peace settlements and that the terms of those settlements should be based

on the Atlantic and United Nations charters.

In the field of external representation, Australia and the U.S.A. raised their legations to the status of embassies and N. J. O. Makin, minister for the navy, resigned his seat in parliament to take up the post of first Australian ambassador to Washington. J. A. Beasley, another minister, resigned to take up the post of high commissioner in London. Legations were also opened in Santiago and The Hague and high commissioners were appointed in the Union of South Africa and in Eire.

Public Finance and Economic Affairs.—In common with most other countries, the financing of war expenditure found Australia facing a danger of inflation owing to the larger spending power in the hands of the public and a shortage of consumer goods. The danger was fully recognized by the government, whose policy it was to encourage a greater production of essential goods. To this end, rapid demobilization of the armed forces and reabsorption into industry of the released labour was the first aim. This was coupled with the removal of many forms of control that tended to hinder business and restrict production and the early transition of war factories to peacetime production. Price control was also to be continued until a stable economic condition had been achieved. Industrial unrest was, however, very widespread and, if loss of production owing to strikes was to be avoided, the government's anti-inflation measures would have to be offset to some extent by a relaxation of wage-pegging controls.

Overseas trade for the year ended June 30, 1946, resulted in an export surplus of £A19,955,000 inclusive of bullion and specie, compared with an adverse balance of £A80,804,000 the previous year. Exports of merchandise showed an increase of 22% while imports dropped 16.5%. The volume of trade was still well below prewar levels and the recent recovery in trade figures was largely due to changing values. There was some cause for anxiety in that, while import prices had doubled after 1939, the export price index had risen by only approximately 60%. On the other hand, large-scale contracts for the disposal of primary produce in the years following 1946 were concluded, which ensured a reasonable return to producers.

Owing to the general elections, no budget was brought down during the life of the last parliament. On July 12, however, the prime minister and treasurer, Mr. Chifley, made a financial statement which contained important financial proposals for a reduction of taxation as from July 1 and for a liberalization of the eligibility for invalid, widows' and old-age pensions. War expenditure in Australia for 1945-46 amounted to £A340,000,000 compared with the estimate of £A298,000,000. Nonwar expenditure equalled the estimates at £A132,000,000 while overseas war expenditure at £A38,000,000 brought total expenditures to £A510,000,000. Revenue amounted to £A356,875,000 and the deficit of £A153,125,000 was financed wholly from the proceeds of borrowing from the public. This means that, during 1945 and 1946, the government met the whole of its war expenditure without recourse to treasury bills or any other form of central bank credit.

Education.—In 1941: state schools 9,535, average attendance 732,116, teachers employed 32,066; private schools 1,863, average attendance 256,500, teachers 11,369; technical schools 101, total enrolment 108,232, teachers 3,810; business colleges 123, total enrolment 24,562, teachers 736; universities 8, total enrolment 10,761.

Banking and Finance.—Revenue (est. 1946-47) £A385,000,000; expenditure (est. 1946-47) £A444,000,000 (ordinary £A223,000,000; defense and postwar charges £A221,000,000). Revenue (actual 1945-46) £A356,875,000; (est. 1945-46) £A340,284,062; expenditure (actual 1945-46) ordinary £A132,000,000; defense £A378,000,000; estimated (1945-46) ordinary

£A132,000,000; defense £A360,000,000. Public debt (June 30, 1945) £A2,702,380,937; notes issued (June 30, 1945) £A186,463,750; gold and sterling reserve (June 30, 1945) £A50,857,812; exchange rate £A1=319.8 cents U.S.

Trade and Communications.—Overseas trade 1945-46 (merchandise): imports £A194,575,000; exports £A189,493,125. Communication and transport: roads (1941) total mileage c. 455,000 mi.; railways open to traffic (1945) 27,144 mi.; airways (1944-45), distance flown 14,992,000 mi.; mails carried 3,209,000 lb.; motor vehicle registrations (Dec. 31, 1945): cars 512,393, commercial vehicles 306,445, cycles 63,945; wireless receiving set licences 1,484,453; telephones, number of lines, 591,789.

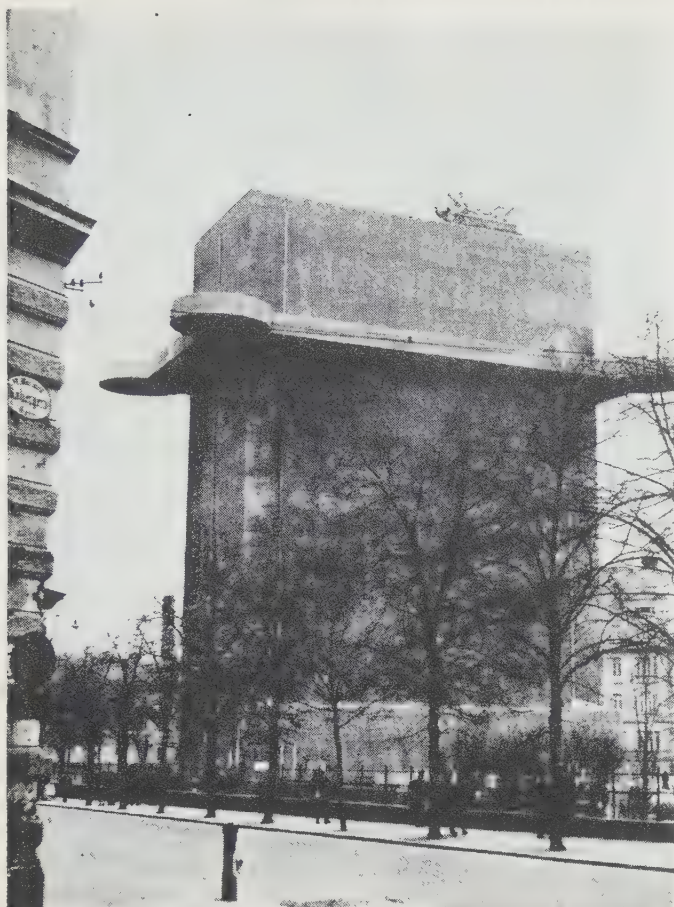
Agriculture, Manufacturing, Mineral Production.—Production (in short tons): wool (1945) 508,650; wheat (1945-46) 4,328,400; oats (1944-45) 225,000; barley (1943-44) 190,000; maize (1944-45) 170,000; cane sugar (1944-45) 750,000; butter (1944-45) 153,000; gold (1945) 655,000 fine oz.; coal (1945) 14,328,000; pig iron (1944) 1,462,000; copper (1944) 31,360; lead (1944) 212,220; tin (1944) 2,850; zinc (1944) 195,225. Total value of production (1943-44): pastoral and dairying £A244,545,000; mineral £A27,459,375; manufacturing £A366,235,000. Labour and employment: employment in factories (1937-39=1,000) (Feb. 1946) 1,283; number (Feb. 1946) 731,000; unemployment (trade union returns) (Feb. 1946) 1.4%. Total output of factories (1943-44) £A891,739,000. (See also NEW GUINEA.) (W. D. MA.)

Australia, South: see SOUTH AUSTRALIA.

Austria. A republic in central Europe, area 32,369 sq.mi.; pop. (1934) 6,759,062 of whom more than 90% were Roman Catholics. Capital: Vienna, pop. (1939) 1,918,462. Other cities (with 1939 pop.): Graz 210,175; Linz 131,423; Salzburg 79,264; Innsbruck 80,084. President (1946): Karl Renner; chancellor: Leopold Figl.

History.—On Dec. 20, 1945, Dr. Karl Renner, the veteran Social Democrat, was unanimously elected president of the republic to serve for six years. The government represented a coalition of all parties. According to the outcome of the elections the Catholic People's party as the strongest party received the chancellorship, the ministry of foreign affairs and several other cabinet posts; the Social Democrats as the second strongest party received, in addition to several other ministries, that of the interior; the communists, who had shown only a negligible strength in the elections, received the ministry of electrification. Leopold Figl, the leader of the Catholic People's party, became chancellor.

Though in such a way a constitutional government for Austria had been established and though Austria had been promised the re-establishment of its independence, the land continued under the occupation of the four powers during 1946. The U.S.S.R. occupied all the industrially important parts of the country, the provinces of Lower Austria in which Vienna is situated (which, however, was constituted as an enclave under four-power control), of Burgenland and the northern part of Upper Austria. The southern part of Upper Austria and the province of Salzburg formed the U.S. zone; the provinces of Carinthia, including the eastern part of Tirol and of Styria were occupied by the British, and the French were in control of the provinces of Tirol and Vorarlberg. It was especially the soviet occupation which put a heavy burden on Austria's economic life, both on its food supply and on its industrial equipment. Throughout the year the Austrian government tried to ease the burden and to limit the occupation forces. In that endeavour it was generally supported by the U.S. and British



FLAK TOWER IN VIENNA erected by the nazis. Because of danger of damage to surrounding buildings, structures of this sort were not destroyed, but it was decided in 1946 to leave them as pedestals for United Nations Victory monuments

representatives in the Allied Control commission.

In the economic field Austria tried to steer a middle way between a free economic system and the necessary state planning to undo the immense damages of the World War II years. By the end of the year a plan was laid down for economic reconstruction to make the country self-supporting with Allied help over four years. For 1947 a program of imports for the metallurgical, chemical, machinery and consumer goods industries for a total of \$95,000,000 was set up as against which Austria was to export textiles, paper products, metals and machinery, timber and wooden houses and electric power.

The economically critical situation in Austria was aggravated by the large requirements of food for the very numerous soviet army of occupation and by the soviet attempt to declare most Austrian industries German property and therefore "war booty" to be seized by or removed to the U.S.S.R. One of the most important properties in question was the oil fields at Zistersdorf. The Allied inability to agree on the definition of nazi or German assets strengthened the soviet position. The U.S. representatives in Austria strove, on the other hand, to give the Austrian government control of its indigenous resources including the right of unrestricted movement of these resources throughout Austria. In July a communication from President Harry S. Truman was delivered to the Austrian government opposing the soviet claims on Austrian assets, and agreeing to turn over to the Austrian government all German assets located in the U.S. zone. The British government supported the U.S. stand. The Austrian government, to strengthen its claims, decided to nationalize a large part of Austria's big industry, including mines, iron and steel works, locomotive and electrical plants, chemical factories, oil wells and banks.

At the end of June the authority of the Austrian government was broadened. The Allied Control council agreed to give the government more freedom to pass domestic laws and make international agreements, the functions of the Allied council becoming supervisory rather than administrative. The one-power veto over Austrian legislation other than constitutional provision was removed. In Dec. 1946 a sudden change in the soviet attitude occurred. The soviet authorities accepted the U.S. viewpoint and agreed to proposals which promised considerably to ameliorate the food and economic situation. All of Austria's indigenous food resources of the four occupation zones were to be pooled and the Austrian government was to handle distribution. Imported supplies of food also were to be placed in the common pool, provided indigenous supplies were not withheld. The ration was to be uniform for all of Austria. It was not to fall below 1,200 calories and was to be raised as quickly as possible to a 1,500-calorie level. It was decided to start the new food program on Jan. 4, 1947. An agreement was reached at the same time about denazification measures, including a cleansing of the teaching staff and the student body of the University of Vienna.

In foreign affairs the Austrian government tried hard to regain the German-speaking part of the formerly Austrian South Tirol from Italy. In spite of the Austrian ethnical character of the region, the victorious powers decided to leave South Tirol to Italy. The Austrian government succeeded in arriving at an agreement with Italy to alleviate the situation of the Tirolese under Italian domination and to secure for them a limited local autonomy. Yugoslavia continued to raise the demand for the southern part of Austrian Carinthia. The Austrian government, referring to the outcome of the plebiscite in that province at the end of World War I, rejected this demand.

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Autobiography: see AMERICAN LITERATURE; etc.

Automobile: see AUTOMOBILE INDUSTRY; MOTOR TRANSPORTATION.

Automobile Accidents: see ACCIDENTS; INSURANCE.

Automobile Industry. The first full calendar year of peacetime production in the automobile industry fell far short of expectations, by manufacturers themselves as well as the public, prevalent from Aug. 1945 to the end of the year. Actual output reached only 2,145,000 passenger cars, 933,000 trucks and buses, or a combined total of 3,078,000 units. This is less than 64% of the number of units produced in the prewar year 1941, which in addition to the cars and trucks also produced nearly \$500,000,000 worth of armaments.

Production of civilian motor trucks however established a new high record exceeding the previous high watermark of 893,085 in 1937 by a wide margin. The 1941 civilian truck pro-

Table I.—Motor Vehicle Factory Sales From Plants Located in United States, 1946

	Passenger Cars	Motor Trucks	Motor Coaches	Total
Jan.	56,367	44,994	467	101,828
Feb.	57,784	34,914	265	92,963
March	85,810	37,636	527	123,973
April	132,631	80,762	948	214,341
May	166,942	75,373	789	243,104
June	141,090	60,038	774	201,902
July	209,180	87,454	862	297,496
Aug.	247,261	97,881	1,067	346,209
Sept.	232,280	95,658	833	328,771
Oct.	283,586	107,154	975	391,715
Nov.	269,081	100,892	1,146	371,119
Dec.*	263,000	101,000	1,140	365,140
	2,145,012	923,756	9,793	3,078,561

*Estimated.
Source: Automobile Manufacturers Association.

duction was lower than 1946 if the 218,880 military vehicles produced are excluded.

During the year 1946 factory sales to the United States domestic market were approximately 2,005,000 passenger cars and 741,500 motor trucks, while shipments to foreign markets were 139,800 passenger cars and 182,200 trucks. The proportion of motor vehicles exported was approximately the same as in the four prewar years with 6.3% of passenger cars and 19.7% of motor trucks shipped to other countries. The Civilian Production administration and the Foreign Economic administration limited the exports of each manufacturer to the average for the four prewar years so that the over-all total foreign sales of the industry could likewise not exceed the proportion exported in the base period. In fact, additional motor trucks could have been exported since the over-all ceiling was approximately 20.4%.

Table II.—Factory Sales to U.S. Domestic and Export Markets, 1946

	Passenger Cars		Motor Trucks		Motor Coaches	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Jan.	53,441	2,926	37,931	7,063	436	31
Feb.	54,111	3,673	26,708	8,206	230	35
March	80,239	5,571	29,095	8,541	443	84
April	125,765	6,866	62,520	18,242	854	94
May	158,344	8,598	59,947	15,426	741	48
June	131,284	9,806	50,247	9,791	751	23
July	195,158	14,022	72,008	15,446	833	29
Aug.	229,083	18,178	78,283	19,598	867	200
Sept.	218,645	13,635	77,477	18,181	758	75
Oct.	263,236	20,350	88,195	18,959	923	52
Nov.	250,379	18,702	79,101	21,791	1,102	44
Dec.*	245,500	17,500	80,000	21,000	1,100	40
	2,005,185	139,827	741,512	182,244	9,038	755

*Estimated.
Source: Automobile Manufacturers Association.

A classification of motor truck production by size indicates that there were greater increases in the output of heavy duty vehicles than in the lighter types, in 1946 as compared with 1940. A direct comparison by detailed size groups is not possible, for the reason that manufacturers of motor trucks changed their method of rating trucks after the end of World War II to a gross vehicle weight basis, instead of by manufacturer's rated carrying capacity. However, the number of trucks produced in 1946 with a g.v.w. of 16,000 lb. and more, which approximately represents the prewar 2½ ton and over groups, comprised 6.7% of all trucks produced as compared with 4.9% of all trucks produced in 1940. Conversely, in 1946, 93.3% of all trucks produced had a g.v.w. rating of less than 16,000 lb. compared with 95.1% of all trucks produced in 1940 with the rating of less than 2½ tons.

The reasons for the disappointing showing of the automobile industry in 1946 are many and complex. The major factors handicapping the industry were (a) work stoppages in major industries such as steel, coal and railroad transportation, as well as large and small strikes within the motor vehicle manufacturing industry itself and parts supplier plants, (b) shortages of raw materials such as steel, pig iron, lead, copper, tin, compounded by strikes in those raw material industries, and (c) strait-jacket regulations imposed by the federal government in its efforts to control prices and the distribution of scarce materials.

Attempts were made during 1946 to estimate the number of vehicles that might have been produced if there had been no shortages of materials or shortages of semifinished or finished parts or the number of vehicles that could have been produced if there had been no strikes in motor vehicle plants; but it was discovered that it was impossible to disentangle the shortages resulting from strikes from the genuine shortages of raw materials and parts due to the tremendous demand for materials of all kinds by all industries which had been curtailed or discontinued during the war period. However, under ideal condi-

tions of no shortages and no strikes the motor vehicle industry could have achieved capacity production by mid-1946 and maintained that level to the end of the year. Under such utopian conditions the industry could have produced close to 5,500,000 passenger cars and trucks.

The year 1946 opened with a strike under way in the largest automobile company, begun Nov. 21, 1945, and continued until the first week of April 1946. The strike in the glass industry, begun in 1945 and carried into the new year, kept some plants closed during the first part of January. About the time plate glass production resumed, strikes in other basic industries began to seriously affect automobile production, namely, steel, copper and electric industries strikes. On April 1, the coal strike laid its deadening hand on the industry, not releasing its grip until the middle of May. This was followed closely by the railroad strike, which fortunately was settled after a few days.

During this first half of the year numerous strikes in key supplier plants likewise put a strait jacket on operations which in some cases even forced a shut-down of final assembly lines of motor vehicle manufacturers. The main shortages of material and parts were glass, motor bearings, axle housings, seat cushion springs, valve springs, frames, transmissions, fuel pumps, cylinder blocks, bumpers, pig iron and gray iron castings, wheels, sheet steel, bodies, crank shafts, forgings, gear blanks, nuts and bolts, radiator cores and other items.

During the last half of the year primary shortages in certain factories were sheet steel, pig iron castings, nuts and bolts, cylinder blocks, sheet and strip steel, bodies, cushion springs, body hardware, brake fluid, glass because of insufficiency in the raw material for making glass (soda ash), batteries, clutches, brake drums, hoods, radiator cores, but the principal limiting factor was the lack of sufficient steel, especially sheet and strip.

It may be of interest to note that in the calendar year 1941 the steel industry shipped to the automotive industry 8,881,000 tons of steel or 14.3% of total finished steel shipments. In 1946 figures were available only for the first six months indicating that the steel industry shipped less than 12% to the automotive industry. The automotive percentage of the total finished steel shipments in the calendar year 1941 and the first six months of 1946 as compiled by the American Iron and Steel institute are given in Table III.

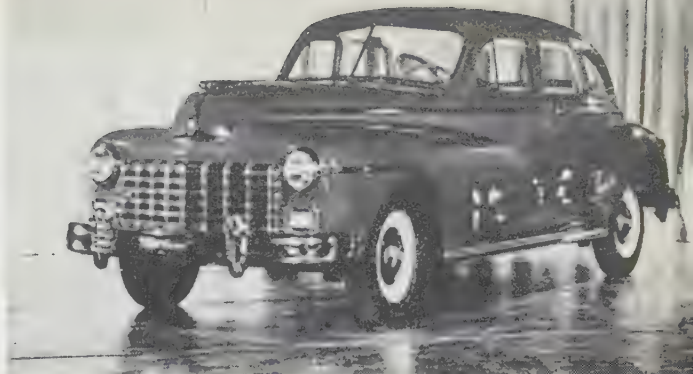
Table III.—Automotive Industry Per Cent of Steel Shipments to All Industries

	1941 Year	1946 (1st 6 months)
Ingots, billets, slabs	6.15	9.72
Wire rods	6.37	2.60
Structural shapes	0.637	1.30
Plates	3.91	6.08
Hot rolled bars	25.2	17.70
Cold finished bars	20.8	15.91
Tool steel	11.0	1.1
Pipes and tubes	1.57	1.83
Wire products	6.52	3.82
Black plate	1.03	0.617
Tin andterne plate	0.239	0.201
Sheets and strip	32.7	23.7
Other products	0.618	0
Less Shipments to members of steel industry for conversion into further finished products		
Net total	14.35	11.98

Manufacturers of finished cars and trucks adopted spectacular methods in trying to keep production of plants open when the supply of raw materials in the bins approached the vanishing point. Through the careful combing of all likely sources of the short material by the much-enlarged personnel of the purchasing departments a small supply of the wanted material would often be found in places far away from the factory. Frantic arrangements were made with the owner of the material to ship it by air express, even at costs greater than the price of the product itself. If the material was too bulky for air shipment, arrangements were made to send motor trucks loaded



A NEW CAR for 1946 was the Frazer, which combined simplicity of design with graceful air-stream lines

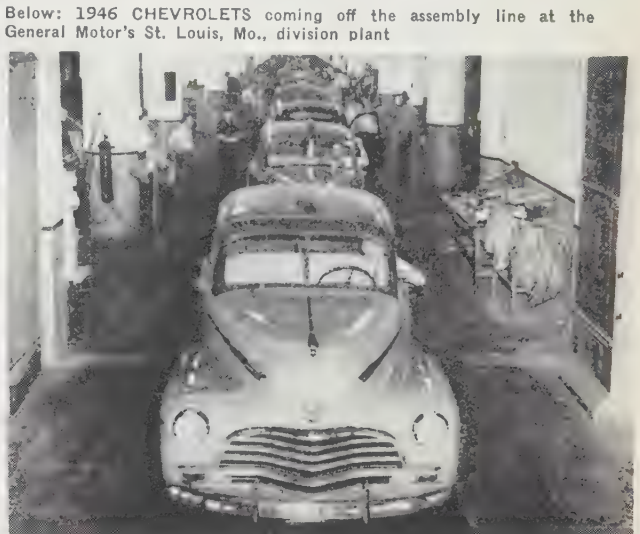


Above: DODGE DELUXE four-door sedan for 1946 featured stream-lined fenders and a stainless steel grille



Above: THE 1946 NASH "600" had a single unit of welded steel instead of separate body and frame

Below: 1947 STUDEBAKER CHAMPION, announced during 1946. Fenders were absorbed into the body and wider windows gave improved visibility



Below: 1946 CHEVROLETS coming off the assembly line at the General Motor's St. Louis, Mo., division plant



Below: 1946 LINCOLN CONTINENTAL driven by Henry Ford II



Above: JEEP STATION WAGON, which appeared in 1946, had an all-steel body with seating capacity for seven. All seats, except the driver's were removable for use as a utility car



Below: CHRYSLER TOWN AND COUNTRY CAR, which incorporated the utility features of a station wagon into an ultra-smart passenger car



with the precious material over distances ranging up to 600 or 1,000 mi., adopting "Pony Express" methods so as to move the goods overnight, and thereby keeping the plants operating when workers arrived at starting time the next morning.

In addition to valiant efforts at moving scarce materials from distant places in record time, considerable ingenuity was shown by manufacturers in using substitute material for missing items. When metal bumpers were not available to some companies at certain times, wooden bumpers would be attached to the vehicles so they could be shipped to dealers for delivery to waiting customers. Later, when metal bumpers became available, they would be fitted to the cars by the dealers. Such improvising added to the costs of manufacturing. When cotton fabric became limited in supply, one company turned to the use of the more expensive artificial leather for upholstering and inside trim. When cadmium was short for the treating of nuts and bolts, zinc was substituted at greater costs.

A better understanding of the headaches involved in producing such a complicated product as a motor car may be obtained from the fact that there are 6,000 to 8,000 parts in an automobile with 17,000 individual pieces, all of which have to be scheduled to arrive at the final assembly line at the proper time. Each manufacturer has thousands of suppliers to contact and nurse for a sufficient flow of the vital items. One manufacturer buys assemblies and finished parts from 1,850 separate manufacturers not counting raw materials such as steel, copper and lead.

The brightest picture in the automotive industry can be painted in the replacement parts field where production, as measured by sales in the United States, was more than twice as large as the prewar peak year of 1941. Due to the thousands of different types of replacement parts required to maintain the large number of automobiles, trucks and buses in use in the United States, there are no figures available showing the physical volume produced, nor are there figures on the aggregate dollar volume of production. However, it is possible to make an estimate on the dollar volume of factory sales to the United States market by dividing the federal excise tax rate on replacement parts into the dollar volume of excise tax collections. On this basis, the volume of sales in the United States by months are shown in Table IV.

Table IV.—Volume of Sales in the U.S., 1941 and 1946

	1941	1946
Jan.	\$51,337,227	\$127,253,758
Feb.	51,548,212	131,824,162
March	52,103,533	141,749,210
April	43,061,306	108,620,108
May	54,602,685	146,114,654
June	67,170,619	130,410,891
July	56,703,997	118,871,158
Aug.	72,248,676	175,002,691
Sept.	74,019,287	145,876,741
Oct.	72,960,480	425,000,000 Estimated
Nov.	70,519,120	
Dec.	51,937,153	
Total	\$718,212,295	\$1,650,000,000

Table V.—Employment in the Automobile Industry, 1941 and 1946

	(In thousands)	1941	1946
Jan.		559	416
Feb.		569	415
March		579	447
April		586	623
May		597	651
June		604	668
July		570	699
Aug.		497	731
Sept.		560	764
Oct.		583	769
Nov.		592	...
Dec.		544	...
Average		570	...

Total weekly pay rolls of production workers in the motor vehicle, bodies and parts industry for 1941 and 1946, by months, are given in Table VI.

Table VI.—Total Weekly Pay Rolls of Production Workers, 1941 and 1946
(In thousands of dollars)

	1941	1946
Jan.	\$20,098	\$19,246
Feb.	21,841	17,854
March	22,468	20,926
April	20,412	30,304
May	23,785	29,176
June	26,418	31,408
July	22,092	35,382
Aug.	19,309	38,617
Sept.	22,280	40,147
Oct.	24,875	...
Nov.	25,001	...
Dec.	22,267	...
Average	22,568	...

A comparison of Sept. 1946 with Jan. 1941 as shown in Tables V and VI shows that employment increased 36.7% while the increase in total dollar pay roll during the same period was 99.8%. Average weekly man-hours during the same period increased 42.2% and average hourly earnings gained 40.5%.

It should be borne in mind that production of motor vehicles decreased from 506,202 units in Jan. 1941 to 331,154 units in Sept. 1946. The large increase in production of replacement parts however tended to offset some of this discrepancy in trends of employment as compared with unit production of vehicles. The factory sales of replacement parts increased from \$51,337,000 in Jan. 1941 to \$145,877,000 in Sept. 1946, but for the year 1941 the dollar volume of replacement parts sold to the United States domestic market represented less than 20% of the value of motor vehicles produced and hence, can not fully explain the anomaly by the increase in employment by the increased replacement parts output.

The combination of strikes, shortages of materials, governmental regulations and increased hourly wage rates, along with lowered labour efficiency, increased costs of production to such an extent that during the period of price control by the Office of Price Administration prices on automobiles and trucks were increased several times to cover advances in costs. Despite the 43.3% increase in weighted average of passenger car prices by Nov. 1946 over the average in 1941, manufacturers of passenger cars showed a loss of \$135,000,000 in net profits before federal tax credits and a loss of \$5,500,000 after federal tax credits during the first nine months of 1946. The trend in net profits, or rather net losses, for the passenger car manufacturing industry was toward improvement as the year progressed. The net loss after tax credits in the first quarter was 10%, the first six months was three per cent, and the first nine months was one-fifth of 1%.

A comparison with net profits after taxes in previous years, for all companies manufacturing passenger cars, indicates that there was a general trend downwards in the percentage of net profit on sales after 1939, as follows:

1939	8.3%	1943	3.1%
1940	7.1%	1944	2.6%
1941	6.5%	1945	4.0%
1942	3.6%	1946 (1st 9 mos.)	1/5 of 1%

Figures were not available by the close of the year on net profits after taxes for all motor truck, bus and independent parts manufacturers for the first nine months of 1946, or for prior years. However, published reports of individual companies manufacturing parts, accessories or motor trucks indicated that those groups of companies as a whole might have made some profits during the first nine months, although there was no reliable basis for making any estimates on the amounts or percentage of net profits to sales.

During the first nine months of 1946 some companies manufacturing passenger cars suffered huge operating losses. One company lost \$74,422,630, another \$51,600,000, and a third company \$10,202,770. Such large deficits together with short-

ages in building materials and the allocation of building materials for veterans' housing program had the effect of discouraging and in some instances actually discontinuing plant expansion programs. Several plants well under way were abandoned because of these obstacles and the generally uncertain outlook.

Consumer Credit.—In prewar years the distribution and sale of the large volume of motor vehicles were greatly facilitated by the use of instalment credits to consumers of passenger cars and trucks. After the end of World War II the practice of selling cars on the instalment plan did not increase to the proportions obtained in prewar years, probably because of the accumulation of savings during the war years for the purchase of consumer durable goods.

The total amount of automobile and truck consumer credit outstanding at the end of each year from 1929 to 1945 and monthly data from Sept. 1945 to Oct. 1946, as published in the *Federal Reserve Bulletin*, are given in Table VII.

Table VII.—Estimated Amounts Outstanding
(In millions of dollars)

1929	\$1,318	1945—Sept.	\$202
1930	928	Oct.	210
1931	637	Nov.	219
1932	322	Dec.	227
1933	450	1946—Jan.	235
1934	576	Feb.	245
1935	940	March	264
1936	1,289	April	289
1937	1,384	May	318
1938	970	June	336
1939	1,267	July	365
1940	1,729	Aug.	394
1941	1,942	Sept.	425
1942	482	Oct.	447
1943	175		
1944	200		
1945	227		

The total amount of automobile consumer instalment credits extended each month from Sept. 1945 to Oct. 1946 by types of institutions extending the credit are shown in Table VIII.

Table VIII.—Consumer Instalment Credits
(In millions of dollars)

	Commercial Banks		Industrial Banks	Industrial Loan Companies
	Purchased	Direct Loans		
1945				
Sept.	\$12	\$23	\$2.2	\$2.2
Oct.	13	28	2.7	2.6
Nov.	14	29	3.0	2.7
Dec.	14	32	3.1	2.7
1946				
Jan.	19	34	3.1	2.6
Feb.	18	35	3.0	2.4
March	20	41	3.8	3.0
April	29	46	4.2	3.1
May	29	52	3.9	3.2
June	24	50	3.9	2.7
July	30	53	4.7	3.3
Aug.	36	58	4.7	3.5
Sept.	23	55	4.3	3.4
Oct.	42	64	6.1	4.0

Source: Federal Reserve Bulletin.

Registrations.—The total number of motor vehicles in use in the United States as reflected by the total registrations at the end of each year compiled by the Public Roads administration indicates a surprisingly large increase in rolling stock in 1946. In prewar years the industry estimated that the annual scrappage of motor vehicles generally averaged about 2,000,000 units a year. The number of units scrapped annually was computed by adding the new vehicles sold in the United States during the year to the total registrations at the end of the preceding year, and subtracting the total registrations at the end of the current year. This difference was assumed to represent the total number of vehicles scrapped during the preceding year. A variation of this method consisted of assuming that one-half of this difference was scrapped in the current year and the other half in the preceding year, for the reason that in about one-half of the state the laws permitted the owners to transfer the licence plate from the old vehicle scrapped, in collision, etc., to the new vehicle purchased. In such states there was no duplication in registration records, that is, a licence plate outstanding for the old vehicle scrapped as well as for the new vehicle purchased; whereas in other states, where such transfer of licence plates

from the old vehicle scrapped was not permitted, there would be two registration plates outstanding in the name of the one owner who scrapped an old vehicle and purchased a new one during the year.

If one followed this same procedure in computing the number of vehicles scrapped during 1945 and 1946, the results would indicate no passenger cars scrapped. In fact, the increase in total registrations can only be accounted for by the reregistration of old vehicles kept in storage during the war years. Some passenger cars must have been scrapped during 1945 and 1946, in collisions, fires, floods, or from old age and wearing out of vital parts, but there was no way of computing the total number of passenger cars scrapped. The motor vehicle commissioners in the states did not have any method for getting reports from owners on number of vehicles scrapped during the year.

A similar situation occurred in the truck data available. Total registrations at the end of 1945 and at the end of 1946 were greater than the total registrations at the end of the preceding years. However, the total number of civilian trucks sold in the United States was greater than the increases in the total registrations at the end of the year, compared with the preceding year, so that the figures did indicate some scrappage, although the actual scrappage probably was greater than the figures indicate, again, for the reason that some trucks were registered in 1945 and 1946 that were not registered during the war.

The registrations of passenger cars and trucks from 1941 to the end of 1946, with the latter year estimated by the U.S. Public Roads administration, are shown in Table IX.

Table IX.—Registration of Passenger Cars and Trucks

	As of Dec. 31st	Passenger Cars	Trucks	Total
1941	29,507,113	4,876,054	34,383,167	
1942	27,974,156	4,608,086	32,582,242	
1943	26,019,432	4,480,176	30,499,608	
1944	25,572,849	4,513,340	30,086,189	
1945	25,775,401	4,830,458	30,605,859	
1946	27,088,000	5,423,000	32,511,000	

It will be noted in Table IX that total registrations of passenger cars at the end of 1946 were more than 2,000,000 units less than the end of 1941, the largest prewar year. Motor truck registrations at the end of 1946 were more than 500,000 units greater than the peak prewar year.

Canadian Production.—Passenger car production in Canada during the first 11 months of 1946 totalled 83,331 and motor trucks, 71,571. Estimating for December, total passenger car production for the year 1946 would probably be 95,000 units and motor trucks, 80,000 units. (See also BUSINESS REVIEW.)

(O. P. P.)

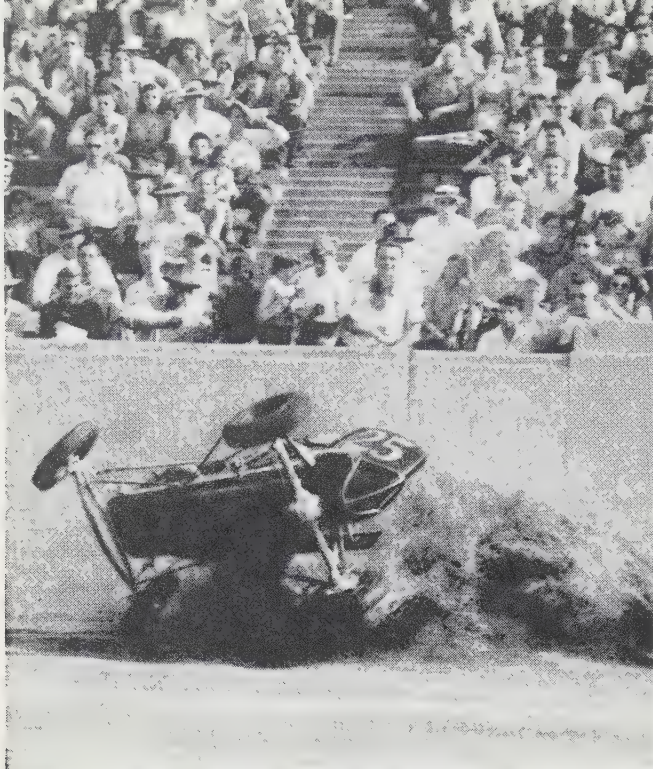
Automobile Insurance: see INSURANCE.

Automobile Racing. With the availability of gasoline for the first time in four years the auto racers put in a good year with the top event still the annual 500-mi. Memorial day classic at Indianapolis speedway. George Robson drove the winning car at an average speed of 114 m.p.h. which was just 3 m.p.h. under the existing record. Nine of the original 33 starters in the classic finished over a track which had been refurbished at a cost of \$250,000.

There were 175,000 spectators who saw Robson defeat Jimmy Jackson. The victor's time was 4 hr., 21 min. and 16.7 sec. He drove a 6-cylinder rear-drive Thorne Engineering Special weighing about 1,900 lb. and supercharged.

Jackson's time was 4 hr. 22 min. and .74 sec. with a 4-cylinder front-drive Boyle Special. Ted Horn was third in 4 hr., 35 min. and 28.65 sec. in a car that won the classic in 1939.

In September at the same speedway Rex Mays of Los Angeles won the American Automobile association championship, cov-



MIDGET RACING CAR overturning during the feature event at the opening of a new midget race track in Chicago's Soldier field in June 1946

ering the 100 mi. in 1:16:03.43 for an average speed of 79 m.p.h. Mauri Rose of South Bend finished second and Emil Andres of Chicago, third.

The 1946 National 100 mi. midget auto race championship was won by Ernie Gessel, of Hollis, L.I., at Cleveland. His time was 1 hr., 14 min. and 43 sec. He succeeded Tony Bettenhausen of Illinois as champion. The winning driver used a 100-h.p. speedster which weighed less than 950 lb., and averaged 75 m.p.h. Only 19 of the 30 starters finished. Al Bonnel of Erie, Pa., was second. Dan Brennan, Chicago, Ill., was third.

The death of Barney Oldfield removed from the scene a great pioneer in this sport. He died on Oct. 4 and was the first man ever to drive an automobile a mile-a-minute. (T. J. D.)

Aviation, Civil. In 1946, international operators lost no time in re-establishing commercial services and by fall the world's international routes exceeded 300,000 mi., more than twice the prewar mileage. Illustrating this growth were developments on the North Atlantic route, where the number of operators increased to ten companies representing eight nations and round-trip schedules rose to more than eight daily. At the same time, London-New York fares decreased from \$375 to \$325.

British international services expanded beyond their prewar scope and, with increased schedules, most of them became available to nonpriority passengers. The route mileage of British Overseas Airways corporation, totalling 56,615 in the spring of 1945, reached 72,000 at the close of 1946. To operate these routes, the corporation had a fleet of more than 220 planes. Among other new services, B.O.A.C. began commercial operations to North America and Hong Kong, and supplemented existing landplane service to Australia by joining with Qantas Empire Airways, an Australian government-controlled air line, in re-establishing the prewar flying boat route.

British European Airways, a new government-owned company, took over services to the continent, and extended its routes as far as Scandinavia, Czechoslovakia, Italy and Greece. Although established only in February, B.E.A. by October was operating some 9,793 route mi., and during the latter month flew 471,266 aircraft mi., 5,256,313 passenger mi., and carried

1,500,000 lb. of freight. Another new company, British South American Airways, started operations to Brazil and Argentina.

U.S. services also played a large part in the expanding international network. American Overseas Airlines, already reaching western Europe, extended operations to Stockholm and Berlin and began the first all-cargo flights across the Atlantic. Pan American Airways inaugurated Prague and Vienna service in Europe and resumed service to Manila and New Zealand in the Pacific area. Transcontinental & Western Air, Inc. entered the transatlantic field, offering service as far east as Saudi Arabia.

Passengers carried by U.S. international and territorial operators passed the 1,000,000 mark, rising from 492,792 to an estimated 1,040,000, while passenger mi. flown amounted to approximately 1,100,000,000, almost treble the 1945 figure. Although the total number of fatalities increased, passenger fatalities per 100,000,000 passenger miles flown dropped from 3.6 in 1945 to approximately 3.5 in 1946.

The U.S. Civil Aeronautics board completed authorizations for the postwar international routes outlined during World War II. Pan American was certificated to connect its Atlantic and Pacific routes, making possible the first one-carrier around-the-world service. A similar connecting service was made possible by joining the routes of T.W.A. and Northwest Airlines at Shanghai. Other route authorizations extended Pan American to South Africa and Braniff Airways to Argentina and Chile, and still additional routes were certificated to the West Indies, Mexico and Hawaii.

U.S. international carriers, however, had numerous problems. Operations over most of the newly authorized routes were yet to be initiated. Inauguration of service over some of these, together with the 1945 routes to Russia and parts of southeastern Europe, was prevented by refusal of the countries concerned to grant traffic and transit rights. The temporary grounding of all Lockheed Constellation aircraft by the civil aeronautics administration disrupted Atlantic services, and T.W.A.'s operations were suspended for a month by a pilot's strike, the first in U.S. aviation history.

Elsewhere in the world, Air France expanded its services to more than 50 countries, with routes to the U.S., South America, Africa and the far east. Royal Dutch Airlines rebuilt its prewar European network and began service to the U.S. The air lines of Denmark, Norway and Sweden began a joint operation to the U.S. as Scandinavian Airlines system. With routes blanketing Europe, Swedish and Danish air lines offered the only direct air service between western Europe and Poland. Making possible air service between Russia and the west was a Russo-Swedish service connecting at Finland. New companies, under Russian influence, appeared in eastern Europe; however, only one, a Czechoslovakian government-owned company, inaugurated services to western Europe.

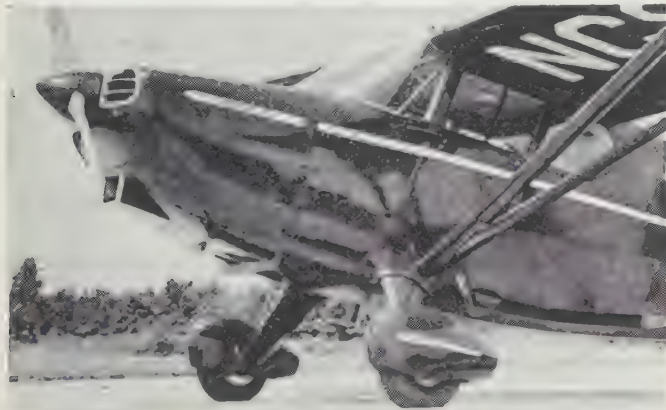
In the western hemisphere, Trans-Canada's routes reached six U.S. cities, and its transatlantic operation, though still a government service, increased to one round-trip daily. South American national companies began extensive international operations, with F.A.M.A. (Flota Aero Mercante Argentinas), an Argentine company, and Panair do Brasil offering service to Europe, and a Venezuelan air line operating to the U.S. Australian National Airways, a private company, started service between Australia and Canada on behalf of a new government-controlled air line. On the Asiatic continent, China National Airways resumed operations between China and the Philippines.

Throughout the world, internal services likewise reacted to peacetime conditions. In Great Britain, with the removal of wartime restrictions, the government announced a program for increasing the air network from London, for new east-west routes and for supplemental seasonal services. Canadian serv-



Above: COAST GUARD HELICOPTER which flew 18 survivors from the scene of the crash of a Belgian transatlantic air liner near Gander, Newfoundland, on Sept. 18, 1946, to Wolf lake. From there they were taken by a navy PBY patrol plane to a hospital. Here a survivor is shown on the ground before transfer to the flying boat

Below: 1946 MODEL STINSON VOYAGER 150, a four-place high-wing monoplane for private use, built by the Stinson division of the Consolidated Vultee Aircraft Corp.



Above: THE "SEABEE," a four-passenger pusher type amphibian plane produced by Republic Aviation Corp. in 1946. It has retractable landing gear and two-way radio, and was expected to be especially suitable for sportsmen and fishermen

Right: GIANT WIND TUNNEL, designed for use in the study of problems of flight at speeds of sound—720 m.p.h. or greater—which was dedicated at Moffett field, Calif., on July 16, 1946



ices continued their steady growth with all classes of traffic, with mail showing substantial increases.

Table I.—Selected Statistics for Canadian Air Carriers*

	(Eight months ending Aug. 31)			
	Passengers carried	Passenger mi. flown	Goods (ton mi.)	Mail (ton mi.)
1945	252,189	89,843,220	972,133	1,263,915
1946	409,480	131,375,688	1,457,821	982,012

Source: Dominion Bureau of Statistics; Air Transport Board.

*Includes non-scheduled carriers and international services of scheduled operators with the exception of Trans-Canada's Atlantic operations.

The scope of operations over the expanding Australian air system, long a vital factor in the development of the continent, was clearly indicated by the announcement that Australian National, one of the major companies in Australia and an outstanding passenger carrier among the air lines of the British commonwealth, for the year ending June 30, 1946, flew 15,000,000 mi. and carried 394,000 passengers.

U.S. domestic services remained the most extensive in the world. Swelled by new aircraft and surplus military transports, the domestic fleet increased to approximately 655 planes as compared with some 411 at the beginning of the year. As a result, schedules increased generally and faster, nonstop flights appeared. Approximately 50 daily round trips were offered between such major cities as New York and Boston and transcontinental flights making only a fuel stop en route became available.

For the first time major efforts began to be devoted to air freight. Reduced rates and simplified rate structures were established. American Airlines formed a cargo division to handle freight on a contract carrier basis and American and United Air Lines placed in use specially equipped all-cargo planes.

Traffic carried by the domestic air lines continued its upward trend. The total number of passengers for the year was estimated at 12,779,000, almost double the 1945 figure, and passenger mi. for 1946, showing a comparable increase, approximated 6,158,000,000.

Table II.—Selected Traffic Statistics for U.S. Domestic Scheduled Air Carriers*

	(Nine months ending Sept. 30)				
	Revenue mi. flown	Revenue pas- senger mi. flown	Mail (ton mi.)	Express (ton mi.)	Revenue pas- senger load factor†
1945	150,245,443	2,411,599,532	50,541,985	17,094,780	88.76
1946	228,210,724	4,374,692,537	24,554,020	23,041,708	82.87

Source: Civil Aeronautics Board.

*Includes Caribbean-Atlantic Airlines and Hawaiian Airlines.

†Percent of seats occupied.

Accompanying these increases were corresponding rises in passenger revenues. Higher costs, however, reduced the average net operating revenue to only slightly above the profit level, and many of the carriers showed substantial losses for the first time in several years.

Table III.—Selected Revenue Statistics for U.S. Domestic Scheduled Air Carriers*

	(Nine months ending Sept. 30)	
	1945	1946
Operating revenue		
Passenger	\$121,607,097	\$205,608,737
Mail	25,961,087	14,156,884
Express and freight	8,575,623	8,182,318
All other	2,777,854	3,845,213
Total	\$158,921,661	\$231,793,152
Operating expenses	125,543,621	227,607,126
Net operating revenue	33,378,040	4,186,026

Source: Civil Aeronautics Board.

*Includes Caribbean-Atlantic Airlines and Hawaiian Airlines.

Increases in miles flown more than offset the greater number of fatalities, with a resulting improvement in the safety record. Passengers killed per 100,000,000 passenger miles decreased from 2.1 to approximately 1.2.

The number of cities certificated for scheduled service rose to 580 as compared with 406 in 1945. A major addition to the

domestic system came with CAB authorization of nine new regional carriers to operate feeder services on a three-year experimental basis. These new routes totalled more than 10,000 mi. and afforded to numerous communities their first scheduled air transportation. Inadequate airports, however, temporarily prevented service to many of these points.

Nonscheduled and Miscellaneous Services.—Nonscheduled operators continued their amazing development and in the U.S. became an important factor in the aviation picture. Led by veterans trained in aviation and having priorities to purchase surplus aircraft, hundreds of companies sprang up over night. With equipment ranging from single-engine planes to four-engine aircraft, these operators gave a variety of services, domestic and international. The scope of their operations was demonstrated by the fact that for several months one large nonscheduled operator flew freight ton miles far exceeding those of its nearest rival among the scheduled air lines.

Although extensive passenger service was offered, primary emphasis was on freight, with many items never before extensively shipped by air, moving in volume. Some shipments were undoubtedly for publicity, but many resulted from the economies achieved by such factors as speed and ease of handling. Despite these successful operations, the future of the nonscheduled operator was still in doubt, with much depending on the nature of the regulations applied to them by the CAB.

Nationalization of scheduled services in England left only charter and nonscheduled operations open to private companies. Although there, too, the field legally open to these enterprises was uncertain, new charter companies were established and charter operations expanded with such undertakings as luxury passenger service between England and Switzerland.

Private Flying.—In the U.S., government financial assistance to veterans taking aviation training, the return to civilian life of thousands of war-trained pilots, the appearance of new personal planes in quantity and the availability of gasoline for nonessential uses created a boom in pleasure flying. Student pilot certificates issued during the year numbered approximately 170,000, as compared with 77,188 in 1945, and pilot certificates outstanding, excluding student permits, rose from 296,895 to an estimated 400,000. Certificated aircraft increased from 37,789 to approximately 85,000. Lack of airports, one of the greatest deterrents to private flying, was being overcome by the government's airport aid program.

In the other English-speaking countries, although wartime restrictions were lifted, numerous impediments to pleasure flying remained. Many British aero clubs resumed activities, but failure of the government to restore subsidies to the clubs, shortages of gasoline and equipment, and the high cost of the equipment obtainable, kept pleasure flying on a restricted basis. Nevertheless, pilot certificates outstanding, while still below the prewar level, increased by fall to approximately 4,060, exceeding the 1945 total by some 2,500; and the number of registered civil aircraft grew from 976 to 1562. A similar situation prevailed in Canada, though adequate gasoline supplies afforded some relief. Australia alone resumed full-scale government subsidies to its aero clubs.

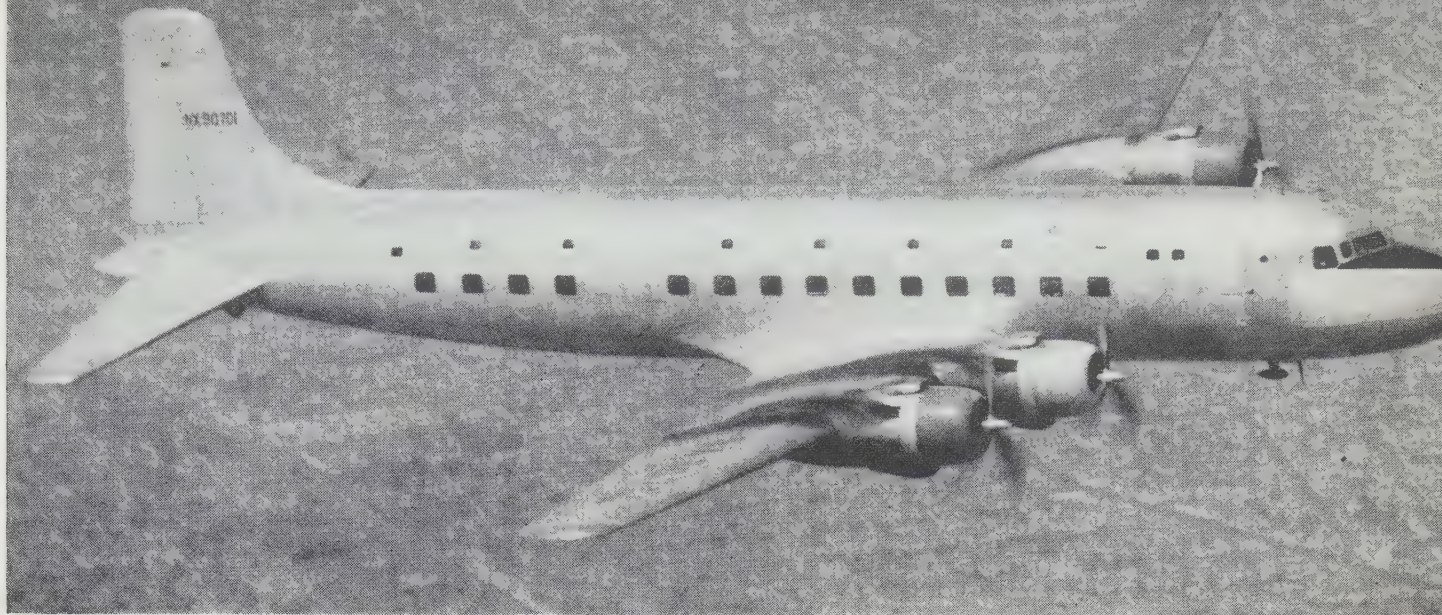
As potential purchasers of light planes, farmers assumed a dominant position. In the U.S. it was estimated that in proportion to the numbers of farm and urban dwellers, one-third more farmers than city residents were buying personal planes. Farmers with large acreage were using their own planes to detect soil erosion, check fences and irrigation ditches, locate lost livestock and round up cattle.

The use of company-owned planes, long employed by Canadian mining companies to transport employees and equipment to isolated mines, was growing elsewhere, particularly in the U.S. Many companies purchased surplus planes; others bought new "executive" type aircraft.

Government.—International co-operation in civil aviation reached a new peak with the first meeting of the Assembly of the Provisional International Civil Aviation Organization (P.I.C.A.O.). Particularly noteworthy among P.I.C.A.O. activities were a series of conferences held to make recommendations on air navigation facilities and standards for international services. By the end of the year 14 nations had ratified or adhered to the convention of the Chicago conference of 1944 providing for a permanent organization to succeed P.I.C.A.O., and it appeared likely that in 1947 the 26 adherences or ratifications necessary to bring the permanent organization into existence would be deposited.

Limited acceptance of the "Five Freedoms" agreement of the Chicago conference, designed to establish freedom of the air on a multilateral basis, accelerated the negotiation of bilateral agreements prescribing international air traffic rights. Among the most important of these was the Bermuda agreement between Britain and the U.S., which, to a great extent, established free competition between the international services of the two countries. Both nations subsequently announced that the principles of the Bermuda agreement would be applied in their negotiations with other countries.

Although not a government organization, the International Air Transport association, comprised of the international air lines of the world,



THE DOUGLAS DC-6 COMMERCIAL TRANSPORT, first flown late in 1946, carries 52 to 58 passengers as a day plane or 26 passengers in sleeping accommodations. Its cruising speed is more than 300 m.p.h. It is 100 ft. 7 in. long and has a wing span of 117 ft. 6 in.

was an important medium in effecting international co-operation. Important I.A.T.A. activities included the fixing of international fares, establishment of an international clearing house for intercompany accounts, and standardization of many air line practices.

Much attention of P.I.C.A.O., I.A.T.A., and numerous other groups was devoted to facilitating international travel through simplification of governmental travel requirements. The U.S. adopted P.I.C.A.O. proposals for speeding customs, public health and immigration clearance. Great Britain and France agreed to abolish visas in travel between those countries, and a few American countries permitted visits up to six months without passports or visas.

U.S. government policy continued to be one of regulating privately-owned and -operated companies. The CAB, in addition to its activities in fixing rates and authorizing routes, devoted much attention to formulating a regulatory policy for nonscheduled operators. After applying to such companies safety standards similar to those governing scheduled lines, the CAB had under consideration proposed economic regulations for the nonscheduled operators. The CAA established foreign offices to discharge its safety functions on the expanding routes of U.S. carriers, and undertook to operate temporarily for the use of civil aviation, essential air navigation facilities constructed by the U.S. armed forces in foreign countries.

A new Air Co-ordinating committee comprised of representatives of interested government departments was given broad responsibilities, including co-ordination of governmental aviation activities and the advising of the president on matters of aviation policy. Congress authorized a reduction in the postage rate on domestic and territorial air mail from eight to five cents, effective Oct. 1. An immediate result was a 40% increase in domestic air mail.

Direct participation in air line operation remained the focal point of governmental activity in the British commonwealth. In England, the bill to nationalize scheduled air services became law. Three government-owned corporations were designated to furnish all scheduled services: British European Airways for internal and European services; British South American Airways for Latin-American operations; and British Overseas Airways for all other routes.

The Australian government entered the domestic transport field in competition with private companies when the government-owned Trans-Australian Airlines began operations. Canada's plans to eliminate surface carrier ownership of air lines, aimed at the Canadian Pacific Railway's aviation activities, were abandoned. The government-controlled Trans-Canada Air Lines, however, retained its designation as operator of all internal trunk lines and international services. The South Pacific Air conference of Australia, England and New Zealand agreed upon the formation of British Commonwealth Pacific Airlines, jointly owned by the three countries, to operate services from Australia and New Zealand to North America. The conference recommended a permanent South Pacific Air Transport council to advise the governments regarding Pacific services.

Technical Developments.—With piloted aircraft having reached 615.7 m.p.h. and guided missiles having exceeded the speed of sound (roughly 750 m.p.h. at sea level), much research was directed to achieving piloted flight at supersonic speeds. A major part of this effort was devoted to solving the problems of flight through the transonic region of speeds immediately above and below that of sound, where forces not encountered at subsonic or supersonic speeds disrupt the controllability of aircraft of conventional design.

Unable to procure accurate wind tunnel observations of the phenomena occurring at speeds between approximately 97% and 120% of the speed of sound, research turned for such data to models mounted in the high-speed flow section of the wings of aircraft, free falling bodies and rockets launched from the ground. Experimental aircraft designed to withstand the forces of transonic flight and to operate at supersonic speeds were developed in both England and the U.S. Although construc-

tion of the British aircraft, the Miles 52, was abandoned, the Bell XS-1, the first rocket-propelled aircraft, safely passed piloted tests under power. Speed on the initial flight, however, was not permitted to exceed 550 m.p.h.

Research on wing designs, giving major emphasis to supersonic flight, continued with experiments on thinner wing sections and sweptback wings. Radical examples of sweepback were to be found in the Bell L-39 and the De Havilland ro8. Success of research on the design which incorporates all functions of the fuselage and empennage in the wing was demonstrated in the U.S. by the Northrup XB-35, Flying Wing bomber. Similar research in England produced the Armstrong-Whitworth 52-G, a glider model of a proposed tailless transport aircraft.

Development of power plants, particularly of jet engines, also focused on high-speed flight. Although jet engines powered numerous military models, no jet-propelled civilian planes were in use. However, auxiliary jet power was applied commercially with the installation on some U.S. air line transports of a rocket attachment for assisting in take offs, and several transports in production were to utilize jet exhaust for additional power. The commercial possibilities of jet propulsion were exhibited when an experimental British Lancastrian having two reciprocating and two jet engines, reportedly flew 100 m.p.h. faster using jets alone than the standard Lancastrian with four reciprocating engines. This plane made numerous successful flights, on one transporting a group of distinguished passengers from London to Paris.

Reaching the practical stage and slated to be on future transport aircraft were turbo-prop engines, in which gas turbines operate regular propellers. That advances in new-type power units, however, did not eliminate work on reciprocating engines was shown by the development of the Lycoming 5,000 h.p., 36-cylinder engine in the U.S., and the Arsenal 24H, 4,000 h.p., 24-cylinder engine in France.

New National Advisory Committee for Aeronautics propeller designs in the U.S. increased efficiencies to 90-95% through a speed range up to 500 m.p.h. Other experiments produced a propeller with sweptback blades for high speeds. As part of a program to reduce propeller noise, experiments were underway on lightplane propellers having eight short blades, diminishing noise by reducing the speed of the blade tips.

Production and New Equipment.—Civilian planes again began to be produced in substantial numbers. In the U.S. this production for 1946 was estimated at 35,000 planes having a value of \$170,104,000 as compared with 2,057 planes of an approximate value of \$14,828,000 in 1945. Personal planes (five place or under) comprised an estimated 34,560 of the total 1946 civilian production, while transports accounted for the rest.

Among the British planes placed in use were the 24-passenger, 2-engine Vickers Viking, cruising at 171-263 m.p.h. and the Bristol Wayfarer, a twin-engine, utilitarian plane with a cruising speed of 140-180 m.p.h., designed for 32 passengers or all cargo. Also ready for service was the 8-11 passenger De Havilland Dove for feeder line use. The initial Avro Tudor I, first British plane incorporating cabin pressurization for altitude flying, was delivered to B.O.A.C., and the 40-60 passenger Tudor II was undergoing flight tests. Completion of the largest proposed British transports, however, was distant. Canadian transport production concentrated on DC-4's with liquid-cooled Rolls Royce Merlins replacing the usual air-cooled engines. In Australia, military types continued to be stressed to the exclusion of civilian planes.

The first U.S. postwar transport type delivered was the four-engine Douglas DC-6. Carrying 52-58 passengers plus 5,000 lb. of cargo at some 300 m.p.h., the DC-6 was the first commercial aircraft having reversible pitch propellers as landing brakes and N.A.C.A. thermal de-icing, utilizing hot gases conveyed through critical areas. The Martin 202, a twin-engine aircraft for 36-40 passengers or cargo, underwent flight tests. Nearing completion was the 80-114 passenger Boeing Stratocruiser, designed to cruise at approximately 315 m.p.h. Although the 400 m.p.h. Republic Rainbow, fastest U.S. transport aircraft, had been tested in an army version, delivery date was uncertain at the end of the year.

In the U.S. many new personal plane models appeared. Extremely popular was the two-place Ercoupe, a spin-proof, all-metal plane having

tricycle landing gear. The four-passenger amphibian Republic Seabee, powered by a single pusher engine, combined outstanding performance with low cost. The single-engine Stinson Voyager and North American Navion, cruising at 125 and 150 m.p.h., respectively, over ranges of 500 and 700 mi., placed emphasis on utility. Unusual designs included the Beech Bonanza and the Waco Aristocrat. In the former, a single V-shaped or butterfly empennage replaced the customary vertical and horizontal tail surfaces. In the latter, the propeller was located aft of the tail.

British lightplanes included the Miles Gemini, a four-place, twin-engine monoplane cruising at approximately 140 m.p.h. Lighter planes were the two-place, 75 h.p. Auster Arrow and the similar three-place Auster Autocrat. The Percival Proctor V, a modern version of a wartime plane, carried four passengers at 140 m.p.h. over a 500 mi. range. Among the Canadian planes was the De Havilland Chipmunk, a two-place all-metal monoplane of purely domestic design.

Rotary Wing Aircraft.—CAA certification of several models for civilian use paved the way for commercial application of the helicopter in the U.S. The practical value of these craft was again demonstrated when the U.S. post office department successfully used helicopters in experimental mail services in several metropolitan areas. Under experimentation were conventional helicopters with one main rotor and small tail rotor, and other designs having two main rotors arranged coaxially, intermeshed, outboard, or tandem, with power supplied by one or two engines. In Britain, the Cierva W-9 utilized jet to counteract the torque of the rotor, and in the U.S. the Kellett and MacDonald companies announced development of ten-passenger helicopters.

Aids to Navigation.—Wartime technical advances, the need for all-weather flying in commercial aviation, and increased international operations brought about widespread activity in developing aids to navigation. Major emphasis centered on instrument landing systems. SCS-51, an outgrowth of the prewar CAA system, improved and used extensively by the armed forces, seemed likely to achieve almost universal civilian use in the immediate postwar era. In the U.S., SCS-51 was installed at approximately 50 airports and on commercial air lines. This system was also adopted by the Radio Technical division of P.I.C.A.O. for use by international trunk lines. Automatic blind landing on the SCS-51 system became possible with the development of an automatic approach control device as an accessory to the gyropilot.

Very high frequency radio transmission, largely static free, was coming into general use and in the U.S. began replacing medium frequency transmission on radio ranges. Plans also called for replacement of existing fixed, four-course ranges with V.H.F. omni-directional ranges, affording courses in all directions.

The great wartime developments of radar held promise of solving many long-standing navigational problems. Although most radar equipment required further refinements for widespread commercial application, Ground Controlled Approach appeared suitable for immediate civilian use. Employed extensively by the military for instrument landings, G.C.A. was being adopted as a traffic monitoring device for checking plane movements in the vicinity of airports. Other wartime devices used commercially during the year were the British Gee short-range and the U.S. Loran long-range navigation systems. Major radar research projects for the year were devoted to developing distance indicators and collision prevention devices. Research, however, covered a wide range, and such devices as Teleran, combining air-borne radar and television were announced.

Records and Events.—The return to peace was marked by resumption of air races and exhibitions, and in most countries an eager public had its first close view of many hitherto secret developments and of new aircraft and equipment. Also evidencing peace were widespread attempts to break existing records. The U.S. army made record attempts in a majority of the official landplane categories, but most of the results were still pending homologation by the Federation Aeronautique Internationale at the end of the year. Some interesting new records established in various countries were, however, recognized as official. Outstanding were the 615.7 m.p.h. speed record set by Group Captain E. M. Donaldson in England with the jet-propelled Gloster Meteor, and the 11,235.6 mi. world distance record established by a U.S. navy crew with a Lockheed P2V in a flight from Australia to Ohio. An international helicopter record resulted from a 705.3 mi. U.S. army helicopter flight from Ohio to Boston. (See also AIRPORTS AND FLYING FIELDS; AVIATION, MILITARY; PETROLEUM; POST OFFICE.) (G. M. M.)

Aviation, Military. **U.S. Army.**—In 1946 the United States army air forces was reorganized to meet its peacetime mission of providing an instantly ready means of national security. Under the overall command of Gen. Carl Spaatz, the air forces was divided into eight major commands: the strategic, the tactical, the air defense, the proving ground, the air matériel, the air transport, the training commands and the air university.

Combined with this administrative change the air forces continued its replacement of

wartime personnel with volunteers for its regular establishment. The strength of the air forces on Jan. 1, 1946, was almost 900,000. By the end of the year this strength had been reduced to less than a planned 400,000.

In a continuing effort to free itself from the costly burden of obsolescent aircraft the air forces declared surplus for disposal by civilian agencies many thousands of its aircraft, so that by the end of 1946, it had on hand little more than one-third the number of planes that it had at one time during World War II.

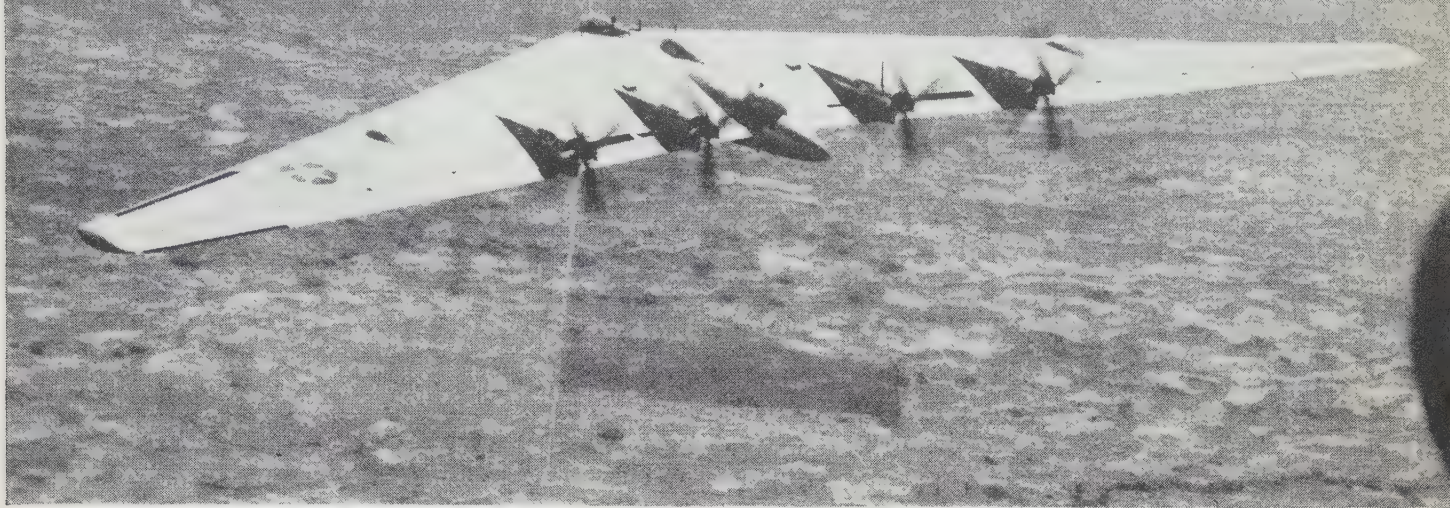
While the numbers of new planes delivered to the air forces during 1946 was comparatively low, every possible effort was made to ensure that the planes delivered were the best that aeronautical science could produce. As a result the models of the P-80 jet fighter were constantly improved; a new jet fighter, the P-84, was delivered in usable quantities, and two new bomber types and one nontactical research aeroplane made their first flights. The B-35, a flying wing very heavy bomber, and the B-36, an ultra long-range, very heavy conventional bomber began undergoing an exhaustive series of flight tests. The B-36 seemed capable of carrying 10,000 lb. of bombs for at least 10,000 mi., or of carrying a somewhat lighter load from one point to any other on the earth. The research plane was the XS-1, a rocket-propelled airframe built to withstand large stresses and great speed. It was hoped that the XS-1 might eventually exceed the speed of sound, a velocity which no other piloted aircraft had yet reached successfully in level flight.

In testing the tactical possibilities of its aircraft, the air forces were responsible for several noteworthy flights. One resulted in a new transcontinental speed record, when a P-80 flew nonstop from Los Angeles to New York city in 4 hr. 13 min. and 26 sec. Later in the year, a modified B-29 bomber flew nonstop from Hawaii to Cairo, Egypt, via the north polar regions to prove the feasibility of using the great circle routes across the top of the earth. A national speed record of 611 m.p.h. was set by a P-84 fighter in California. Finally, in a flight presaging an era of pilotless aircraft, two radio-controlled B-17s made a successful trip from Hawaii to California, having been taken off, flown and landed with no crew or passengers aboard. (C. Sz.)

U.S. Navy.—As with the entire naval organization of the United States, naval aviation within the U.S. navy was faced in 1946 with reconversion to a peacetime basis. The size and scope to which this air component of a modern sea power had grown during World War II meant that its reconversion involved not only planes, but personnel, bases and ships. The accompanying table gives a comparison in the size of these elements in the U.S. navy as they were at the end of World War II and in the latter months of 1946.

Naval aviation continued to play an important part in the peacetime operations of the U.S. navy during 1946. A number

		1946	
		In Operation:	Reserve organization, replacement pools and storage to augment new production
PLANES			
Combat planes	29,583	3794*	6805
Noncombat planes	11,173	2336	3048
PERSONNEL			
Commissioned and non-commissioned navy and marine corps aviators	58,265		19,582
Navy and marine corps aviation ground officers	28,849		9,196
Enlisted navy personnel with aviation branch ratings	201,114		56,465
Enlisted marine corps personnel on duty connected with aviation	101,086		21,430
BASES			
Air stations	82		63
Auxiliary air stations	62		12
Air facilities	45		27
SHIPS:			
Carriers	20	Active Fleets:	Reserve Fleets:
Light carriers	8	14†	13
Escort carriers	80	10	7
Seaplane tenders and auxiliary aircraft ships	67	19	56
			31
(*Of the 3,794 combat planes in operation, only 1,406 of them are first-line combat aircraft capable of engaging in unlimited combat operations.)			
(†This figure includes the U.S.S. "Coral Sea" and the U.S.S. "Oriskany," which were being built.)			



A NORTHROP FLYING WING B-35 BOMBER, built for the U.S. army air forces, and representing a new family of aeroplanes in which engines, crew, fuel and bombs are carried in the wing itself, and the drag-producing fuselage and tail surfaces are omitted. This makes possible greater loads, longer range and higher speed than is possible with conventional aircraft. The first giant Northrop Flying Wing, which has four 3,000 h.p. engines, a span of 172 ft., length of 53 ft. 1 in. and a gross overload weight of 209,000 lb., flew in June 1946

of carriers were in use early in the year expediting the return of troops to the U.S. for demobilization. In March, a task group headed by the U.S.S. "Midway," one of the U.S. navy's new 45,000-ton aircraft carriers, conducted experimental operations in the frigid waters of the North Atlantic. Planes flying from carriers conducted vital photographic and reconnaissance missions during the atom bomb tests at Bikini atoll in the Pacific during July. One of the U.S. navy's new P2V Lockheed Neptune patrol planes, the "Truculent Turtle," set a new world's long-distance flight record when it took off from Perth, Australia, on Sept. 29 and landed at Columbus, O., 55 hr. and 17 min. later after a flight of 11,236 mi. Navy planes were slated to have an important part in the activities of Operation High Jump, which got under way when a naval task force sailed from the east and west coasts in December for the Antarctic. During the year, planes of the naval air transport service operated over routes totalling 45,000 mi. to the Philippine Islands, China, Japan, Alaska, the Aleutians, Newfoundland, Central and South America, throughout the Caribbean area and all over the United States. The naval air reserve program initiated in July at 21 air stations throughout the United States provided continuous training with up-to-date planes and equipment for civilians who, during World War II, served as officers and enlisted men in naval aviation.

While intensive research and development in all fields of aviation were being continued by the U.S. navy, new planes embodying improvements gained from experience in operations during the war were announced during 1946. Three new jet fighters appeared as successors to the FR-1 Ryan Fireball, the U.S. navy's first plane to employ jet propulsion. The FD-1 McDonnell Phantom was their first all-jet plane. Two other all-jet fighters, the North American XFJ-1 and the Chance Vought XF6U-1, were flown for the first time in November. The speed and combat range of these new jet fighters put them on

a par with the newest land-based jet fighters.

Two carrier-based planes of the new "attack" type were also announced. They were the AM-1 Martin Mauler and the A2D-1 Douglas Skyraider. This new type of single-seat plane combines the functions of the torpedo and dive bombers. New U.S. navy patrol planes were the P2V Lockheed Neptune and the Martin XP4M-1. The latter plane is powered by both jet and reciprocating engines. The Lockheed R60 Constitution, the navy's largest plane, has a capacity for 168 passengers as a transport and a useful load of 69,000 lb. as a cargo plane. Other new planes were the XJL-1, an amphibious utility plane; the XOSE-1, a single-seat scout observation plane, and the XNQ-1, a greatly improved primary trainer. (See also NAVIES OF THE WORLD.)

(A. W. Rd.)

Airforces—The World.—Between V-J day and the end of 1945 the victorious air forces of Great Britain, the U.S.S.R. and the United States had little time for anything but the consolidation of their tactical positions, the policing of occupied territories and the reduction of the flow of production-line aircraft from the manufacturing industries at home. There were more new aircraft in the pipe lines and in storage depots than they could possibly use in many years of normal peacetime activity. Contract cancellations, the demobilization of over-inflated industry and the disposition of thousands of surplus aircraft were the problems of the balance of that year.

The last was particularly important. Technological developments that were in sight at war's end made it evident that, except for a limited number of aircraft that might be salvaged for training and police work, every fighter and every bomber that rolled out of factory doors by the end of 1945 was as obsolete for future tactical requirements as the dodo. Two developments made that point clear, both of which had had their genesis (and a considerable reduction to practicability) in Germany before V-E day:

- (1) The guided missile, or controlled, pilotless bomb.
- (2) The jet engine that opened the door to flying speeds far beyond those possible with conventional engines and propellers.*

During 1946, the whole future course of aeronautical re-

*(For an excellent résumé of current status of jet and rocket power plants in the U.S. and elsewhere, see *Fortune*, Sept. 1946, pp. 128-140 et seq.)

search and aerial tactics was changed by these two items. Scientists and strategists alike started off on new paths whose end was still too far over the horizon to foresee.

The widely publicized advances in atomic research had no practical influence on the course of airplane design in any country in 1946. It was known that projects were afoot to adapt some form of atomic energy power plant for eventual aircraft use. Obviously it would be highly desirable to dispense with the normal fuels and engines, and fly for almost indefinite periods on energy released by atomic fission. But the practical difficulties are many. For one, the only known means of protecting personnel from the lethal effects of the several forms of radiation that accompany atomic disintegration is to surround the energy source with thick walls of lead. Possibly, when the nature of such radiation is more thoroughly understood, some lighter protective coating may be developed, but a few simple calculations will show that the weight of the lead that would be required to protect flight crews and passengers from radiant energy, or from the poisonous end-products of atomic fission, would anchor any known form of aircraft quite securely to the ground.

It would be dangerous to predict that aircraft of the future will not be atomic-powered. For the present, however, the practical military application of atom-splitting remains in the field of the weapon and not the carrier.

Guided Missiles.—Guided missiles carrying loads many times more lethal than those used against Japan or at Bikini may be launched from hidden, well-protected bases hundreds of miles from aiming points. They may drop without warning on their targets at supersonic speeds. Against such attacks, once launched, there is no real defense, save by burrowing deep into the earth.

Every country in the world that had any pretense of a military establishment had "guided missile" projects tucked away in its "Top Secret" files. Little leaked out of Britain's plans and programs, but it was a safe guess that from the earliest days of the V-2s, its technicians were hard at work on similar projects.

Persistent rumours of mysterious projectiles with fiery tails streaking across Swedish skies led easily to a suspicion that the U.S.S.R. was in the running.

More than a hint of what was going on in the United States reached the public prints late in 1946. "Stills" and newsreels of army launchings of captured German V-2s, and the "WAC Corporals" and "GAPAs" were released. The navy, not to be outdone, disclosed some of its own pet projects, from "Tiny Tim," an air-borne 500-lb. rocket, to its larger glide bombs and its controlled missiles. The National Advisory Committee for Aeronautics showed some of its rocket research in action at an isolated test station off the Virginia coast.

In looking back over 1946, however, one thing can be assumed as certain. Any items that were disclosed to the public were long since considered obsolete by the services. The really important guided-missile projects everywhere were still strictly under wraps. That aerial warfare of the future would be radically different from what it was in 1946 was also a certainty.

Piloted Aircraft.—Most of the types used in 1945 were in service in 1946 in the surviving air forces of the world. Many of them were improved during 1946, but, at best, the gains were marginal: a little more power from slightly better engines and propellers; a little more speed from better streamlining and improved detailing; a little more range from better fuels and slightly bettered overall efficiency; noticeably better performance at high altitudes from more efficient superchargers; better pilot protection, in the form of pressurized cabins and protective clothing.

Exclude the jets and the rocket-powered projects, and the

conventional types of 1946 were but relatively little better than their prototypes of several years before. Even the most advanced service machines of 1946 (for example, the R.A.F.'s Tempest and latest Spitfire, its big Lancasters and Hastings, the U.S.'s Thunderbolts, Mustangs, Black Widows and Hellcats and big bombers, up to and including the Superforts and the XB-36) were in design stages and in production before the end of World War II. Many of them were already being classed in "trainer" categories, as intermediate steps toward super-performance, jet-powered machines. One must look, therefore, to the experimental types of 1946 to indicate the trends. In this transition stage, they were the significant items. In the paragraphs below, a brief survey will be made of those aircraft which point the way toward the future.

The Axis Powers.—For the conquered countries there was not much to review. The aviation industries and the air forces of Germany, Italy, Japan and their satellites had been destroyed and disbanded in 1945. The bones of Hitler's great war industries were picked clean of technical "meat" by hordes of soviet, British and U.S. experts who swarmed into the country before the dust of battle had settled. Thousands of tons of documents, drawings, specifications and patents were removed to centres in the U.S.S.R., Great Britain and the U.S.

For 1946, such documents were combed over piece by piece and all valuable information extracted. A large number of former nazi scientists and aeronautical engineers were brought out of Germany to help analyze and clarify the captured materials. Through the army's Air Document centre at Wright field (Dayton, O.), these data were being made available to U.S. aircraft constructors.

The "pickings" in Japan were scarcely worthwhile, technologically speaking. Its air effort had been not inconsiderable from a production standpoint. In spite of much newspaper propaganda to the contrary, the planes it produced (up to the time the blockade cut seriously into its supplies of necessary materials) were of modern design and good construction and put up a high average in performance. Unlike the Germans, however, the Japs produced no novelties in design and made few contributions to technical knowledge. One or two special types were built to fit into the tactical concept of Kamikaze, but they embodied no features that were unknown elsewhere in the world. What technical documents remained, together with samples of every type of aircraft and engine that were available, were brought back to the U.S. for analysis and study by U.S. military and naval experts, but it was doubtful if much of value would drop out of the examination. Certainly nothing happened in Japan during 1946 that had any significance for the future of aviation.

Revival of French Aviation.—France was in a different category. During the occupation, the Germans either stripped French aircraft factories of materials and tools or converted them to the production of aircraft of German designs. In spite of such handicaps the liberated French industry showed unmistakable signs of revival by mid-1946. For the first time after 1938, the biannual Salon de l'Aeronautique was held in the restored Grand Palais in Paris with many new aircraft on display. Although the "solid" part of the show was predominantly British (England showed more actual production types than "futures"), the French exhibits indicated a considerable degree of advanced thinking. Most of their machines were only in prototype or "mock-up" stages.

The postwar French aircraft industry emerged in substantially its pre-occupation form. During the late 1930s, in common with the other munitions-making industries, it was nationalized, for better or for worse (and, as it turned out, for worse). The famous company names of France's aviation hey-day, Bleriot, Farman, Hanriot, Latécoère and the rest, were absorbed in four great government-owned and controlled corporations, generally abbreviated as S.N.C.A. (Société Nationale de Constructions Aéronautiques) du Nord, S.N.C.A. du Centre, S.N.C.A. du Sud-Est and S.N.C.A. du Sud-Ouest. Again, for better or for worse, the pattern for the future was the same as it was in the late 1930s.

Most of the French effort appeared to be concerned with light aircraft "pour le sport" and with conventional types of medium-to-large transports. The first of the postwar, all-French four-engined transport, the Languedoc 161, went into service for Air France in the summer. The largest exhibit in the show was a 40-ton, 150-passenger, 4-engine Aero-centre NC211. Others ranged downward to 4- to 6-passenger air taxis. None showed much in the way of structural or aerodynamic novelty.

Of possible future military significance, a few French helicopters appeared. The largest was a five-place twin rotor machine built by S.N.C.A. du Centre. Like the U.S. Kellett KR-10, its two rotors are mounted on top of the fuselage and are interesting. Berguet has a small 2-rotor, co-axial helicopter driven by a 240 h.p. engine. A high speed of 149 m.p.h. was claimed. The S.N.C.A. du Sud-Est also had a twin-rotor machine for four passengers and a pilot, patterned after the German Focke-Wulf designs. Most novel was the South-West's small helicopter with jet driven blades for lift and an orthodox pusher propeller for forward motion. Little was known of its flight capabilities.

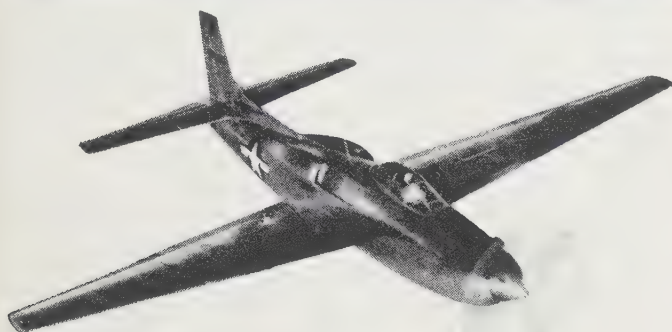
That French designers were thinking in terms of jet propulsion and supersonic flight was evident. Both the German Walter type rocket engine and the Junkers Jumo 004 jet engines were designed into French aircraft. At least one all-French turbo-jet unit was tested, the S.N.C.A.-N.E. Rateau GT S-65. It was said to be similar to the early British Whittle types, except that it incorporates an axial-flow air compressor.

A number of jet-driven aircraft were designed and some were constructed, but little was known of their performance or whether they had been flown at all. The S.N.C.A.-S.O. 6,000 was said to have been in the air with a Jumo 004 jet engine, but it was being redesigned to take the British Rolls-Royce Derwent (and later the R-R Nene) engines. It was primarily a trainer and research aircraft. It is a small, all-metal two-



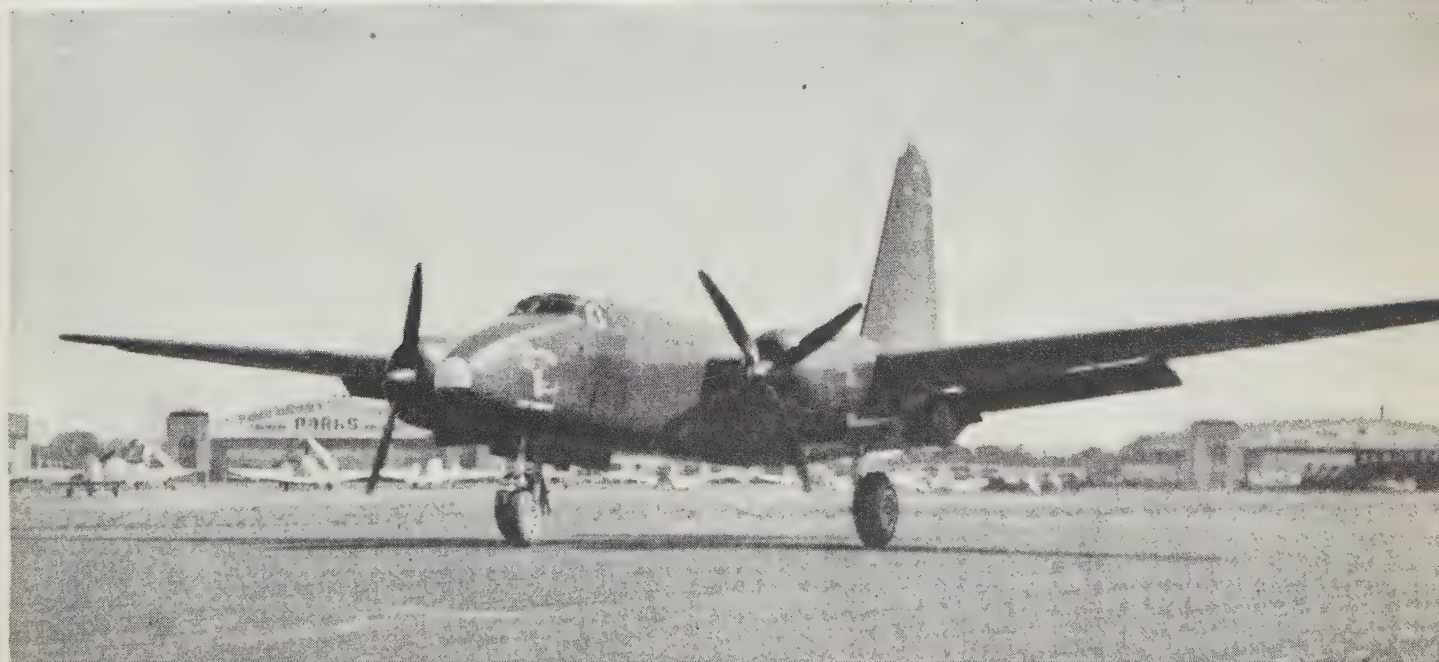
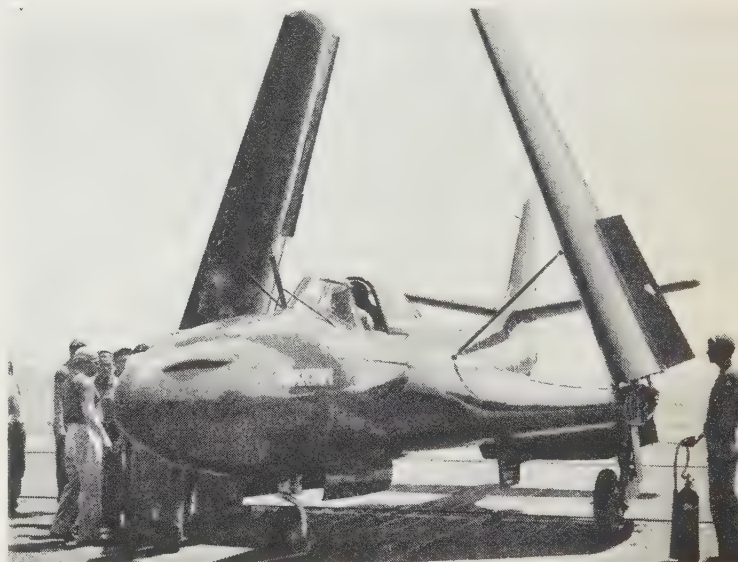
Above: THE LOCKHEED CONSTITUTION, the U.S. navy's largest aircraft, was shown to the public on Aug. 21, 1946, after three years of development and construction under strict secrecy. The 92-ton double deck transport had a wing span of 189 ft., an over-all length of 156 ft. and contained every known flying aid, including the most complete radar equipment ever carried in a plane

Below: THE "PHANTOM" XFD-1, new jet-propelled carrier fighter plane of the U.S. navy, as it rested on the aircraft carrier "Franklin D. Roosevelt" prior to its flight tests on July 21, 1946



Above: THE MOST POWERFUL FIGHTING PLANE in the world, the XP-81 of the U.S. army air forces, was announced early in 1946. It was the first plane to fly with a gas-turbine engine designed for propeller drive. The gas-turbine and independent jet-propulsion engine in the tail give it a speed of more than 500 m.p.h.

Below: "TRUCULENT TURTLE," a U.S. navy two-engined patrol bomber, arriving at Columbus, Ohio, on Oct. 1, 1946. The plane completed a long distance flight of 11,236 mi. from Perth, Australia, in 55 hr. 15 min., a new world's record



seater. Maximum speed was said to be in the 500 m.p.h. range. With the larger engine it was expected to fly at 590 m.p.h. In its current form it had no military significance.

The prototype VG 70-01, built by the Arsenal de l'Aeronautique, although not flown in 1946, had interesting possibilities. It is a highly swept back monoplane with a span of about 30 ft., single place, built around the Junkers Jumo 004 engine. Air intake for the engine is through a large scoop along the belly of the fuselage, rather than at the nose as in the U.S.'s P-80's. Its surfaces were polished glass-smooth. More than 600 m.p.h. was expected.

For trans-sonic research, S.N.C.A.-S.O. built the M-1 around the German Walter rocket motor. It had apparently been flown only as a glider or as a towed aircraft for research purposes. It has highly swept back wings, and, like the last of the German Rocket plane designs, has no undercarriage, simply a skid on which to land.

Another project of a similar nature was the NC 271 by S.N.C.A. du Centre. It had been tested only in a wind tunnel in 1946, and possibly as a glider. It was to be powered eventually with two rocket power units, one on each side of the fuselage, in the wing root. A model of another twin-jet design was also shown, the SE 2400. It is laid out for two British Rolls-Royce Nene jet turbo units mounted one above the other inside its relatively deep fuselage. Wings are narrow and are sharply swept back.

U.S.S.R.—Unfortunately, very little was known of military aviation progress in the U.S.S.R. It was assumed (from certain phenomena allegedly seen over Sweden) that some research was in progress on guided missiles. It was probable, also, that captured German jet and rocket engines were studied and reproduced. Unconfirmed press reports hinted at sales of certain British turbo-jet units to the U.S.S.R. No information was at hand to indicate what success, if any, had been achieved with soviet-designed jet-turbine units.

A report from a British source stated that one of the standard TB-7 long-range 4-engine bombers (normally powered with 1,350 h.p. liquid-cooled AM-35 engines) had been flown with 4 reaction propulsion units. It was not indicated whether the jet units were of soviet or of German origin.

Another version of the wartime TB-7 was known as the PE-8. In this machine, radial, air-cooled engines appeared to have been substituted for the AM-35s.

In the single-engine fighter categories, the older YAK-7s and the LAGG-7s (somewhat similar to the German Me-109s and FW-190s) appeared to have been supplemented by the later LA-5, single-engine, single-seat interceptor fighter. The type was known to have been in production during the latter stages of World War II but was evidently subject to some continuous improvement. It is of orthodox pattern with circular fuselage, closely cowled 14-cylinder radial engine (M-82 of 1,600 h.p.) and large spinner. Armament consists of two 20-mm. guns in the fuselage. All-up weight was reported at 7,400 lb., top speed 370 m.p.h. at 16,000 ft.

Latest reported development in the YAK series was the YAK-11, a single seater fitted with a 2,000 h.p. liquid cooled engine. It is normally armed with one 37-mm. cannon and two 12.7-mm. guns. Top speed was "over 390 m.p.h."

Fastest soviet fighter in the records was the 400-m.p.h. MIG-5. It has a 2,100 h.p. 14-cylinder radial auxiliary fan-cooled engine. Four 20-mm. cannon are mounted.

During the war the Il-2 Stormovik was famous as one of the first rocket-carrying, ground-strafting aircraft. It was used effectively against tanks and ground troops. An improved version, the Il-10, was reported as a two-place anti-tank support bomber. With an 1,800 h.p. M-107 engine it was said to have a top speed of about 250 m.p.h.

Several models of twin-engined attack bombers were used during the war, the PE-3 being typical. These machines resembled the Messerschmitt 110-210-410 series, but the engines were 14-cylinder air cooled instead of the inverted liquid-cooled types favoured by the nazis. After the war the PE-3s were being replaced by an improved machine of the same general characteristics, the TU-2 designed by A. N. Tupolev.

Another twin-engine design, the ER-4, is recognizable by its inverted gull-type wing. It is powered by two M-103 series, upright Vee liquid-cooled engines.

No reports were circulated as to actual aircraft production rates in the U.S.S.R. Large factories were known to exist, but little information was available as to their capabilities or the quality of their products.

Something was known, however, of what was done for the soviet air force by the United States under lend-lease. According to the *Twentieth Report to Congress on Lend-Lease Operations*, by the end of June 1945 the U.S. had shipped to U.S.S.R. about \$1,300,000,000 worth of aircraft, engines and parts. These included 14,450 aeroplanes (including 9,700 fighters and 3,800 bombers) and spares to maintain them. A few British DH-98 Mosquitoes and Handley Page Hampden medium bombers were also delivered.

Great Britain.—The story of British aircraft growth in 1946 centred around intensive development of turbo-jet engines. Early in the year the air ministry announced that for the future, except for troop transports and trainers, every new British military aircraft type must be powered by jet engines.

This directive could not be translated into practice immediately. Most R.A.F. service squadrons were still flying with the old "up and down" type engines and conventional propellers, but the order gave tremendous impetus to the development of gas turbine power units and started practically all aircraft designs off on projects built around such units. Many of the most highly developed jet engines in the world in 1946 carried British name plates.

Two types of units were in production, the straight jet engine, in which all the thrust is developed from a rearward blast of hot gases, and the combination propeller and jet engine, in which gas turbines drive conventional propellers to produce part of the thrust—supplemented by a rearward blast of hot exhaust gas. Each has its advantages. The all-jet type is most useful at extremely high speeds as in fighter aircraft. The combination is applicable to designs (say long-range bombers) where high efficiencies over a wide speed range are desired.

The general characteristics of the British gas turbine power units of 1946 (condensed from a table published in *Flight Magazine*, 50:568, Nov. 21, 1946) are as follows:

MAKER	TYPE	Maximum Power (Sea level)			Dry Weight, lb.
		THRUST LB.	SHAFT H.P.	At r.p.m.	
Armstrong-Siddeley . .	Python	1,150	3,670	8,000	2,980
	Mamba	320	1,010	14,500	750
Bristol	Theseus	500	1,950	8,200	2,310
De Havilland	Goblin II	3,000	—	10,200	1,550
Metro-Vickers	Ghost	5,000	—	—	2,011
	F 2/4	3,500	—	7,700	1,785
	F 3	4,600	—	7,390	2,300
Rolls-Royce	Derwent	3,500	—	14,700	1,250
	Nene	5,000	—	12,300	1,600
	Clyde	1,225	3,020	6,000	2,800

These are the British power units that were announced, whose characteristics were broadcast. Some of them were already on sale in 1946, built into fighters for export to other countries. No straining of the imagination is necessary, however, to surmise that behind the scenes, securely locked away, were still newer and more powerful types.

Britain's Jet-Powered Aircraft.—Except possibly for the German Me-262 jet-fighter effort of 1943-44, Great Britain probably produced more of the type than any other country in the world. It probably had more trained and organized jet squadrons than any other power. Listed in its jet-fighter categories at the end of 1946 were: The De Havilland, Vampire and Sea Vampire, the Gloster Meteor F, the Saunders-Roe S.R./Ar 1 and the Vickers-Armstrongs (supermarine) Eto/44.

Oldest of the service-tested jets are the Vampires. These are single-seat fighters in the 550-m.p.h. class. Their fuselages are very short, with pilot's cockpit forward and a DH Goblin II turbo-jet unit in the afterportion. Tail surfaces are carried on twin booms aft, with the stabilizer raised well above the blast of the jet. Besides being in service with R.A.F. squadrons, Vampires were delivered to both the Swiss and the Swedish air forces. The Sea Vampire is essentially the same machine adapted for landings on carrier decks and otherwise fitted out to fleet specifications.

The Gloster Meteor IV held the world's speed record, up to the end of 1946, at 616 m.p.h. At year's end it was in accelerated production for deliveries to R.A.F. squadrons. One was on exhibit at the Paris show. It is a stubby-winged single-seater, powered by two Rolls-Royce Derwent V's mounted outboard from the fuselage in two relatively large nacelles. The narrow fuselage carries the pilot's cockpit well forward and the tail surfaces high above the twin jet blasts. As a strictly service type, the Meteor carries four 20-mm. cannon, and as an alternate to auxiliary fuel tanks, can carry two 1,000-lb. bombs, or an equivalent battery of rockets. Later production models would be fitted with pressurized cockpits for operation at better than 40,000-ft. altitudes. Top speed with military load was about 580 m.p.h. at 15,000 ft. Calculated rate of climb at 50,000 ft. was said to be more than 500 ft. per minute.

The S.R./Ar 1 is a radical departure in fighter aircraft in that it is a flying boat. This type was heretofore not considered applicable to single-seat high-speed use, largely because of the difficulties imposed by the installation of conventional engine and propellers, with the necessity of keeping them "high and dry" with respect to the water.

The use of twin jet units built into a boat hull has gotten around this trouble. Little was known of its performance, except that it was said to do better than 500 m.p.h. Only photographs of models were published.

Few reliable data were available on the Supermarine Eto/44 except that it is powered with a 5,000-lb. thrust Rolls-Royce Nene turbo-jet engine. Its fuselage has the form of a slender, well-pointed cigar. The single cockpit is well forward. Air intake for the turbine unit is through "gills" in the sides of the fuselage at the cockpit. The "laminar-flow" wings are narrow with a span of about 36 ft. A 310-gal. fuel supply is carried inboard. The normal service version is fitted with four 20-mm. cannon, "Better than 600 m.p.h." was claimed.

One British commentator predicted that four or five years hence a typical fighter would be powered with a pair of in-board jet units of 5,000-6,000-lb. thrust each. With swept-back wings and other aerodynamic refinements "speeds close to 700 m.p.h. may be realized."

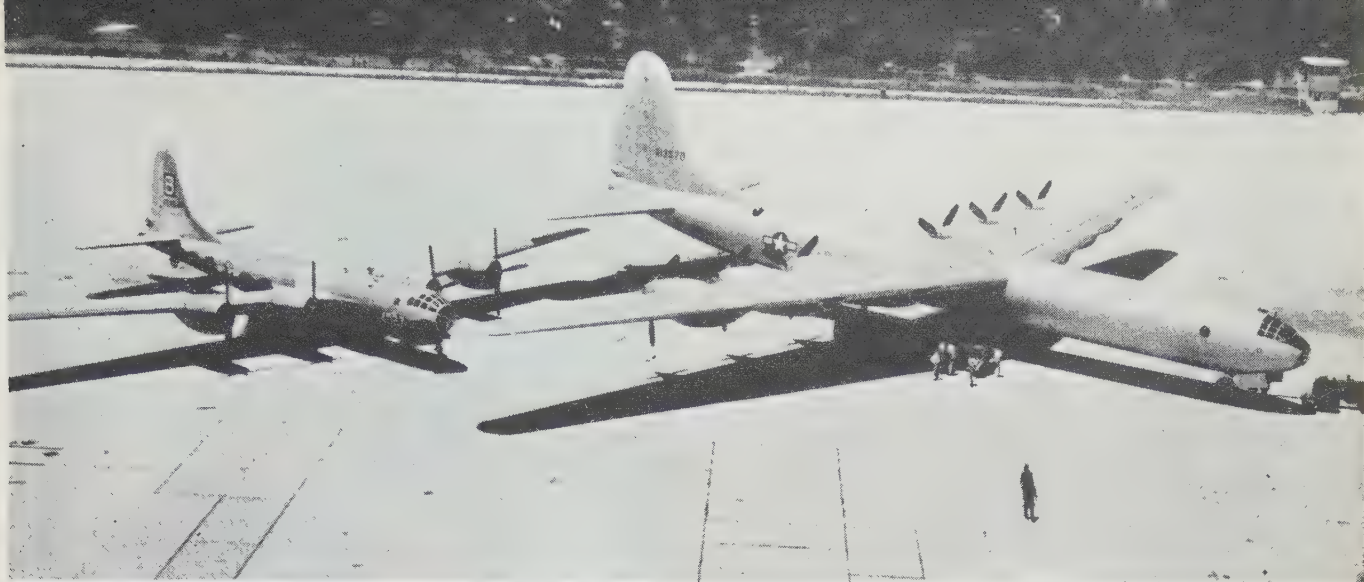
Britain also appeared to be in the race to be the first to penetrate the trans-sonic "wall" and to fly experimental piloted aircraft at super-sonic speeds. Its 1946 effort ended in disaster, when the DH-108 experimental tailless jet-propelled monoplane disintegrated in the air with the loss of one of its best pilots, Geoffrey de Havilland. The U.S. would probably make its bid for the honour, when further test flights with the Bell XS-1 were undertaken in the spring of 1947.

During 1946 the British abandoned (for economy reasons, and possibly only temporarily) a 1,000-m.p.h. piloted-aircraft project known as the Miles M-52. The machine would have resembled a German V-2 with a thin monoplane wing about amidships. A special composite turbo-jet unit of very large size had been developed for the M-52 by Power Jets, Ltd. It was expected that the machine would attain an altitude of 36,000 ft. and a speed of 1,000 m.p.h. within 90 seconds of take-off. The entire nose cone, in which the pilot was located, could be blown off the rest of the machine and let down to earth by a large parachute in case anything went wrong. The project was fantastic, perhaps, but not improbable of accomplishment.

Mention was made above of the DH-108 tailless machine. The British always had more of an urge to explore this field than had the U.S. designers, although it is of interest to observe that the U.S.A.A.F. possessed the only practical military "flying wing" in existence, the Northrop B-35 bomber.

A number of turbo-jet and turbine-driven propeller design studies for "all wing" aircraft appeared on British drawing boards in 1946. Apart from the ill-fated DH-108, however, the only tangible evidence of interest was considerable full scale research with a large tailless towed glider, the Armstrong-Whitworth 52G. "Spear-head" designs for large bombers and transports appeared on paper but none in the air.

Jet-powered bombers of more nearly conventional form were probably



CONSOLIDATED VULTEE XB-36, world's largest land-based bomber, which made its first successful flight in Aug. 1946, is shown with a B-29 Superfortress to indicate its size. The pusher type U.S. army air forces bomber has six engines with a total take off power of 18,000 h.p., a length of 163 ft., wing span of 230 ft. and maximum range with bomb load of 10,000 mi.

closer to reality. The only big machine to be flown on jets, and only as a sort of flying test stand for the power units, was a modified four-engine Lancastrian fitted with a pair of piston engines inboard and with Rolls-Royce Nene turbo-jets in the outboard nacelles. This machine was flown from London to Paris during the show in 50 min. The high fuel consumption of current turbo-jet engines still stood in the way of widespread adaptation of the type of bombers and transports, where long range with heavy bomb loads and/or cargo is a primary requirement.

Current Service Types.—A survey of British military aircraft of 1946 would be incomplete without a brief review of the latest versions of the aircraft that opposed the Luftwaffe in the final phases of the war. In spite of the emphasis on jet power, such machines still formed the backbone of the R.A.F.

In the big bomber category, the Avro Lincoln was the only notable addition. It was developed as a long range "heavy" for use in the Pacific theatre. It was designed to carry a 22,000-lb. bomb load, with a normal all-up weight of 82,000 lb. It is powered with four Rolls-Royce Merlin engines, each having a rating of 1,565 h.p. at 17,250 ft. altitude.

During the year another experimental four-engine bomber was flown, the Vickers-Armstrongs Windsor, with Rolls-Royce Merlins. This machine appeared to be notable only in the use of the so-called "geodetic" construction system (similar to that of the Wellingtons used in the early stages of the war) and in an unusual landing gear. It has four main landing wheels, one under, and retracting into, each of the four-engine nacelles.

The De Havilland Mosquito—light, high-speed bomber (2 Merlins)—appeared in an improved form as the MK-35. It was to carry a single 4,000-lb. bomb, or four 500-pounders internally. As the MK-34, it served as a high-speed, long-range reconnaissance machine. In this model, aerial cameras replace the normal armament.

Most famous, and also most highly developed of any single-seat fighter, was the Supermarine Spitfire. The MK-22 embodied all the experience gained in wartime. It would operate in any climate. It carries the standard complement of four 20-mm. cannon. Three 500-lb. bombs, or a battery of rockets, may be accommodated for short-range use. Power plant is the Rolls-Royce Griffon (2,145 h.p. at 15,500 ft.). A six-blade contra-rotating Rotol propeller may be fitted. Top speed was 460 m.p.h. The naval version is the Seafire 47 which differs mainly in having full deck landing equipment installed, plus folding wings for shipboard stowage.

The Supermarine Spitfire is an improvement over the Spitfire. Spitfire's naval counterpart is Seafang. The Griffon engine is used in each. These machines are among the fastest propeller-driven aircraft in the world, at 483 and 475 m.p.h. respectively. They can carry two 1,000-lb. bombs in addition to the standard battery of four 20-mm. guns.

Hawker's Fury and Sea Fury are in the same class with Spitfire and Seafang. The standard machines are powered with Bristol Centaurus engines, but in one model a Napier Sabre MK VII has been fitted, which, with methanol-water injection, gives short duration speeds of 485 m.p.h. The Hawker Tempest, which went into service at about the end of the war, is an all-round fighter with a top speed of 440 m.p.h. A Bristol Centaurus is its standard power plant.

A new name in the field is Martin-Baker, producer of the M-B V single-seat, single-engine fighter. It was said to have unique constructional features, but its outward appearance is conventional. Power plant is the Rolls-Royce Griffon driving a six-blade, contra-prop. Speed was said to be about 460 m.p.h.

In the twin-engined, single-seat fighter category are the De Havilland Hornet and Sea Hornet. Both types are powered by a pair of Rolls-Royce Merlins in conventional nacelle mountings. The experimental Westland Welkin is in the same class with the same engines.

Bristol Beauforts and Beaufighters implemented Britain's attack- and dive-bomber squadrons throughout the war. The postwar model is the Brigand, a versatile three-place machine that can operate as a fighter, dive bomber, mine layer or torpedo carrier. With two Bristol Centaurus engines, it had a top speed of 365 m.p.h. at 16,000 ft. Four 20-mm. guns are carried in the fuselage. It has an all-up weight of 24,600 lb.

There was very notable improvement in naval aviation equipment in England, postwar. The British went in with obsolete Vickers Supermarine Walrus on their cruisers' catapults and obsolescent Fairey Fireflys and Fulmars on their carrier decks. They came out, not only with the several excellent piston-engined and jet-powered deck fighters that have been listed, but also with a group of first rate dive bombers and torpedo carriers for off-the-deck use. The list includes: the Fairey two-place Spearfish T.D. MK 1, a 21,500-lb. machine with a Bristol Centaurus; the Blackburn Firebrand T.F. MK IV single place "strike" aircraft weighing 16,200 lb. with about 350 m.p.h. at 13,000 ft. and the Mark IV Fairey Firefly, a lighter, faster (386 m.p.h. at 14,000 ft.) two-place reconnaissance and day and night fighter powered with a Rolls-Royce Griffon 74 engine. A twin-engine fighter-bomber, the Short Sturgeon, with two Rolls-Royce Merlins, was the first of its kind to be designed for carrier operation. It was reported to fly more than 400 m.p.h. at 19,000 ft.

A new, large flying boat, the Short Shetland, was flying in 1946. It is designed for long-range reconnaissance. Four Bristol Hercules sleeve-valve engines are fitted. It had a top speed of 267 m.p.h.

A new and unique amphibian designed for naval service was the Supermarine 14/44. It has a variable incidence wing and is rigged for deck, runway or water landings. A single Rolls-Royce Griffon driving a six-blade contra-prop furnishes the power. No performance figures were given.

A number of new military trainers came in during 1946. The secondary and advanced types tended to be indistinguishable from certain obsolescent service machines. Probably for final stage training of high-speed pilots for forthcoming jet machines, at least two of the wartime top-ranking fighters, the Spitfire and the Firefly, were modified to be two-seaters, with an instructor's cockpit installed in the turtledeck aft of the regular cockpit and at a higher level. A similar arrangement is shown in the Miles Martinet. Newcomers in the twin-engine trainer class are the Reid and Sigrist Desford and the twin Centaurus Bristol Buckmaster. The new Boulton and Paul P.108 was the first trainer in the world designed around a turbine-propeller unit (the Armstrong-Siddeley Mamba or the Rolls-Royce Dart).

Britain was building a whole series of medium-to-large 2- and 4-engine civil air transports, which, of course, might eventually serve as troop carriers. In the twin-engine group is the 8-passenger DH Dove, for feeder lines (two Gypsy Queen engines); the 24-passenger Vickers Viking for the British European services (2 Bristol Hercules) and the deep-bellied Bristol Wayfarer for passengers or cargo (2 Hercules). For longer ranges is the four-engine group: the Avro York, developed from the Lancaster bomber; the Avro Tudor I Atlantic type for 24 passengers for 3,400 mi. (4 Rolls-Royce Merlins); the Avro Tudor II, with accommodations for 40 passengers (4 Rolls-Royce Merlin 100s), and the Handley Page Hermes, of similar size, but powered with Bristol Hercules engines. The Miles Marathon is a smaller 4-engine machine for 13-18 passengers for intermediate stage runs. On the other end of the scale comes the projected (under construction in 1946) Brabazon Type I (Bristol Model 167 MKI). It would be the largest landplane in England. The prototype was to be powered by eight Centaurus engines, coupled in pairs driving six-blade contra-props; engines were to be completely buried in the wings. Later models were to be turbine-driven. (See also AIRPORTS and FLYING FIELDS; AIR TRANSPORT COMMAND; AVIATION, CIVIL; CIVIL AERONAUTICS ADMINISTRATION; GLIDING; MUNITIONS OF WAR; PSYCHIATRY; PSYCHOLOGY; WORLD WAR II; see also under various countries.) (S. P. J.)

Avocados: see FRUIT.

Azores, The: see PORTUGAL.

Bacher, Robert Fox (1905—), U.S. physicist, was born Aug. 31 in Loudonville, O. After receiving his Ph.D. degree from the University of Michigan in Ann Arbor in 1930, he was National Research fellow in physics at the California Institute of Technology and at the

Massachusetts Institute of Technology. In 1934 he went to Columbia university as instructor and the following year joined the Cornell university faculty, becoming physics professor and director of the laboratory of nuclear physics. In addition, he became research associate at the M.I.T. radiation laboratory in 1941. A specialist in spectroscopy, he added to the scientific knowledge of the behaviour of atomic nucleus and determined the speed of slow neutrons. Associated with Dr. Robert Oppenheimer at Los Alamos laboratory in New Mexico, he had charge of the manufacture of the first test atomic bomb that was exploded there. On Oct. 28, 1946, he was appointed by Pres. Truman to the five-man U.S. atomic board which, with David E. Lilienthal as chairman, was given the responsibility of directing and controlling the development of atomic energy in the U.S. The only scientist on the board, Bacher's task was to furnish technical experience to the commission.

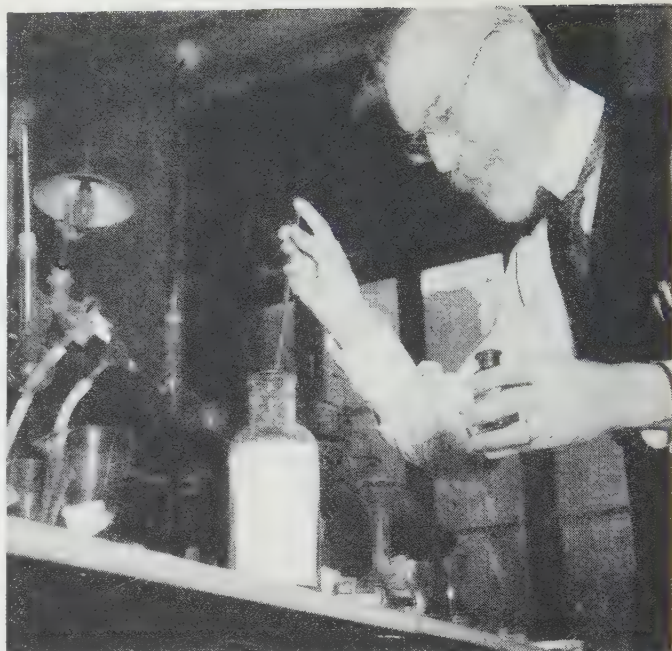
Bacon. The increased slaughter of hogs in the United States in 1946 over 1945 was reflected in the increased output of bacon although this meat continued very scarce in the retail markets until the end of the year. The amount of bacon was reduced by the practice of cutting pork to carry as much fat as possible. The quantity of bacon produced as sliced bacon under federal inspection was about 400,000,000 lb. in 1946 compared with 382,675,000 lb. in 1945 and 549,857,000 lb. in 1944 and a previous five-year average of about 350,000,000 lb. The inspected sliced bacon does not represent the total production, however, since about 19% of the dressed weight of hogs is usually classed as bacon. By this method of estimating, the total production of bacon was more than 2,100,000,000 lb. in 1946 compared with 1,909,000,000 lb. in 1945 and the record of 2,536,000,000 lb. in 1943.

Government purchasing was ended on July 1, 1946. The lapse of price control on pork in July and August resulted in a rapid increase of demand for a brief period. After price control was finally ended in late fall bacon production began to increase to meet the domestic demand. The price of bacon continued to the end of the year above the ceiling level. (See also HOGS; MEAT.) (J. C. Ms.)

Bacteriology. Electron microscopy continued to develop in 1946. The preparation of collodion "replicas" of moist, living bacteria followed by "shadowing" of the surface of the replica with gold vapour applied obliquely is noteworthy. By improving the annular electromagnets which are the "lenses" of the electron microscope, the resolving power of these instruments was more than doubled. The further perfection of the metal-shadowing technique permitted the making of electronographs of viruses and bacteria in perspective or topographical aspect, with revelations of morphological details not previously known.

An important advance in optical methods was the further development of phase microscopy to general use. This is based on dark-field illumination coupled with special diffraction plates in the objective housing. Portions (phases) of the cell having different refractive indices are made visible as differences in light intensity.

A great volume of new information on antibiotics was published. Among many important publications were authoritative summaries of the therapeutic value of streptomycin; the chemical structure and synthesis of penicillin; the different values of four different penicillins, G, F, X and K; and improved large-scale commercial development of the submerged or closed-tank method of preparation. The production of the pure sodium salt of penicillin G on a commercial scale was a logical outcome of studies in this field. Penicillin K was found of little value *in vivo*



GABRIEL BERTRAND, French bacteriologist, demonstrates a new preservative, microlysine, in Paris, France, during 1946. Two drops are sufficient to preserve this quantity of milk without refrigeration for as long as four or five days, even in warm temperatures

because it is almost immediately destroyed or excreted. G appeared to be most valuable, especially in treatment of syphilis. A synthetic medium for submerged penicillin production gave promising results under commercial conditions.

The great search for new antibiotics was continued and apparently valuable substances were found in scores of moulds and actinomycetes and in several higher plants (beans, corn, cabbage, buttercup, sagebrush, dwarf waterleaf, mountain pasque, juniper and others).

In the field of disinfectants several compounds having surface-tension-reducent as well as bactericidal properties were studied intensively. Among these were various complex cetyl halides of the group of quaternary ammonium salts.

Students of enteric disease described several new types of *Salmonella* and many valuable epidemiological reports of shigella and salmonella outbreaks based on military groups were published. Of especial interest were data on difficulty in producing shigella infection in man experimentally and the ineffectiveness, in man, of shigella vaccines, apparently effective by animal test; emphasizing Alexandre Besredka's idea that local tissue immunity may be more important than humoral immunity.

In diphtheriology it was shown that nontoxigenic diphtheria bacilli probably play an important role in natural immunization processes and may possess hitherto unsuspected pathogenic potentialities for man. A new diphtheria prophylactic, protamine toxoid, gave promise in respect to antigenicity and freedom from allergic reactions. Encouraging data were also obtained in active artificial immunity to mumps, as well as to other virus diseases, including influenza.

The newly opened field of biochemical genetics was further illuminated by new studies on the relation of radiations and of nucleoproteins to the synthesis of enzymes. The use of radioactive elements as tracers in studying bacterial metabolism received fresh impetus from the increased availability of the elements as byproducts of atomic research.

Very thorough investigations were conducted on some newly described diseases, notably Q fever and infectious hepatitis, as well as a brand new rickettsial disease—"pock fever"—in New York city. (See also EPIDEMICS AND PUBLIC HEALTH CONTROL.)

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Badminton. Out of competition after 1942 because of army medical corps duty, David Guthrie Freeman, the four-time national champion, completely dominated the badminton-picture in 1946. Although the national championship was again by-passed, Freeman established his ranking as No. 1 in world badminton circles with a domination of California tournaments. He won both the northern and southern California men's singles, defeating a fellow Pasadena, Calif., player, Barney McCay, in each final. Freeman won the northern title, 15-12, 15-11, and the southern crown, 15-5, 15-1.

Thelma Scovil of San Francisco won the southern California women's title, while Shirley Blanchet of the Athens, Calif., Athletic Club captured the northern crown.

Carl Loveday of Montclair, N.J., ranking U.S. No. 2 player, dominated play in the east with men's singles victories in the Buffalo, N.Y., national invitational and the eastern championships.

Mrs. Patsy Donovan Starrett of Buffalo won the national invitational singles. Loveday also teamed with Ken Quigley, his victim in the singles, to annex the men's doubles title.

Mrs. Starrett figured in a twin title by teaming with Barbara Templeton for the women's doubles championship. They also won the eastern doubles.

Richard Casey of St. Louis once again dominated men's singles in the midwest championships, defeating Russell Smith, also of St. Louis, 18-17, 15-11, in the final. Eleanor Coombs of Chicago regained the women's singles title she held in 1944.

Stanley Cutts of Toronto, Ont., won the world's professional championship with an easy 15-5, 15-6 victory over Doug Grant of Montreal, Que. In a return match, Cutts defeated Grant, 15-0, 15-2. (M. P. W.)

Bagley, William Chandler (1874-1946), U.S. educator and editor, was born on March 15 in Detroit. His degrees included a B.S. from Michigan State college, E. Lansing, Mich. (1895), an M.S. from the University of Wisconsin, Madison, Wis. (1898) and a Ph.D. from Cornell university, Ithaca, N.Y. (1900). He began teaching in the public schools in 1895. He was appointed professor of education at the University of Illinois in 1908 and at Teachers college, Columbia university, 1917, retiring from the latter institution as professor emeritus in 1940. A member of the "essentialist" movement, founded in 1938, Dr. Bagley and his followers championed the cause of sound orthodox education as opposed to progressive education theories. He was president of the National Society for the Study of Education, 1911-12, a member of the National Education association and editor of its journal, 1920-25, president of the National Council of Education, 1931-37 and editor of the weekly *School and Society*, 1939.

Among his works are *The Educative Process* (1905), *Classroom Management* (1907), *Craftsmanship in Teaching* (1911), *School Discipline* (1915), *Determinism in Education* (1925), *Education, Crime and Social Progress* (1931), *Education and Emergent Man* (1934) and *A Century of the Univer-*

sal School (1937). He was co-author with Charles A. Beard of several history books. Bagley died in New York city on July 1.

Bahamas. An archipelago of about 3,000 islands, islets (or cays) and rocks, east of Florida and north of Cuba, extending about 800 mi. in length, lying between 21° and 27° north latitude and 72° and 79° west longitude. The islands are organized politically as a British crown colony and are considered as part of the western group of British West Indies. The capital and only city of importance is Nassau (pop., 1945 est., 20,000). Area: 4,403.5 sq.mi.; pop. (1943 census): 68,846, of whom 29,391 were on the island of New Providence. Racial distribution is about 87% Negro and 13% white, chiefly of British origin. The constitution of the crown colony (granted in 1728) provides for a legislative council of 9 crown-appointed members, a house of assembly of 29 elected members from 15 districts, and a crown-appointed governor aided by an executive council of not more than 9 members. Governor in 1946: William L. Murphy.

History.—Problems of peacetime reconversion and political reorganization affected the Bahamas during 1946. The colonial government and private organizations were concerned with a revival of the considerable prewar tourist trade and took an important part in the intercolonial discussions looking toward that end. Bahaman representatives participated in the Caribbean tourist conference held at New York city, Sept. 30-Oct. 8, 1946. The Bahamas were less interested than other British West Indian colonies in the possibilities of colonial federation in that area, a policy being actively pushed by officials in Great Britain. The house of assembly voted on July 23 to extend the secret ballot, previously restricted to New Providence, to the Out Islands; the step had long been urged.

Education.—Primary education is compulsory. At the beginning of 1944 the islands had 66 nonsectarian government schools with an enrolment of 8,580, 51 aided schools with an enrolment of 2,441, and 54 denominational and private schools with an enrolment of 3,550. The total government contribution to education in 1943 was £38,819. The government in 1946 was considering plans for a new high school for Nassau.

Finance.—The monetary unit is the pound sterling, linked to the pound in London. Revised 1945 budget figures set expenditures at £700,000 and revenues at £580,035, with an estimated surplus at the beginning of 1946 of £618,052. Budgetary prospects were for a heavy treasury deficit in 1946, however, leading Gov. Murphy strongly to urge a broader economic base for the islands. The debt in 1944 was £245,000. Bahaman farm labourers in the United States continued to remit a portion of their earnings to the islands in 1946 but the amount was considerably less than in previous years.

Trade and Communication.—The year 1946 continued to reflect the normally unfavourable trade balance characteristic of the Bahamas. Principal exports are straw and shellwork, vegetables and fruits, and fibres; the chief imports are manufactured articles and foodstuffs. The highly successful tourist season in 1945-46 helped materially to compensate for the adverse balance of trade. Dominion sales dropped considerably with the departure of several thousand British troops previously stationed in the colony.

The Bahamas have no railroads and only an inadequate highway system, the latter almost entirely on New Providence island. Daily plane service is maintained between Nassau and Miami, Florida, by Pan American Airways and the islands are also served by British West Indian Airways.

Agriculture.—Tomato raising was easily the most profitable farming activity in 1946. Some 350 small farmers concerned chiefly with tomato culture formed an association in the early

part of the year, with a pledge of government assistance in providing seed, fertilizer and crates. The tomato industry is dominated by five large growers whose holdings total 1,700 ac. Some optimism was felt during the year over the possible further recovery of the sponge-fishing industry, devastated by disease in 1938-39.

Mining.—Bahamans were greatly interested in 1946 in the possibility of development of petroleum resources. The first oil well drilling ever undertaken in the islands began April 24, after an investment of about \$1,000,000. A Bahaman subsidiary of Standard Oil of New Jersey announced in mid-year that it would employ radar to search for oil beneath the ocean floor off the Bahamas, and by Aug. 28, seven companies were reported preparing to begin drilling operations. Surveys concentrated in the area around Southern Andros, the westernmost island, although the total ocean-floor area potentially involved was 44,000 sq.mi. Plans were announced late in 1946 for the sinking of a deep marine well near Grand Bahama, beginning early in 1947.

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Bahrein Islands: see BRITISH EMPIRE.

Baird, John Logie (1888-1946), British inventor, was born Aug. 13, in Helensburgh, Scotland. For his early career see *Encyclopædia Britannica*. A pioneer in transmission of images by wire and radio, Baird successfully synchronized televised images and conversation over telegraph wires between London and Glasgow in 1927. A year later, he televised images from London to Hartsdale, N.Y. Mr. Baird, who was a director of his own company, was also consulting technical adviser to Cable and Wireless, Ltd., 1941-46. He died at his home in Bexhill, Sussex, on June 14.

Baker, Ray Stannard ("DAVID GRAYSON") (1870-1946), U.S. author and journalist, was born on April 17 in Lansing, Mich. After graduating from Michigan State college in 1889 with a B.S. degree he began the study of law at the University of Michigan, but relinquished it in favour of literary studies. In 1894 as a newspaper reporter his coverage of the march of Coxey's army brought him commendation and the subeditorship of the *Chicago Record*. He was managing editor of S. S. McClure's syndicate (1897-98), the associate editor of *McClure's* magazine (1899-1905), and one of the editors of the *American* magazine (1906-15). A liberal reform writer, he wrote many books on various subjects and achieved fame as an essayist under the pseudonym of David Grayson. In 1918 he was special commissioner of the state department to Great Britain, France and Italy, and in 1919 served with the American Peace commission under Pres. Woodrow Wilson. Closely associated with Wilson, he became during this time director of the Press bureau of the American Commission to Negotiate Peace and held this post until the president's death. The authorized biographer of Wilson, and an eloquent spokesman for the League of Nations, Baker published the first two volumes of his monumental biography, *Woodrow Wilson—Life and Letters*, in 1927. The seventh and eighth (final) volumes appeared in 1939 and in 1940 he was awarded the Pulitzer prize in biography for these volumes. Under his own name he had published *Seen in Germany* (1901), *Following the Color Line* (1908), *The Spiritual Unrest* (1910), *Woodrow Wilson and World Settlement*, a history of the peace conference, 3 vols. (1922) and with Prof. W. E. Dodd edited *The Public Papers of Woodrow Wilson*, 6 vols. (1925-26). His autobiography, *Native American; The Book of My Youth*, was published in 1941. Under the pseudonym of David Grayson there appeared *Adventures in*

Contentment (1907), *Adventures in Friendship* (1910), *The Friendly Road* (1913), *Hempfield* (1915), *Great Possessions* (1917), *Adventures in Solitude* (1931), *The Countryman's Year* (1936) and *Under My Elm* (1942). He died at Amherst, Mass., on July 12.

Baker Island: see PACIFIC ISLANDS, U.S.

Balch, Emily Greene (1867-), U.S. economist, was born Jan. 8 at Jamaica Plain, Mass. After graduation from Bryn Mawr with an A.B. degree in 1889, she studied political economy in Paris, at the University of Chicago and in Berlin. A member of the Wellesley college faculty from 1896 to 1918, she taught economics and was later professor of political economy and political and social science. At the start of World War I, she went overseas and served in army hospitals. Her outspoken views on pacifism were said to have resulted in her dismissal from the Wellesley staff. Miss Balch later entered wholeheartedly into the work of women's peace organizations and after serving as delegate to the International Congress of Women at The Hague, became international secretary of the Women's International League for Peace and Freedom at Geneva, Switzerland (1919-22). She became its honorary international president in 1936. Miss Balch was awarded the Nobel peace prize, Nov. 14, 1946. The peace prize, offered for the first time after the outbreak of war in 1939, was shared by Miss Balch and Dr. John R. Mott, U.S. evangelist.

Ballet: see DANCE.

Ballroom Dancing: see DANCE.

Baltic States: see ESTONIA; LATVIA; LITHUANIA.

Baltimore. The metropolis of Maryland, and seventh largest city in the United States. The population according to the federal census of 1940 was 859,100; white, 692,705; non-white, 166,395 (19.4%), mainly Negro. The bureau of the census estimated the civilian population as of July 1945 at 930,000. Land area, 78.72 sq.mi.; water area, 13.21 sq.mi. The mayor in 1946, whose term would expire in 1947 was Theodore R. McKeldin, Republican. Budget appropriations for 1947 totalled \$71,184,383, an increase of 12.5% over the 1946 budget. The city tax rate for 1947 was \$2.96 per \$100 of assessed valuation (state rate, additional 10 cents). The gross funded debt as of Nov. 30, 1946, was \$164,460,000; the net debt was \$124,317,915 (not including income accrued to sinking funds). Percentage of net debt to taxable basis (excluding self-supporting debt) was 4.05%; taxable basis, \$1,860,568,314.

There were 78,889 white students and 35,638 Negro students, ranging from pre-kindergarten through teachers college, enrolled during the school year 1945-46; total, 114,527. The actual enrolment on Sept. 30, 1946, was 71,770 white students and 33,953 Negro students; total 105,723. Dr. William H. Lemmel was superintendent of public instruction in 1946. The department of education is administered as a unit apart from the school system of the rest of the state.

Baltimore's economy was not seriously affected by reconversion after World War II. At the close of 1946 approximately 190,000 persons were employed in manufacturing activities. Leading industries included production of iron and steel, apparel, chemicals, aircraft, electrical goods, distilled liquors, automobile assembly, shipbuilding and ship repairing. Plant investment of \$65,000,000 during 1946 was exceeded only in 1941. Building permits totalled \$60,146,286, an increase of 305% over 1945. Total entrances and clearances of foreign trade shipping were 4,077 vessels of 16,016,945 net registered tons, exceeding

the previous year's tonnage by 41%. While shipments of coal and grain were heavy in the aggregate, the port's prewar general exports were revived, and steel and ores began moving in volume. On June 30, 1946, resources of Baltimore's banks totalled \$1,535,682,678, representing slightly more than 71% of the bank resources of all Maryland. (J. S. A.)

Bananas: *see* FRUIT.

Bankers Association, American: *see* SOCIETIES AND ASSOCIATIONS.

Bank for International Settlements.

The 16th annual meeting of the Bank for International Settlements was held on May 27, 1946, at Basle, Switzerland. The balance sheet and the profit and loss account, covering the fiscal year ending March 31, 1946, were approved. Unlike the previous year, when a profit of 4,429,562 Swiss gold francs was made, the fiscal year 1945 saw a net loss of 616,581 Swiss gold francs which was chiefly the result of the great reduction in income from the bank's funds invested in Germany. The deficit was met by transfer from a special suspense account set up in 1945, when this contingency was foreseen. The balance sheet of the bank of March 31, 1946, showed assets amounting to 451,357,502 Swiss gold francs, as against 458,725,324 Swiss gold francs on March 31, 1945. Gold in bars and coins and other cash amounted to 133,861,079 Swiss gold francs or 29.6% of total assets; long-term deposits were 228,909,375 Swiss gold francs or 50.7% of total liabilities. Short-term and sight deposits in gold and various currencies amounted to 21,697,692 Swiss gold francs, or less than 4% of total liabilities. The bank was capitalized at 500,000,000 Swiss gold francs of which 25% or 125,000,000 Swiss gold francs were paid up.

The annual report of President Thomas H. McKittrick discussed price and cost movements in the return to a peacetime economy, the change in the direction of European foreign trade, the dangers of inflation and the fear of a coming postwar depression. It examined the maintenance of price and wage controls and their relation to rationing and subsidies, and came to the conclusion that these measures have very definite limitations, and that a freezing of prices tends to hinder rather than help economic progress. It pointed out that price control needs a high standard of administrative ability and that the task of administrators has become more difficult in the postwar era since the general public no longer has a definite objective like winning the war.

The report points to the progress made since termination of hostilities in the settlement of lend-lease obligations and the provision of foreign resources through payments agreements and international loans, and notes that transition to peacetime activities proceeded more smoothly than was expected, although various bottlenecks, especially due to the lack of food and raw materials, notably coal, appeared.

Numerous important changes in the staff of the Bank for International Settlements took place in 1946, the most notable among them the resignation of Camille Gutt from the board of directors in order to accept the position as managing director of the International Monetary fund, and the resignation of Thomas H. McKittrick from the post of president of the bank to join the Chase National Bank of New York. (B. F. H.)

Bankhead, John Hollis, Jr. (1872-1946), U.S. politician, was born on July 8 in Lamar, Ala. His father, John Hollis Bankhead, had been a senator before him, and his brother, William Bankhead, had been a speaker of the house of representatives. John Bankhead

was graduated from the University of Alabama, University, Ala., in 1891 and received his law degree at Georgetown university, Washington, D.C., in 1893. After leaving school he practiced law in his home state, becoming head of a prosperous legal firm which specialized in handling corporation work. In 1903 he served in the state legislature and authored the Alabama election law, which set up barriers to prevent Negroes in the state from voting. After the death of his father in 1920 John Bankhead entered Alabama politics, and in 1931 he was elected senator from the state. His fitness for the post, however, was challenged by Thomas Heflin, who charged that Bankhead was a tool of the power interests. Bankhead's election, however, was confirmed by the senate. While he was one of the staunchest supporters of the Roosevelt administration, Bankhead disapproved of the Wagner-Costigan lynching bill designed to make lynching a federal offense. He actively supported the Farm Tenancy bill, authored the Cotton Control act (adopted in 1934 and repealed two years later) and opposed price ceilings on cotton. While attending a session of the Senate Banking and Currency committee, he suffered a stroke and died at Bethesda, Md., on June 12.

Banking. Outstanding banking developments in the United States during 1946 centred about the treasury's debt retirement program and a revival of loan demand. Retirement of called or matured marketable government securities from war loan balances built up in the Victory Loan drive brought about the first decrease in total earning assets of commercial banks and total deposits since before World War II. Private deposits, however, continued to increase. There was a vigorous demand for commercial and industrial loans, consumer credit, and urban and rural mortgage loans at banks.

Net profits of commercial banks during the first half of 1946 were somewhat greater than in the same period of 1945. For all member banks the ratio of net profits on an annual basis to total capital accounts was 11.1%, virtually the same as in the first half of 1945. Current earnings were higher. Although total earning assets declined, the average yield on holdings of United States government securities was higher because of lengthened maturities, and earnings on loans increased substantially. All major items of expense, particularly salaries and wages, continued to rise.

On March 1, 1946, the treasury began a program of debt retirement which continued through the rest of the year, not out of a surplus of tax receipts over expenditures, but from the large treasury cash balance built up during the Victory Loan drive in Dec. 1945. Between Feb. 28 and Dec. 18 the treasury retired \$23,300,000,000 of called or matured marketable government securities. Correspondingly treasury war loan balances with commercial banks throughout the country were reduced from \$24,400,000,000 to \$2,200,000,000, or by \$22,200,000,000. In the same period the total public debt was reduced by \$20,500,000,000; the difference between this figure and the retirement of marketable issues being accounted for chiefly by an increase in nonmarketable obligations. In gauging the effects of the debt retirement program, a distinction must be drawn between the immediate and subsequent impact on the money markets and among the various classes of holders of the retired securities. When commercial banks held the retired securities, holdings of government securities by commercial banks and their war loan deposits declined. When federal reserve banks held the retired securities, in the first instance, holdings of government securities by federal reserve banks, member bank reserve balances and war loan deposits in commercial banks declined. Commercial banks were forced to sell short-term government obligations in the market to the reserve banks in order to replenish their re-

serve balances. The ultimate effect of retirement of securities held by the reserve banks, therefore, was similar to that of retirement of securities held by commercial banks, in that holdings of government securities by commercial banks and war loan deposits declined. The adjustment of reserve positions by commercial banks necessitated by retirement of government obligations held by the reserve banks, however, was an important influence tightening the money market. When nonbank investors held the retired securities, war loan deposits declined but private deposits increased, leaving total deposits in commercial banks unchanged. Private deposits, however, were subject to reserve requirements, whereas war loan deposits were not, so that retirement of securities held by nonbank investors had the effect of increasing required reserves somewhat. The major portion of the retired securities was held by commercial banks and federal reserve banks, and the major effect of the debt retirement program upon ownership of government securities was to lessen the holdings of short-term securities by commercial banks.

The speculative demand for bonds which had characterized market developments during 1945 continued to drive bond prices to high premiums and push market rates of interest down through the first few months of 1946. In terms of monthly averages of daily figures, the yield on taxable government bonds of 7 to 9 years declined to 1.28% in March, the yield on taxable government bonds 15 years and over to 2.08% in April, the yield on high-grade municipal bonds to 1.45% in April and the yield on high-grade corporate bonds to 2.35% in March. Beginning with the initiation of the treasury's debt retirement program, there was a slight firming of short-term interest rates in the money market and bond yields. Rates on treasury bills were pegged by the federal reserve buying rate, however, and rates on certificates of indebtedness were supported by federal reserve purchases. The debt retirement program put pressure upon the banks' reserve positions, and the federal reserve preferential rate on loans secured by government obligations of one year maturity or less was discontinued. The federal reserve bank buying rates on acceptances were advanced. There were increases in open-market rates on bankers' acceptances, commercial paper and stock exchange call and time loans. A rise in the demand for real estate mortgage credits, some increase in state and municipal new security offerings, an expansion in consumer credit and business needs for funds provided alternatives to some extent to the purchase of government bonds. In December, the yield on taxable government bonds of 7 to 9 years was 1.56%, the yield on taxable government bonds 15 years and over was 2.24% and the yield on high-grade corporate bonds was 2.55%. Spreads between high-grade and lower-grade corporate bonds showed some tendency to widen.

The amount of corporate security issues for refunding offered during 1946 was less than in 1945 but greater than in other recent years. The elimination of the excess profits tax effective Jan. 1, 1946, and a narrowing margin between interest rates on new securities and on the refunded issues restrained refinancing activities. Corporate security flotations for new capital reached a much higher level in 1946 than in other recent years. There was a substantial demand for funds by business enterprises to finance reconversion and expansion. On the other hand, the stock market break in September adversely affected new security flotations. (See also BUSINESS REVIEW; CONSUMER CREDIT; LAW; PRICE ADMINISTRATION, OFFICE OF.)

Mutual Savings Banks.—On Dec. 23, 1946, there were 531 mutual savings banks and 151 branches in operation in the United States. Although one bank was absorbed by merger during the year, the number of savings bank offices increased through the opening of 13 branch offices, 6 of which were made possible by the 1945 and 1946 changes in the New York

law relating to branches for savings banks.

Savings deposits continued to grow at a substantial rate after V-J day, although less rapidly than in the previous year. In the year ended July 1, 1946, deposits increased \$1,846,557,661 or 12.8%, to a total of \$16,224,970,861. This compared with an increase of \$1,950,327,636, or 15.7% in the year ended July 1, 1945. Assets increased \$2,075,343,084 to a total of \$18,028,676,696; surplus increased \$200,898,801 to a total of \$1,740,773,069. The ratio of surplus to total deposits on July 1, 1946, was 10.7%, the same ratio as prevailed in the previous year. Accounts increased 710,441 or 4.2% to a total of 17,436,174, as compared with an increase of 622,998, or 3.9% in the year ended July 1, 1945.

During World War II and until the end of 1945, savings bank funds available for investment were chiefly invested in U.S. government securities. With the war loan drives over, other types of eligible bonds were increasingly bought. Bonds of the International Bank for Reconstruction and Development were made legal for purchase by savings banks in Delaware, Maryland and New York.

After World War II, savings banks vigorously attacked the problem of rebuilding their mortgage portfolios. In their drive for mortgage loans, the banks paid special attention to the so-called G.I., or veterans' loans provided for under the Servicemen's Readjustment act of 1944. Such loans are guaranteed up to \$4,000 by the Veterans' administration.

On Dec. 1, 1946, commitments by New York savings banks for the construction of savings bank-owned multiple, moderate rental housing totalled \$47,000,000. Actual construction was begun on Parkway village in Queens county, a development to house 687 families, for the use of the United Nations employees under a five-year rental contract with that organization. Other construction was delayed by unprecedentedly high building costs which made it difficult for the savings banks to construct investment housing subject to rent schedules that were socially and economically feasible.

Savings Bank Life Insurance.—In 1946 there was an increase of 13 in the number of savings banks selling savings bank life insurance, bringing the total to 234. Three new agency banks in Massachusetts and two in Connecticut and eight new issuing banks in New York account for the increase. On Aug. 31, 1946, in Massachusetts, there was \$290,546,994 of insurance in force representing 319,989 policies; in New York the insurance in force was \$81,590,303 representing 69,425 policies; in Connecticut, there was \$7,215,739 insurance in force representing 7,747 policies.

Canada.—On March 1 the minister of finance announced a reduction in the interest rate paid by the government on deposit certificates sold to the chartered banks from $\frac{3}{4}$ of 1% per annum to $\frac{5}{8}$ %. Deposit certificates are the type of security used by the government in borrowing directly from the chartered banks, and financing arrangements between the government and the chartered banks had been on the basis of paying an amount to the banks sufficient to cover their costs with only a reasonable margin for profit. It was also announced on March 1 that the chartered banks had agreed that their holdings of dominion government domestic bonds (including guaranteed issues) would not average more than 90% of the amount of their Canadian savings deposits and that their earnings on such dominion government bonds held for investment account should not exceed their operating costs on such savings deposits, including deposit interest and other expense, by more than a moderate profit margin for this type of banking business.

Demand deposits of the chartered banks declined during 1946, with time deposits showing a steady and substantial increase. Security loans declined, while holdings of securities rose. At the

end of August, the chartered banks had total deposits payable in Canada, excluding interbank deposits, of \$5,892,000,000.

Great Britain.—On March 1 the Bank of England began operations as a government institution. Provision was made with respect to the relationship between the treasury, the Bank of England and other banks. The treasury may give such directions to the bank as thought necessary in the public interest. The bank may request information from and make recommendations to commercial banks and, with authorization from the treasury, issue directions to give effect to any such request or recommendation.

The Borrowing (Control and Guarantees) act, 1946, provided for the regulation by the treasury of the borrowing of money and the issuance of securities. Amounts under £10,000 are excluded from regulation, as is borrowing from commercial banks. The treasury was also given power to guarantee any loan if it is satisfied that it is expedient in the public interest to do so for the purpose of facilitating the reconstruction or development of industry. The aggregate capital amount of the loans guaranteed in any one year shall not exceed £50,000,000.

Loans to customers of the London clearing banks rose during the year, as did security holdings. The increase in total deposits during 1946 was greater than the growth during 1945.

The trustee savings banks in Great Britain also had adjustments to make in 1945. In 1944, they reported that 67% of the prewar male staff was serving with his majesty's forces and that the greatly increased business was carried on with temporary and part-time staffs in banking quarters often inadequate for the volume of business done.

The increase in deposits continued after V-J day although, as in the case of savings deposits in the U.S., at a lower rate. Balances in the Ordinary department increased £77,542,273 in the year ended Nov. 20, 1945, to a total of £488,526,684 and in the ten months to Sept. 30, 1946, they increased £47,700,000. Restrictions on the acceptance of deposits in the Special Investment department, which invests funds for depositors in certain securities, in late years caused balances in this department to decline by £1,265,627 to £114,553,313 for the year ended Nov. 20, 1945. There was a further decrease of £2,180,000 in the ten months to Sept. 30, 1946.

Government stock held for depositors' accounts on Nov. 20, 1945, amounted to £71,736,297, an increase of £6,977,343 for the year. In the same period the number of active accounts in the Ordinary department increased by 174,229 to 3,860,459. The number of accounts in the Special Investment department decreased by 9,559 to 338,403, and the number of stockholders increased by 12,722 to a total of 239,318. On Nov. 20, 1945, there were 87 separate trustee savings banks with 770 offices, an increase of 29 offices over the previous year.

Legislation restricting to £2,000 the maximum deposit held by a depositor in the Ordinary department became effective as of Jan. 1, 1946. The only previously existing restriction was one limiting annual deposits to £500. (See also BANK FOR INTERNATIONAL SETTLEMENTS; BANK OF ENGLAND.)

(HE. BR.; J. K. L.)

Bank of England. The outstanding event of 1946 was the transfer of the bank to public ownership March 1. By the Bank of England act, 1946, the capital stock was transferred to a nominee of the treasury (the treasury solicitor), holders receiving in exchange an amount of 3% treasury stock sufficient to yield them the same annual income as they had received for more than 20 years in dividends on bank stock. The court of directors was henceforward to consist of a governor, a deputy governor and 16, in place of 24, directors, all appointed by the king, the first two for five years and the

directors for four years, and eligible for reappointment. Of the new court taking office on March 1 all but three directors had in fact held the same office in the last court elected under private ownership. In other respects also little change was made in the organization and functioning of the bank. It continued as a chartered corporation; and the additional charter granted after the passage of the act was of a purely formal character. In lieu

Bank of England, 1946

(£ million)

	Jan. 9	April 10	July 10	Oct. 9	Dec. 11
Issue Department:					
Notes in circulation	1,359	1,339	1,370	1,362	1,398
Fiduciary issue	1,400	1,400	1,400	1,400	1,450
Banking Department:					
Public deposits	12	15	7	10	15
Bankers' deposits	262	216	225	267	266
Other deposits	59	52	55	53	56
Government securities	284	183	248	280	258
Discounts and advances	11	40	10	11	27
Other securities	14	15	15	17	16
Reserve	42	62	32	39	52

of its customary dividend the bank was to pay an equivalent sum to the treasury. The court of directors were expressly left to manage the affairs of the bank, subject only to such directions as the treasury might think necessary in the public interest. No such directions might be given without prior consultation with the governor; and it was understood that they were intended to refer only to matters of policy on which the bank was always in close touch with the treasury and had at all times been prepared to bow to the decision of the government of the day. The nonpolitical character of the bank was emphasized by a new provision disqualifying from membership of the court of directors any member of the house of commons, any minister of the crown or anyone serving in a government department and paid out of public funds. At the same time new powers were conferred on the bank to request information from and make recommendations to bankers, and to issue directions, if so authorized by the treasury, for securing their compliance; but with safeguards protecting the affairs of any particular customer and the right of bankers to make representations. Here also there appeared to be a greater measure of formal control: but relations between the bank and bankers generally had been for many years of such a character that it was difficult to foresee the circumstances in which this formalization of the "moral leadership" of the bank would be likely to be put into force. Thus nationalization, although a fundamental change, preserves, if not strengthens, the independence of the bank as the financial adviser of the government, while underlining the latter's final responsibility for monetary policy.

During 1946 no other changes of note occurred in the organization or work of the Bank of England. Its condition at quarterly intervals during the year is shown in the table above, the principal feature being the comparative stability of the note circulation after steady increases from Sept. 1939. The maximum limit of the fiduciary issue, stable at £1,400,000,000 during most of the year, was raised to £1,450,000,000 on Dec. 10, 1946.

(H. Cy.)

Bankruptcy: see SECURITIES AND EXCHANGE COMMISSION.

Banks: see BANKING.

Bannerman, Helen (? -1946), British author, was born in Scotland. In 1899, while living in India, she wrote and illustrated the book, *The Story of Little Black Sambo*, that was destined to become a juvenile classic. Originally written for her children, this book was translated into many languages and delighted the children of many countries. Her other illustrated works, which were also set in India, never

reached the popularity of her first book. They include *Sambo and the Twins*, *Little Black Quibba*, *Little Black Quasha* and *The Story of the Teasing Monkey*. She died at Edinburgh, Scotland, on Oct. 13.

Bantock, Sir Granville (1868–1946), British composer, was born on Aug. 7 in London. For his early career see *Encyclopædia Britannica*. Professor of music at Birmingham university for 26 years, he retired in 1934 as professor emeritus. Sir Granville, one of England's leading composers and conductors, wrote numerous songs, choral works, operas and orchestral suites. Among them are the music for Sophocles' *Electra*, Euripides' *The Bacchae*, Aristophanes' *The Frogs*, Percy Bysshe Shelley's *Prometheus Unbound* and Edward Fitzgerald's *Omar Khayyam*; the opera *The Seal-Woman* and his last works, *Pagan Symphony* (1936) and *King Solomon* (1937), commemorating the coronation of King George VI. Sir Granville died on Oct. 16, according to a London report.

Baptist Church. Baptists became increasingly world-minded in 1946. Reports for the year were both disheartening and encouraging. Half of their 275 churches in Germany were ruined. Their seminary in Hamburg was burned, their Publication society's plant in Kassel, Germany, demolished; homes were destroyed, congregations scattered and poverty made payment of salaries prohibitive.

Baptists in Rumania, denied religious freedom by former Premier Ion Antonescu, with the fall of his government (1945), enjoyed rights of conscience.

In the Netherlands Baptists found themselves in 1946 a free people but faced with the necessity of rebuilding their church properties. Fortunately, state aid was expected to be received for this purpose.

In Norway the Baptists persecuted by the invading nazis reported that not one surrendered his faith. In Denmark, suffering similarly, they actually increased in numbers.

Italian Baptists also manifested a new spirit. Attendance at church services increased in 1946. Enjoying larger freedom than under Mussolini, yet, with other evangelicals, they met with police regulations circumscribing their efforts.

Swiss Baptists, neutral during World War II, at its close sent money and truck loads of food and clothing to the needy of other lands.

Statistics for the U.S.S.R. were not definite. Dr. Louie D. Newton, president of the Southern Baptist convention (U.S.), visiting the U.S.S.R. for 25 days in July and Aug. 1946, declared that Baptists there enjoyed religious freedom, numbered nearly 3,000,000, with about 2,500 ordained ministers. A Baptist periodical, the *Brethren Messenger*, started in 1946 and Bibles, hymnbooks and other religious works were printed.

British Baptists, having had more church buildings wrecked during the war than were demolished on the continent, financed their own program in 1946 besides raising a Victory Thanksgiving fund of approximately \$630,000—\$400,000 for local work and the balance for the continent.

In Czechoslovakia the seminary, closed during the war, reopened in 1946. Bohemian Baptists celebrated the centenary of Rev. Henry Novotny, born in Prague, July 12, 1846. He had founded the first Baptist church in Bohemia.

Australian Baptists were visited by Dr. M. E. Dodd, Shreveport, La., during Oct. 1946. Increases in membership followed his evangelistic meetings and large sums were raised for home missions.

Baptists of South Africa founded a Thanksgiving fund of more than \$60,000 for work on the frontiers.

Shanghai university, China, closed at the outbreak of war,

reopened Easter Sunday with 900 students.

The Northern convention (U.S.), with the largest delegation (5,000) in its 40 years' history, met in Grand Rapids, Mich., May 1946. Twenty-five missionaries were appointed to home fields, and about 75 to foreign. The World Mission Crusade for \$14,000,000 above the annual budget of \$5,000,000 was inaugurated.

The Southern convention at Miami, Fla., in May recorded 7,800 messengers. The \$3,500,000 they resolved to raise for European and Asiatic relief by Sept. 30 was oversubscribed by that date.

The executive committee of the Baptist World Alliance (Baptists of the World) meeting in Washington, D.C., May 1946, decided to hold the seventh congress in Copenhagen, Denmark, July 1947. (See also CHURCH MEMBERSHIP.) (R. E. E. H.)

Bar Association, American: see SOCIETIES AND ASSOCIATIONS.

Barbados. An island and British crown colony situated about 100 mi. east of the southern group of Lesser Antilles in the Caribbean sea. Area, 166 sq.mi.; pop. (1946 census), 192,610. The population density of about 1,160 per sq.mi. makes Barbados more densely populated than any other political unit in the world. The population is almost entirely Negro and agricultural. The capital and principal city is Bridgetown (est. pop. 14,000). The government is headed by a royally appointed governor, who is assisted by an executive council, a legislative council of 10 nominated members, and a house of assembly with 24 elected members. Governors in 1946: Sir H. Grattan Bushe, until Oct. 20; Sir Hilary Blood, following that date.

History.—Representatives of Barbados participated in the second Caribbean conference, meeting in the Virgin Islands of the United States in February and March. One of the problems considered which most affected Barbados was that of overpopulation and consequent unemployment in some of the insular possessions. Bridgetown was the scene of a conference of British West Indian labour officials, beginning April 29. Barbados was involved indirectly in plans for the union of the Leeward and Windward Islands colonies, which were actively promoted in 1946, inasmuch as functional amalgamation of services for that island, Trinidad and British Guiana was contemplated in the proposed plan.

Education.—Barbados had 126 elementary schools with an enrolment of 29,695. A teachers' conference, representing British Guiana and the various colonies in the British West Indies, was held in Barbados in Aug. 1946; the next such conference was scheduled for Jamaica in 1948. Preliminary plans were under discussion in 1946 for establishment of a teacher training college in Barbados.

Finance.—The monetary unit is the pound sterling, tied to the pound in London. The 1946–47 budget anticipated revenues of £1,288,820 and expenditures of £1,088,038, leaving a surplus of £200,782; other obligations pointed toward an actual probable deficit for the fiscal year of £4,194. Customs receipts and excise taxes, respectively, were estimated at £625,000 and £180,000. The gross treasury surplus for 1945–46 was £844,000 and the net surplus £710,000. Bridgetown was the location of the West Indian monetary conference, beginning May 13. Delegates were present from Barbados, Trinidad, British Guiana and the Windward and Leeward Islands, and observers from Jamaica and British Honduras. The conference recommended establishment of a dollar decimal currency, based on the West Indian dollar, for the five eastern colonies. It was also proposed to establish a Regional Currency board, with headquarters in Trini-

dad, composed of one commissioner from each of the five colonies; the board, recommended to begin operations Jan. 1, 1948, would have sole authority to control, issue, and redeem all currency and coins. The Barbadian share in possible surpluses or deficits of the board's operations would be 10%; other shares would be: Trinidad 55%; British Guiana 25%; Windward Islands 6%; Leeward Islands 4%.

Trade and Communications.—Rum exports in 1945 were 1,309,997 gal. (1944: 1,055,479 gal.), most of which went to Great Britain but some to Canada, Newfoundland, Puerto Rico, and the (U.S.) Virgin Islands.

The British West Indian Airways in 1946 began providing weekly plane service to Barbados.

Agriculture.—The estimate of sugar production in 1946 was 120,000 long tons from 40,000 ac. (1945: 119,448 tons from 37,000 ac.)

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(R. H. FN.)

Barium Minerals. The production of barite in the United States was as shown in the table. Production continued to rise in 1946, the first half exceeding that for the same period of 1945 by 4%, but consumption declined 6%. Decreased demand for drilling mud was not fully offset by increases in other uses.

U.S. Production of Barite, 1939-45

(in thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Production, crude . . .	365.9	390.5	483.4	449.9	429.3	515.1	692.3
Sales, crude . . .	383.6	409.4	503.2	429.5	420.3	518.6	696.1
Imports . . .	11.6	7.4	0.5	4.7	—	67.9	56.9
Consumption . . .	391.7	404.3	490.8	449.4	453.7	595.6	720.9
Used for							
Chemicals . . .	58.0	66.6	93.0	104.2	99.1	100.9	99.2
Lithopone . . .	141.6	136.9	154.0	144.8	129.5	134.6	139.3
Ground barite . . .	192.1	200.9	243.8	200.4	225.2	360.0	482.4
Well drilling . . .	125.6	138.1	154.8	117.4	144.5	277.8	407.9

Canada increased in barite output from 338 tons in 1940 to 118,719 tons in 1944 and 140,198 tons in 1945, mostly in Nova Scotia.

Production figures for Germany during the years of World War II, released in 1946 by the military government authorities, show a decline from a high of 530,000 short tons in 1938, as export markets were closed, and a settling down to a fairly uniform figure of 370,000-380,000 tons for home consumption during 1940-44.

(G. A. Ro.)

Barley. The 1946 barley crop in the United States was estimated by the U.S. department of agriculture at 263,350,000 bu., 3% smaller than the 266,833,000 bu. harvested in 1945 and 12% below the ten-year average of 1935-44 of 289,598,000 bu. The acreage was only 10,061,000 ac. compared with the ten-year average of 12,550,000 ac. The average yield was 25.1 bu. per acre compared with the ten-year average of 22.8 bu. Although the crop was the smallest after 1937, the quality was high. About 49% of the crop was produced in the north central

U.S. Barley Production by Leading States, 1946 and 1945

State	1946 bu.	1945 bu.	State	1946 bu.	1945 bu.
North Dakota . . .	46,600,000	52,532,000	New York . . .	3,648,000	2,550,000
California . . .	46,066,000	41,608,000	Arizona . . .	2,975,000	2,652,000
South Dakota . . .	30,294,000	31,826,000	Texas . . .	2,610,000	3,596,000
Minnesota . . .	21,257,000	12,963,000	Virginia . . .	2,272,000	1,836,000
Montana . . .	18,000,000	14,784,000	Maryland . . .	2,174,000	1,885,000
Colorado . . .	13,936,000	22,544,000	Oklahoma . . .	1,820,000	2,960,000
Nebraska . . .	11,529,000	13,420,000	Tennessee . . .	1,640,000	1,764,000
Oregon . . .	9,452,000	7,582,000	Kentucky . . .	1,250,000	1,238,000
Idaho . . .	9,345,000	11,359,000	North Carolina . . .	865,000	880,000
Michigan . . .	5,037,000	3,658,000	Illinois . . .	858,000	775,000
Kansas . . .	5,022,000	7,086,000	Missouri . . .	840,000	925,000
Utah . . .	4,860,000	5,850,000	Nevada . . .	680,000	640,000
Wisconsin . . .	4,650,000	3,600,000	Indiana . . .	648,000	1,056,000
Wyoming . . .	3,990,000	3,720,000	New Mexico . . .	600,000	612,000
Washington . . .	3,975,000	4,375,000	South Carolina . . .	546,000	441,000
Pennsylvania . . .	3,942,000	3,570,000	Ohio . . .	502,000	690,000



BARLEY SAMPLES held by Alden Kolb of Cleveland, Wis., which won him the \$500 sweepstakes prize at the Wisconsin state fair in Milwaukee and the title of champion barley grower of Wisconsin for 1946

states where conditions were ideal in 1946 and much of the crop was of the high malting quality. The yield was 30 bu. per acre in California, compared with 20 bu. in North Dakota and 22.5 bu. in South Dakota. The highest yields were reported for Utah, 44 bu. per ac., and Washington 39 bu. The goal of 13,000,000 ac. to produce a crop of about 264,000,000 bu. was proposed for 1946 by the department of agriculture in order to provide feed for livestock. About 90,000,000 bu. was expected to be used for brewing. The price of barley was steady at \$1.02 to \$1.09 per bushel from Jan. 1945 to Jan. 1946, then began to advance reaching \$1.35 in October and \$1.36 in December.

(J. C. Ms.)

Bartlett, Robert Abram (1875-1946), U.S. explorer, was born on Aug. 15 at Brigus, Newfoundland. He studied at Methodist college, St. Johns, and after graduation shipped aboard a trading vessel. At the age of 22, he shipped to the Arctic with Robert Edwin Peary in the "Windward," then commanded by Samuel Bartlett, Robert Bartlett's uncle. Peary later made the younger Bartlett captain of the "Roosevelt," the first ship ever built in the United States for Arctic exploration. He was in command of the "Roosevelt" during Peary's unsuccessful attempt to reach the pole in 1905-06, and again in 1908-09 when on April 6 Peary and five companions reached their goal. He was in command of the "Karluk," flagship of the Stefansson expedition which sailed through the Bering straits, 1913-14, and was caught in an ice jam 15 miles off the mouth of the Colville river. Bartlett and his crew made their way over the ice to Wrangel island. There he left 15 members of his crew, while he and an Eskimo guide crossed to Siberia in search of a rescue party. They returned nine months later to Wrangel island and in Sept. 1915 finally reached Nome, Alaska, with 13 survivors. Bartlett subsequently

engaged in a number of exploratory voyages, and during World War I he was a marine superintendent of the army transport service. He also piloted the Stoll-McCracken expedition to the Aleutians, 1928, and the Greenland Northeast Coast expedition, 1930. He and Commander Donald B. MacMillan received the Peary Polar Expedition medal in 1945. Captain Bartlett died in New York city on April 28.

Baruch, Bernard Mannes (1870—), U.S. financier and government official, was born Aug. 19 in Camden, S.C. After attending City college of New York, he entered the field of finance, and by 1912 he was said to have amassed a fortune estimated variously between \$12,000,000 and \$15,000,000. During World War I he headed the War Industries board and was given what amounted to complete authority over U.S. war production. After the war he went to the Versailles conference as economic adviser to President Woodrow Wilson. Later he returned to private business and resumed his operations in Wall street.

After the outbreak of World War II, Baruch returned to the government as adviser on industrial production to the personal staff of James Byrnes (then Office of War Mobilization director). Appointed by President Harry S. Truman as U.S. delegate to the United Nations atomic energy commission (March 18, 1946), Baruch submitted three months later (June 14) the U.S. proposal for international control of atomic energy. After much wrangling, the commission approved (Dec. 26) by a 10-0 vote (with the soviet union abstaining) the nonpolitical sections of an atomic control report that was largely made up of principles embodied in the original Baruch plan. Baruch resigned from the commission, Jan. 4, 1947, with the statement that he was convinced that the first phase of the struggle to achieve effective world control of atomic energy had been won.

Basalt: see STONE.

Baseball. Freed from wartime restrictions for the first time after Pearl Harbor day, organized baseball in the United States made 1946 the greatest year of renaissance in the long history of the national game.

Nearly 53,000,000 spectators paid to watch the season's contests in the 2 major leagues and the 42 minor leagues, a figure that more than doubled the previous combined high total, which was compiled from the 1945 major and the 1939 minor attendance figures. No comparison could be drawn between the 1946 and the 1945 season in the minor leagues, since only 12 of the latter survived the wartime suspension.

The year's extraordinary figures do not include the unusually large patronage of a great number of pre-season exhibition games. With the major league clubs—and big minors—permitted for the first time in three years to seek southern climes for their spring training activities (the New York Yankees, for instance, going as far afield as the Panama Canal Zone) the appearance of star players in these non-big league sections after a three-year lapse proved a tremendous magnet for the fans.

As an example of this spectator-hunger, the Yankees, on their long exhibition tour, which began in Balboa and ended in Brooklyn with a three-game series against the Dodgers, drew 316,846 paid admissions—far above any other club's training game attendance.

The Yankees, exploited to the full by the dynamic Colonel Larry MacPhail, set the pace in every attendance respect. At the Yankee stadium they drew 2,262,512 paid, the first time in major league annals that the 2,000,000 mark had been reached

or exceeded, while on the road they played to 2,309,029 paid—another all time record.

Five clubs in each major loop—New York, Detroit, Boston, Cleveland and Washington in the American and Brooklyn, Chicago, New York, St. Louis and Philadelphia in the National—each drew more than 1,000,000 paid admissions.

In the National league St. Louis, with its world champion Cardinals, and Philadelphia, with its rejuvenated Phillies, passed the 1,000,000 mark for the first time in the history of the ball parks in which they operate.

The approximate attendance in the minor leagues, with some clubs failing to report, was 33,000,000, the previous high being 18,500,000 in the baseball centennial year of 1939. In the minor leagues, 43 clubs opened the season and 42 completed their schedules, the Mexican National league withdrawing late in May.

At the close of the season 46 minor leagues were lined up for the following year, with several more in the process of organization.

A comparison of the major league attendances for 1944-46 may be found in Table I.

Table I.—Major League Attendance Figures, 1946, 1945 and 1944

AMERICAN LEAGUE			
	1946	1945	1944
New York	2,262,512	881,845	789,995
Detroit	1,722,590	1,280,341	923,176
Boston	1,416,944	603,794	506,975
Cleveland	1,057,289	558,182	475,272
Washington	1,027,216	652,660	525,235
Chicago	983,403	657,981	563,539
Philadelphia	621,793	462,631	505,322
St. Louis	526,435	482,986	508,644
Total	9,621,182	5,580,420	4,798,158
NATIONAL LEAGUE			
	1946	1945	1944
Brooklyn	1,796,155	1,064,668	618,198
Chicago	1,342,970	1,037,026	640,110
New York	1,234,733	1,038,195	733,598
St. Louis	1,063,203	594,207	486,851
Philadelphia	1,045,245	310,389	367,417
Boston	987,109	410,146	245,197
Pittsburgh	759,117	623,398	653,912
Cincinnati	717,751	294,790	431,297
Total	8,946,283	5,372,819	4,176,580
Grand Total	18,567,465*	10,953,239	8,974,738

*Gain of approximately 41% over 1945 attendance total.

The Mexican Invasion.—Early in 1946 the Pasquel brothers, of Mexico, began offering fabulous salaries to star players to jump to the Mexican National league. With a fortune of some \$60,000,000 and allegedly backed by another \$50,000,000, the Pasquels, headed by Jorge, dynamic director of all family enterprises, made rapid inroads on organized baseball.

Most outstanding U.S. players who succumbed to the Mexican golden lure were Vernon Stephens of the St. Louis Browns, Max Lanier, Fred Martin and Lou Klein of the Cardinals, and Mickey Owen and Luis Olmo of the Dodgers, but there were at least two dozen lesser luminaries who also made the jump.

Stephens, star shortstop, recanted and returned to the Browns before the major league season opened on April 16, which was the deadline set by Commissioner Albert B. Chandler for a player to escape being barred. Stephens had signed for five years with the Mexican loop.

Owen, however, who had wavered twice about making the move and finally made it on April 12, suddenly fled Mexico in midsummer. In the United States Owen voiced charges of ill-treatment, including threats of bodily injury, bad food and broken promises. Mickey later appealed to the commissioner for reinstatement but eventually was banned from U.S. organized baseball for five years.

On May 4, in St. Louis, Pete Reiser, star young outfielder of the Dodgers and Stanley Rojek, rookie shortstop, revealed

they had rejected offers from the Mexican league and on May 6 Federal Judge Rubey M. Hulen issued a temporary restraining order enjoining Bernardo Pasquel from "unlawfully interfering" with the Dodgers by persuading Brooklyn players to break their contracts.

On May 3 the New York Yankees had obtained an order from Justice Benjamin F. Schreiber, of the state supreme court, restraining "agents of the Mexican league and a New York sports writer from attempting to induce any Yankee player to repudiate his signed contract." The writer, Rud Rennie, of the *New York Herald Tribune*, later was eliminated from any charges by Justice Julius Miller when the justice granted a temporary injunction.

The Dodger suit was dismissed by Judge Hulen on May 31 and a temporary injunction granted the New York Giants by Justice William Hecht on May 12 was being held in abeyance as the year ended.

On May 17 the Pasquels and their league, through Attorney Jerome Hess, in New York supreme court, brought a counter action, charging U.S. player contracts were "monopolistic, inequitable, unconscionable and against the public policy" and that players who signed them were held "in peonage for life."

Yankee lawyers, including Louis Carroll, National league counsel, were denied a motion before Justice Carroll B. Walter in late November to "strike out these affirmative defenses." But Judge Walter voiced the opinion that "some restraints" on players are necessary and indicated the contracts were neither monopolistic nor illegal.

The Yankee case was set for trial on Jan. 27 of 1947, but was expected to be delayed another month or two by appeals on other questions affecting the action.

Jorge Pasquel filed suit in Springfield, Mo., against Owen, who had signed his Mexican contract in St. Louis, for \$127,500, the amount encompassing breach of contract and monies paid the Dodger catcher for which he did not render service.

An interlude in the whole Mexican affair was a visit to the Pasquel brothers in Mexico City in June by Samuel Breadon, president-owner of the St. Louis Cardinals, one of the chief victims of the Mexican so-called player raids. Breadon returned praising the Pasquels via the press. One result of this was a \$5,000 fine against Breadon by Commissioner Chandler because the St. Louis club owner failed to report personally on his visit. The fine later was rescinded after Breadon talked with the commissioner.

Baseball Union.—Already harassed by the Mexican invasion the major leaguers were posed another problem when, on April 16 in Boston, Robert Murphy, lawyer and former Harvard athlete, registered the American Baseball guild as a labour organization in Suffolk county.

At the same time Murphy announced his guild had "substantial memberships" in the majors and that several "big name" players were working as organizers.

Murphy, former National Labor Relations board examiner, outlined his program as seeking freedom of contract, players to receive part of purchase price when sold, salary and other disputes to be settled by collective bargaining, and provisions made for security, insurance, bonuses and other matters. Said Murphy then:

"Organized baseball no longer can rule with the iron hand of an absolute dictator. Now it must deal with organized baseball players in the form of the American Baseball guild. The guild's purpose is to right the injustices of professional baseball and to give a square deal to the players, the men who make possible big dividends and high salaries for stockholders and club executives."

The guild moves followed rapidly, with the "crisis" coming in Pittsburgh in early June after Murphy had notified the management of the Pirates that an "overwhelming majority" of

their players were union members and wished to discuss collective bargaining.

The first showdown came on the night of June 5 when a night game with the Dodgers at Forbes field was delayed while Pirate players deliberated striking because the management had not agreed to a collective bargaining election. Finally they voted unanimously to play the game but against playing the following Friday unless their point had been gained.

But on that Friday, June 7, the Pirates voted 20 to 16 in a secret meeting that lasted two hours and five minutes not to strike. Then Murphy filed charges that the Pirate management had formed a "company union" to break the strike, which on June 11 were ordered dismissed by the NLRB.

The Pennsylvania Labor Relations board on Aug. 7 ordered an election held Aug. 20 and on that date the Pirates rejected the guild in baseball's first collective bargaining election by a 15-3 vote.

Players Win Concessions.—Although major league owners had breathed a sigh of relief at the guild rejection in Pittsburgh, their ensuing actions showed an awareness of players' rights which had been only slightly recognized before the twin advent of the guild and the Mexican invasion.

On July 18 in Chicago, at a joint meeting of major league committee members, it was voted in what was termed "a precedent-shattering move" to give major league players a voice in the drafting of a new uniform players' contract.

Players promptly named various men to confer with league executives, these player committees later being whittled down to Fred (Dixie) Walker of the Dodgers and Johnny Murphy of the Yankees as authorized negotiators for players in both leagues.

The players did not win any revision or elimination of the much-discussed ten-day clause—they did not seek any revision on the reserve clause—but they won a minimum salary of \$4,500 for any player retained on a major league club after the "cutting down" date, one month after the season opens. They were given \$25 a week for personal expenses during spring training when they are not on salary.

They can not be given a salary cut if sent to a minor league club in mid-season. If traded or sold to another club during the season the player will be allowed moving expenses up to \$500. If a player has been twice claimed on waivers and recalled the claiming club will get him on the third call. Nor can any club seek waivers on more than seven players at one time.

The owners co-operated on the player pension plan by agreeing to pay \$250 per man into the fund and to give the money from world series broadcasts and net proceeds of All Star games to the fund. The pension idea is that within five years after the plan actually becomes operative any major league player with ten years of service at the age of 45 may collect \$100 a month, with proportionately smaller pensions for fewer seasons of play.

Since the major leagues announced they could account for only \$395,000 of the fund, the pension plan faced the new year with the problem unsolved. A total of \$675,000 annually would be required to make the fund solvent, thus the financial angle appeared to present a baffling problem.

Ownership, Personnel Changes.—Two major league clubs found new owners during the year, these shifts, incidentally, bringing the radio and movie stars, Bob Hope and Bing Crosby, officially into the major league picture. Bill Veeck, former minor league operator at Milwaukee and son of the former head of the Chicago Cubs, bought the Cleveland American league franchise, with Hope as one of several associates.

Frank McKinney, former owner of the Indianapolis American association club, in a group including Crosby, purchased the

Pittsburgh National league club from the Dreyfuss family, which had owned the club when the franchise originally was at Louisville, Ky. In neither case was the cash consideration revealed.

McKinney dropped Frank Frisch as Pirate manager and, at the close of the season, named Billy Herman, former Cub, Dodger and Brave infielder, to succeed the Fordham Flash. McKinney named Roy Hamey, American association president, as his general manager, which in turn resulted in Frank Lane, Kansas City business manager, becoming the A.A. head.

George M. Trautman left his post as general manager of the Detroit Tigers to become president of the National Association of Professional Baseball Leagues (the minors) when Judge William G. Bramham retired from active duty because of ill health. Bramham was named for life as consultant to the president at an annual \$10,000 salary.

Bramham's secretary, L. H. Addington, and his promotional director, Arthur Ehlers, also resigned, the latter joining the Philadelphia Athletics as farm director.

Managerial changes came to three American league clubs and two in the National loop. Herold (Muddy) Ruel quit as special aide to Commissioner Chandler to take over the Browns; Ted Lyons, veteran pitcher, replaced Jimmy Dykes as pilot of the Chicago White Sox; Stanley (Bucky) Harris became the manager of the Yankees; Johnny Neun succeeded Bill McKechnie with the Cincinnati Reds and Herman took over the Pirates.

Joseph Vincent McCarthy, who directed the Yankees so successfully for two decades, found himself not seeing eye to eye with his new boss, MacPhail, and resigned on May 24. Bill Dickey, star catcher and Yankee veteran, was named to succeed McCarthy, but Dickey, too, resigned on Sept. 13, Neun taking over the job only until the close of the season. On Oct. 1 Neun became manager of the Reds and on Nov. 5 Harris, who had joined the Yankees Sept. 9 as a front office executive, succumbed to MacPhail's urging and accepted the post as Yankee field manager for 1947. Another interim manager was Zack Taylor, who, when Sewell resigned on Aug. 31, piloted the Browns until the season's end, when Ruel was named as the 1947 leader.

Billy Evans, former sports writer and American league umpire, returned to the major leagues as general manager of Detroit after he had been permitted to dissolve a five-year contract as president of the Southern association minor loop.

The Pennant Races.—Joe Cronin's Boston Red Sox, reinforced by the return from the services of such stars as Ted Williams, Bobby Doerr, Johnny Pesky and Tex Hughson, made themselves hard to catch from opening day. Two weeks from the start the Sox were two games in the lead and were one and a half games in front on May 5.

But that was the lowest point of the campaign. The next day they moved three games in front by winning a doubleheader from the Browns and never lost their margin. After the All Star game interim they moved from a seven and one-half game advantage to the point where they clinched the pennant on Friday, Sept. 13, with a 1-0 victory in Cleveland.

Williams won the game with a home run inside the big Municipal stadium when, with the entire Indian defense shifted far to the right, he sliced a drive into left field and rounded the bases before the ball could be retrieved.

The National league race was different, the pennant winner not being decided until the first post-season play-off in the older league's history had been held. The St. Louis Cardinals emerged the champions, beating the Brooklyn Dodgers in two straight games of a scheduled three-game play-off series. They took the first game in St. Louis, 4-2, behind the eight-hit pitching of Howie Pollet, then went to Brooklyn and two days later, Oct. 3,

downed the Dodgers, 8-4. Manager Leo Durocher used five pitchers in the first encounter and six in the final in a desperate effort to avert defeat.

These two teams had finished on the final day of the season, Sunday, Sept. 29, in an exact tie, each having won 96 and lost 58 games. Both lost on this date, Mort Cooper, former Cardinal ace, blanking the Brooks for the Boston Braves, 4-0, on four hits while the Chicago Cubs were pounding five of Manager Eddie Dyer's pitchers for an 8-3 triumph, with southpaw Johnny Schmitz the winning pitcher.

The Dodgers and Cards were indicated as the chief contenders early in the race. Each lost the opening game, then won seven straight. The Cards moved ahead by splitting a doubleheader while the Dodgers lost two and thereafter the contenders were never far apart until the Dodgers moved into a seven and one-half game lead on July 2.

The Brooks moved into the west on July 11 and by the time they had finished in Chicago and St. Louis a five-game lead had been dissipated to a game and a half. The Cards were a half game in front on July 18, then the two teams ranged from a tie to another slight lead for Brooklyn until another tie in late August held for four straight days.

St. Louis went ahead at the end of the month by winning three straight from New York while the Dodgers were losing two to the Cubs and stayed there until they went into another tie on Sept. 27, with the Cubs beating the Cards while Brooklyn was idle. Both won on the penultimate day to carry the dead-lock to the finish.

Two no-hit games were turned in, one by each league. Ed Head, Louisiana youth, originally a left-hander but who became a right-handed pitcher because of a series of accidents to his left arm, pitched the first one in Brooklyn on Tuesday, April 23, against the Braves, the Dodgers winning for him, 5-0.

Bobby Feller, the Cleveland fireball artist, duplicated the feat seven days later in New York's Yankee stadium when he held the Bronx Bombers hitless and the Indians won for him by the slim margin of 1-0. It was Feller's second no-hitter, as he had held the White Sox hitless on opening day in 1940.

Feller, incidentally, added to a brilliant season's record by striking out 348 batsmen, breaking a mark set by Rube Waddell, Athletics, in 1904. He also appeared in 48 games, pitched 371 innings and 36 complete games, all tops for his league. He tied Hal Newhouser, Detroit, with 26 triumphs, hurled 2 one-hitters, 2 three-hitters, 4 four-hitters and 10 shutouts.

The final standings of the clubs in the two league races follow:

AMERICAN LEAGUE

Final Standings

Club	Bost.	Det.	N.Y.	Wash.	Chi.	Clev.	St. L.	Phila.	Won	Lost	Pct.
Boston	—	15	14	16	13	15	14	17	104	50	.675
Detroit	7	—	13	12	12	17	14	17	92	62	.597
New York . . .	8	9	—	14	14	12	14	16	87	67	.565
Washington . .	6	10	8	—	12	15	9	16	76	78	.494
Chicago	9	10	8	10	—	13	12	12	74	80	.481
Cleveland . . .	7	5	10	7	9	—	15	15	68	86	.442
St. Louis	8	8	8	13	10	7	—	12	66	88	.429
Philadelphia . .	5	5	6	6	10	7	10	—	49	105	.318

NATIONAL LEAGUE

Final Standings

Club	St. L.	Bkn.	Chi.	Bost.	Phila.	Cin.	Pitts.	N.Y.	Won	Lost	Pct.
St. Louis* . . .	—	16	14	15	14	14	13	12	98	58	.628
Brooklyn* . . .	8	—	11	17	17	14	14	15	96	60	.615
Chicago	8	11	—	9	12	13	12	17	82	71	.536
Boston	7	5	12	—	14	15	15	13	81	72	.529
Philadelphia . .	8	5	10	8	—	14	14	10	69	85	.448
Cincinnati . . .	8	8	9	7	8	—	13	14	67	87	.435
Pittsburgh . . .	9	8	10	7	8	9	—	12	63	91	.409
New York	10	7	5	9	12	8	10	—	61	93	.396

*Includes play-off after close of regular season.

All Star Game.—This contest, only inter-league mid-season game, was played in Fenway park, Boston, July 9, and won by



Above: **FAST DOUBLE PLAY** in the 1946 World Series. The play was on an infield roller, fielded by the third baseman, and relayed to second and to first base. In the picture above, St. Louis Cardinals' second baseman Red Schoendienst, having forced Boston Red Sox runner Johnny Pesky and loosed the throw to first base, is about to be bumped by Pesky

Left: **SCHOENDIENST**, leapfrogging Pesky, rides his shoulders momentarily before coming down head first



Below: **AT FIRST BASE**, Stan Musial of the Cardinals is about to receive the throw from second, retiring the batter, Red Sox Dom DiMaggio, and completing the double play. The action occurred during the sixth game of the series at St. Louis, Oct. 13



the American league by the decisive score of 12-0, worst beating the National had taken in losing 9 of 13 played. Feller, Newhouser and Jack Kramer, the latter of St. Louis, combined to hurl the shutout, Feller allowing two hits, Newhouser one and Kramer none in three innings each. Charley Keller, Yankees, hit one home run off Claude Passeau, Cubs, while Ted Williams hit a pair, one off Kirby Higbe, Dodgers, and the other off the Pirate pitcher Rip Sewell's famous "blooper ball."

The World Series.—Getting into baseball's headline event for the first time in 28 years the Boston Red Sox, under Manager Joe Cronin, lost it to the St. Louis Cardinals, led by their freshman pilot, Eddie Dyer, in the limit of seven games. Six times in nine series since 1926 the Red Birds won top honours, thrice coming from behind to win the sixth and seventh contests, winning five times after dropping the opener, and going into a class by themselves by triumphing four times in a limit-game series.

Thus the Cardinals contributed largely to reducing American league superiority, the junior loop having won 26 of 43 Blue ribbon battles from the series' inception in 1903 when a Boston Red Sox team became the first world champions.

The Red Sox of 1946, pronounced favourites in the betting, never were behind until the final game, the Cards moving up to tie the series three times and stay in the running.

Scores of the seven games, the first two in Sportsman's park, St. Louis, the next three in Fenway park, Boston, and the final pair again in St. Louis, were: Red Sox 3, Cards 2 (10 innings); Cards 3, Red Sox 0; Red Sox 4, Cards 0; Cards 12, Red Sox 3; Red Sox 6, Cards 3; Cards 4, Red Sox 1; and Cards 4, Red Sox 3.

Harry (The Cat) Brecheen, by winning three games (the final one in relief), tied a record that had stood from 1920 and also became the first lefthanded hurler in series history to attain that distinction. Brecheen was the gilt-edged hero of the whole affair.

Rudy York, big Alabama first baseman, won the first game for the Sox when, in the tenth inning with two out and none on base, he hammered a home run into the left field bleachers. His victim was Howard Pollet, southpaw, who went the distance under the severe handicap of torn back muscles and with his torso wound in tape. Earl Johnson, holding the Cards scoreless in the last two innings after the starter, Tex Hughson, had retired for a pinch hitter, was credited with the victory.

The Sox scored first in the second inning when York was hit by a pitched ball, Bobby Doerr walked and Pinky Higgins, Sox third baseman, lined a scoring single to right centre. The Cards first tied it in the sixth when Red Schoendienst scratched a single off Doerr's glove, advanced on Terry Moore's infield out and rode home on Stan Musial's solid double off the right field wall.

St. Louis went ahead in the eighth after two were out. Whitey Kurowski lined a single to left and scored when Joe Garagiola's fly to centre was lost in the sun by Dom Di Maggio and went for a double. Garagiola was out trying to reach third before Kurowski crossed the plate but Umpire Lee Ballanfant ruled that Higgins had obstructed Whitey as he was rounding third base and allowed the run.

The Sox tied it again in the ninth. With one out, Higgins scratched a bounding hit over Martin Marion's head and two of three pinch hitters came through. Glen Russell singled to centre, Roy Partee fanned, and Tom McBride slashed a single to left for the run.

Brecheen turned in a well-nigh perfect pitching performance to even the series the next day, shutting out the Red Sox on four singles, which came in the first, fourth, fifth and ninth innings. The Cards assailed Mickey Harris, Boston southpaw, for one run in the third inning on Del Rice's double to left and Brecheen's single to right, then added two more in the fifth,

both unearned because of a wild throw by Higgins. Singles by Rice and Moore, plus Higgins' misplay, produced the tallies.

The third game, on Oct. 9 in Boston, brought a classic job by Dave (Boo) Ferriss, sophomore star right-hander, as he blanked the Cards on six hits. York again was the big gun, clinching the game in the first inning with a three-run homer off little Murry Dickson, Card righthander. Johnny Pesky had singled, Ted Williams had been purposely passed with two out, and the count was three-and-two on Rudy when he connected. Rudy singled in the eighth off Ted Wilks and scored the fourth run on a fumble by Schoendienst after Doerr had crashed a double off the left field wall.

Back came the Cards in the fourth meeting to pound six pitchers for 20 hits (which tied a 20-year-old record), good for a dozen runs, while George Munger, an army lieutenant as late as August, was able to hold the Sox to only three runs on nine hits. One of the blows was a home run by Doerr, which came with two out and Di Maggio aboard via Marion's error.

There was no change in the see-saw pattern the next day, the Sox winning again behind the excellent pitching of big Joe Dobson, who allowed only four hits and no earned runs—although the Cards scored three times. Pollet essayed another start but didn't survive the first inning, and Alpha Brazle, redheaded southpaw who relieved Howie, allowed five of the six Sox tallies and was charged with the loss. Leon Culberson's first homer of the series was one of the seven hits off Brazle and came in the sixth with none on base. Two of three runs scored in the seventh resulted from a wild throw by Marion.

After a one-day lapse for travelling back to St. Louis the crucial sixth game ran its successful Cardinal course with Brecheen's seven-hit southpawing evening the series for the last time. Cronin sent Harris back for a second start but Mickey was knocked out in the third inning on five hits, one a two-bagger by Schoendienst. These blows brought three runs and the Cards got another in the eighth off Johnson on a long double by Marion that scored Harry Walker all the way from first base, where he had arrived on a force play. The Sox broke through Brecheen's mastery only once, and again it was the dangerous York. Rudy opened the seventh with a triple off the centre field wall, on which the great Moore barely missed a sensational catch—and scored on Doerr's long fly to Walker.

The seventh and deciding game saw Dickson starting once more and the Red Sox getting away to a one-run lead in the first inning on singles by Wally Moses and Pesky and Di Maggio's scoring fly to Enos Slaughter. Whitey Kurowski's double to left centre, an infield out and Walker's scoring liner to Williams put Dickson back on even terms with Ferriss.

In the fifth Walker's single, Dickson's double and two more singles by Schoendienst and Moore put the Cards two runs ahead and drove Ferriss away to be replaced by Dobson. Dickson faltered in the eighth when Russell's pinch single and George Metkovich's pinch double came with none out and Dyer brought Brecheen in to put out the fire. The Cat did nobly by fanning Wally Moses and getting Pesky on a short fly to Slaughter but Di Maggio crashed a double off the right field wall to tie the score at 3-3.

Brecheen disposed of Williams (later to be voted "the flop of the series") on a pop fly and the Cards came up for their winning eighth, an inning which made heroes of Slaughter, Walker and Brecheen and a "goat" of Pesky. Slaughter opened on Bob Klinger, Cronin's third pitcher of the game, with a line single to centre. Kurowski tried to sacrifice and popped to Klinger, while Rice made the second out by flying short to Williams. Then Walker sent a line drive to left centre and the speedy Slaughter set sail for pay dirt.

Culberson, playing centre field because of Di Maggio's injury,

fielded the ball cleanly enough and relayed it to Pesky, out on the grass in short centre field. Johnny assumed Slaughter would not attempt to score but the daring Enos never hesitated, rounding third base at full speed. Pesky made two motions to throw, in his confusion, then his throw to Partee at the plate was too late—and that was the game and series.

Brecheen had to pitch out of trouble in the ninth, as York and Doerr opened on him with singles. But Higgins' attempted sacrifice forced Doerr, York going to third, Partee fouled to Musial and McBride, a first-game hero, grounded to Schoendienst, who tossed to Marion for the force-out that ended everything.

Because of the small capacity of both ball parks the players' pool was rather low, the individual winning shares being only \$3,742.33 and the loser's \$2,059.99. The total was reduced further when the \$175,000 paid for the radio broadcast rights was voted into the major league pension fund.

Individual Achievements.—Outfielders won the third award of the Kenesaw Mountain Landis Memorial trophies for 1946. Through the votes of two 24-man committees of the Baseball Writers association of America, Ted Williams, of the Boston Red Sox, and Stan Musial, of the St. Louis Cardinals, were selected as the most valuable players in their respective leagues.

Williams had close competition from Hal Newhouser, Detroit southpaw who won the 1944 and 1945 awards, having 224 points to Hal's 197. Bobby Doerr and his keystone teammate, Johnny Pesky, drew 158 and 141 votes, respectively; Mickey Vernon, Washington first baseman, 134, and Bobby Feller, Cleveland pitching ace, 105.

But Musial was far ahead of his field in the National league, drawing 319 points, as compared with 159 for Dixie Walker, Brooklyn, his closest competitor. Enos Slaughter's total was 144 and his Cardinal teammate, Howie Pollett, polled 116 points. Musial drew 22 first place votes, Slaughter drawing 2 as the only other player to be picked first.

Williams won only nine first place votes, while Doerr was next with five. Six other American leaguers drew from one to three first place ballots, an unusual distribution.

President Leo MacDonell, of the *Detroit Times*, was chairman of selection committees, which were made up of three Association members from each major league city, this number, of course, being increased to six in those cities that house a club in both leagues.

Musial was the older league's batting champion for 1946 with a mark of .365, while Mickey Vernon, Washington, won similar

honours in the American league with a .353 average. Hank Greenberg, Detroit veteran, who once came closest to Babe Ruth's record, was the major home run king with 44. Williams was runner-up with 38 home run blows.

Ralph Kiner, Pittsburgh rookie outfielder, hit 23 homers to lead the National, followed by Big John Mize, New York, with 22. Enos Slaughter drove in 130 runs to top both leagues and Greenberg was second with 127.

Pitching honours in the National went to Pollet, of the Cardinals, whose earned run average of 2.10 was tops. His staff mate, Murry Dickson, led in winning percentage with .714, winning 15 and losing only 6. In the American league Hal Newhouser's e.r.a. of 1.94 gave him that leadership for the second straight year, while Dave Ferriss, Red Sox, was the percentage leader with 25 and 6 for a mark of .806.

The permanent Hall of Fame committee early in April added the following to the Cooperstown, N.Y., roll: Frank Chance, Jack Chesbro, Ed Delehanty, Hugh Duffy, Johnny Evers, Clark Griffith, Thomas F. McCarthy, Joe Tinker, Rube Waddell, Ed Walsh and Iron Man Joe McGinnity. The committee also instituted a roll of honour for the hall, on which the names of a score or more of other players were inscribed.

The Minor Leagues.—Judge William G. Bramham, retiring head of the minors, in his valedictory at the Los Angeles meetings Dec. 5, warned against gambling in baseball. Specifically, Bramham cited the case of one player being barred for life, another under investigation and, "in another case a whole club roster is involved." Commissioner A. B. Chandler, at first saying it wasn't his job to "police the minors," later said he would "move in" to clean up the situation.

A new major-minor agreement was drafted (the majors also met in Los Angeles), with the minors gaining some concessions and revisions, notably the creation of a new class of "bonus players." This would presumably deter major league clubs from paying large cash amounts to free agents to sign with them, since the status of such players would remain fixed.

No such player could be optioned to a minor league club—a necessary move in a rookie's development into major league calibre—without first having waivers asked, which could not be withdrawn, and the player always would be subject to unrestricted draft.

In the minors' pennant races 21 clubs that finished first in the season race also won the play-off. All in the three triple-A leagues—Louisville in the American association, Montreal in the International and San Francisco in the Pacific Coast league, were double winners. So, too, was Atlanta in the Southern association and Scranton in the Eastern league. One club in Class B, Charlotte in the Tri-State loop, won both, while there were eight Class C and seven Class D clubs who were double winners.

(Ro. McG.)

Table II.—League Leaders

First Five in Each League

BATTING

National League					
	G	AB	R	H	Pct.
Musial, St. Louis	156	624	124	228	.365
Mize, New York	101	377	70	127	.337
Hopp, Boston	129	443	73	148	.334
F. Walker, Brooklyn	150	576	80	184	.319
Ennis, Philadelphia	141	540	69	169	.313
American League					
	G	AB	R	H	Pct.
Vernon, Washington	148	587	90	207	.353
Williams, Boston	150	514	142	176	.342
Pesky, Boston	153	621	115	208	.335
Kell, Detroit	131	520	67	168	.323
D. Di Maggio, Boston	142	534	85	169	.317

HOME RUNS

National League		American League	
Kiner, Pittsburgh	23	Greenberg, Detroit	44
Mize, New York	22	Williams, Boston	38
Slaughter, St. Louis	18	Keller, New York	30
Ennis, Philadelphia	17	Seerey, Cleveland	26
Northey, Philadelphia	16	J. Di Maggio, New York	25
Musial, St. Louis	16		

RUNS BATTED IN

National League		American League	
Slaughter, St. Louis	130	Greenberg, Detroit	127
Mize, New York	116	Williams, Boston	123
Musial, St. Louis	102	York, Boston	119
Kurawski, St. Louis	89	Doerr, Boston	117
Cavarretta, Chicago	81	Keller, New York	101

Basketball. Oklahoma A. and M. once again dominated the collegiate basketball scenes during the 1945-46 season, retaining the National Collegiate Athletic association championship with a 43-40 victory over North Carolina in the tournament final at New York. Oklahoma A. and M., led by seven-foot Robert Kurkland, won 31 games and lost 2. Only Kentucky, winner of the national invitation tourney and victorious in 28 out of 30 games, presented a challenge to Oklahoma A. and M. Kentucky captured the invitation title with a 46-45 victory over Rhode Island in the final.

In keeping with the general increase in sports attendance, basketball drew record crowds in all sectors of the nation. College double headers and tournaments at Madison Square Garden, New York, attracted 628,718, while the Ohio State v. Northwestern attraction at the Chicago stadium drew a record



PLAYER OF THE OSHKOSH ALL-STARS professional basketball team about to attempt a shot at the basket after eluding a player of the American Gears team in a game at Chicago stadium on April 3, 1946

collegiate crowd of 22,822 fans.

Dartmouth won its eighth title in nine years by regaining first place in the Eastern league with seven victories and one defeat. New York university and St. John's divided honours in the Metropolitan conference. Both Louisiana State and Kentucky wound up undefeated in the Southeastern league, but Kentucky won the tournament championship. Duke won the Southern conference tournament, although outranked by North Carolina in the standings.

Ohio State won the Western conference title, defeating Northwestern, 53 to 46, in the season finale which drew the record single crowd. Notre Dame (17-4) and DePaul (19-5) experienced excellent seasons in the middle west. Kansas won the Big Six conference with a record of 10 victories and no defeats. Oklahoma A. and M. won the Missouri Valley conference with an unblemished record in 12 league games.

Baylor topped the southwest with 11 victories and 1 defeat in conference play, while Wyoming won the Big Seven title. The University of Idaho won its first title after 1923 in taking the Pacific coast championship.

Individual scoring honours for 1945-46 were chiefly garnered by Kurkland, who set an all-time scoring record in major competition with 58 points against St. Louis university. The Oklahoma A. and M. centre scored 643 points during the season, third highest on record and first among major college players. George Mikan, six-foot, nine-inch centre from DePaul, proved the standout of the midwest, setting a career-total of 1,870 points, two more than any other player in the modern history of major college basketball.

Phillips "66" of Bartlesville, Okla., outlasted a field of 64 teams to win its fourth straight American Athletic union championship. The Oilers stopped the San Diego, Calif., Dons in the final, 45 to 34. The Nashville, Tenn., Goldblumes, who won the

title in 1944 and 1945 under a different sponsorship, emerged as women's A.A.U. champion with a 26-20 final victory over Des Moines, Ia.

On the professional front, Bobby McDermott's Fort Wayne, Ind., Zollners wound up with the world championship with their triumph in the professional tournament at Chicago. The Rochester, N.Y., Royals won the National league title, while the Baltimore, Md., Bullets topped the American league.

During the late summer a new professional league, the Basketball Association of America, organized on a 12-team basis. As a result, there were more than 30 major professional teams operating in three leagues at the close of 1946.

The College All-Stars defeated Fort Wayne, 56 to 53, in overtime to start the 1946-47 season.

FILMS.—Ball Handling in Basketball; Defensive Footwork in Basketball; Shooting in Basketball. (Encyclopædia Britannica Films Inc.) (M. P. W.)

Basutoland: see BRITISH SOUTH AFRICAN PROTECTORATES.

Battleships: see NAVIES OF THE WORLD.

Bauxite. World production data on bauxite, as shown in Table I, were revised for nearly all of the important producing countries, and give the most reliable figures available for 1939-45.

Table I.—World Production of Bauxite

	1939	1940	1941	1942	1943	1944	1945
(Thousands of short tons)							
Br. Guiana	533.1	699.4	1,169.5	1,340.1	2,115.4	1,023.1	736.1
France	880*	538.0	647.5	705.0	1,010.1	733.7	220*
Gold Coast . . . . .	...	...	16.4	49.3	179.3	118.9	132*
Greece	206.0	55*	55*	55*	27*	11*	?
Hungary	534.6	770*	794.0	1,145.0	1,102.3	992.0	?
Italy	533.5	584*	598.4	561.6	330*	110*	2.8
Neth. Indies	254.3	302.4	189.4	300*	660*	300*	?
Surinam	564.0	679.4	1,321.0	1,353.1	1,824.5	689.8	754.0
U.S.S.R.	300*	330*	275*	300*	385*	440*	440*
United States	420.3	491.9	1,049.5	2,914.3	6,980.8	3,162.6	1,099.1
Yugoslavia	350.4	319.7	255.1	264.5	220*	165*	?
Total	4,576.2	4,769.8*	6,370.8*	7,334.8*	14,834.4*	7,746.1*	3,384.0*

*A number lacking a decimal is an estimate.

War demand necessitated increased supplies of bauxite, not only for aluminum, but also for other uses, especially abrasives and chemicals. The largest increases were made in British Guiana, Hungary, Surinam and the United States. Total output increased nearly fourfold. Of the peak output of 1943, the United States produced 45%, as compared with 12% in 1937 and 9% in 1939.

United States.—The peak of demand for bauxite brought out about 8,000,000 tons of U.S. production in 1943, with a drop of more than half in each of the succeeding 2 years, as demand settled back toward normal levels. Small as was the 1945 output as compared with 1943, it was three times greater than the prewar output, and nearly double the top figure attained during World War I. The salient features of the bauxite industry in the United States are outlined in Table II.

Table II.—Data of Bauxite Industry in the U.S., 1939-45

	1939	1940	1941	1942	1943	1944	1945
(Thousands of short tons)							
Mine production	?	571	1,215	3,381	8,157	3,721	1,284
Dried equivalent	?	492	1,050	2,914	6,981	3,163	1,099
Shipments, crude	420	568	1,162	3,224	7,896	3,677	1,511
Dried equivalent	420	490	1,005	2,777	6,733	3,125	1,295
Imports } Dried	510	705	1,251	990	1,734	628	826
Exports } Dried	101	135	245	292	467	164	175
Consumption } equivalent	?	1,074	2,056	3,403	7,796	3,409	1,863

Although production was slow in building up in the early years of World War II, and supply did not catch up with demand until 1943, the program as a whole more than fulfilled requirements, as not only were current demands met, but at the end of 1945 surplus stocks were in excess of 4,000,000 tons, not counting the amount that had been used in making similar emergency stocks of aluminum. (G. A. Ro.)

Beans, Dry. The 1946 United States crop of dry beans was estimated by the U.S. department of agriculture at 15,797,000 bags of 100 lb. each. This compares with a crop of 13,038,000 bags in 1945 and a ten-year average of 16,408,000 bags in 1935-44. The acreage for harvest in 1946 was 1,629,000 ac., slightly above 1945 and below the ten-year average of 1,879,000 ac. The yield in 1946 was large, 977 lb. per acre compared with 881 lb. in 1945 and a ten-year average of 873 lb. The Michigan crop was better than in 1945 but below average for that state. California had a smaller crop than in 1945 and much below the average. Idaho harvested a crop above the average and New York also had an above-average crop.

U.S. Production of Dry Beans in Leading States, 1946 and 1945
(In 100-lb. bags)

State	1946	1945	State	1946	1945
Michigan . . .	3,841,000	2,977,000	New York . . .	1,428,000	714,000
California . . .	3,587,000	3,559,000	Wyoming . . .	1,305,000	1,075,000
Idaho . . .	2,142,000	1,725,000	Nebraska . . .	992,000	730,000
Colorado . . .	1,618,000	1,572,000	Montana . . .	322,000	234,000

Prices of beans were supported at 90% of parity during the first half of the year. In August the average farm price was \$6.63 per 100 lb. which was about the same as a year earlier, by September the price advanced to \$8.49 and in December to a top of \$12.70 per bushel. Of the 1945 crop more than 10,000,000 bags were exported under lend-lease and U.N.R.R.A. while civilians consumed only 1,275,000 bags.

(J. C. Ms.)

Bechuanaland Protectorate: see BRITISH SOUTH AFRICAN PROTECTORATES.

Beef: see MEAT.

Beekeeping. The honey crop of 1946 in the United States declined 10% from 1945 to 209,058,000 lb. compared with 233,070,000 lb. produced in 1945 and an average of about 150,000,000 lb.

The reduced crop in 1946 was due to lower yields per colony of bees, 36.4 lb. in 1946, 42.7 in 1945 and an average of 41.7 lb. in 1940-44. The number of colonies was estimated at 5,787,000 in 1946 which was 6% more than the 5,460,000 colonies reported in 1945. While the yield in the west, south and Atlantic states was larger than a year before, reductions in the central west brought down the total crop. The leading honey producing states were California, 23,511,000 lb.; Minnesota, 20,332,000 lb.; Florida, 15,280,000 lb.; Iowa, 14,336,000 lb.; Texas, 10,920,000 lb.; Ohio, 9,856,000 lb. and Indiana 9,000,000 lb. Wisconsin had a crop of only 7,420,000 lb. compared with 14,140,000 lb. in 1945. The yield per colony was highest in

Nebraska at 108 lb. Florida followed with 80 lb. In California the yield per colony increased from 34 lb. in 1945 to 51 lb. in 1946. Stocks of honey were about 10% smaller than a year earlier in the early fall. Honey prices were decontrolled on Sept. 27 and advanced promptly.

(J. C. Ms.)

Beer: see BREWING AND BEER.

Beery, Noah, Sr. (1884-1946), U.S. actor, was born on Jan. 17 in Kansas City, Mo. He became a newsboy in Kansas City, sold candy in a local theatre and then became an actor. Melodrama was his forte but his success was only moderate and he went to Los Angeles, Calif., where he picked up an occasional job on the sets of the silent movies. His huge physique and his ability to twist his face into ferocious scowls made him suitable for "heavy" roles and soon he won recognition as a top-flight villain in the old time "tear-jerkers." He specialized in portrayals of brutal, fiendish louts and cinema audiences throughout the country trembled as he beat his wife or tortured helpless children. Beery went to Broadway in late 1944 and played the part of Boss Tweed in Michael Todd's production of *Up in Central Park*. He died in Hollywood on April 1.

Belgian Colonial Empire. The Belgian colonial empire consists of the colony of Congo in central Africa and the adjacent mandated territories of Ruanda and Urundi. The accompanying table gives material relative to all the territories administered by Belgium (q.v.). Total area: 923,270 sq.mi.; pop. (est. Jan. 1, 1946): 14,336,000 of whom 33,787 were whites (23,506 Belgians). Chief towns with their white pop. only (est. Jan. 1, 1946): Léopoldville (cap. 5,385), Elisabethville (5,244), Stanleyville (1,271). Governor general 1946: Pierre Ryckmans.

History.—The great problem which faced the Belgian Congo in 1946 lay in the transition from a wartime administration to a peacetime one. For more than four years the colony strained hard to produce the various raw materials of which the Allies were in urgent need. This was not accomplished without a profound upheaval in the economic and social fields. It was thus that to compensate for the loss of Malaya and the East Indies the unprofitable production of wild rubber increased from 419 short tons in 1942 to 10,560 in 1944, and the output of tin which had been 1,994 tons in 1938 reached 11,925 in 1943. As for the number of natives employed as workmen, it went on mounting at the expense of the rural communities. Whereas in 1934 there were about 338,000, in 1944 there were many more than

Belgian Colonial Empire

Country and Area sq.mi. (approx.)	Population (000s omitted) (Est. Jan. 1, 1946)	Capital, Status, Governors, Premiers, etc.	Principal Products 1945* (approx. only)	Imports and Exports, (1943) (Francs '000)	Road, Rail	Revenue and Expenditure*
Belgian Congo 902,040	Native: 10,459 White 31	Léopoldville, colony. Governor General: Pierre Ryckmans	Diamonds (mainly industrial) 7,567,000 carats (In short tons) Copper 186,376 Tin ingots 7,503 Zinc 30,618 Manganese 11,119 Uranium ore 10,964 Unrefined gold 12 Palm oil 85,733 Palm kernels 98,103 Rubber 8,788 Gum copal (1943) 17,637 Cotton (1944) 56,000 Cement 2,315 Jute substitutes (1943) 8,818 Coffee (1942) 36,376 Tea 24 Sugar (1943) 15,983	Imp. 2,289,475 (519,973 short tons) Exp. 4,609,725 (683,608 short tons) Exp. (1944) 4,621,000 (Not converted to U.S. currency as no rate of exchange during occupation year in Belgium).	Roads open to traffic (Jan. 1, 1943) 55,307 mi.; under construction 976 mi. Railways (Jan. 1, 1943) 3,053 mi.	1941 Revenue Ordinary \$20,804,724 Extraordinary \$ 2,004,123 \$22,808,824 Expenditure Ordinary \$20,182,162 Extraordinary (incl. war) \$39,314,847 \$59,497,009
Ruanda and Urundi, 21,230	Native: 3,386 White: 2	Nianza (Ruanda), Kitega (Urundi), mandated territory united administratively with the Belgian Congo		1943 Imp. 136,766 (7,009 short tons)	Roads open to traffic† 4,148 mi.	United administratively with the Belgian Congo

*Including Ruanda-Urundi.

†From Belgian Congo Directory 1943; figures apparently for 1942 though this is not explicitly stated for roads.

691,000. The disposition, too, of the native working-class suffered a change causing them to assert their claims with ever-greater insistence. On various occasions local disturbances broke out. On April 6, 1946, a regulation came into force establishing native trade councils and local committees of native workmen. Four days later the government gave the natives the right to form unions and declare strikes. As a result, official unions were created and in May 1946 Henri Pauwels laid the foundations of Christian trade unionism in the Congo. The colonial ministry, for its part, took a lively interest in the living conditions of the natives and in the means for co-ordinating efforts directed towards social betterment. It sent a mission to the Congo with the task of studying on the spot current problems and particularly conditions as they affect the development of native women.

As far as the colonist element itself was concerned, a commission composed of delegates from all parts of the Congo met in Brussels during July and Aug. 1946. It put forward a vast scheme affecting land, revenue and social administrative development, with the object of encouraging Belgian emigration to the colony. It was expected that in 1947 the government would begin to carry out this scheme.

In Oct. 1946 undenominational education was inaugurated in the Congo under official patronage. Three cultural institutes were set up—Léopoldville, Elisabethville and Costermansville. This very costly innovation met with a bad reception in Catholic circles which were in favour of a religious education such as had always been provided by the missions.

The outstanding political event of the year 1946 was the announcement of the departure of the governor general, Pierre Ryckmans. On July 5, 1946, at Léopoldville, Ryckmans delivered an important speech, regarded as his political testament. "Africa has reached a turning-point in her destiny," he said; "the days of colonial aggrandizement are past; the great days of colonial development lie ahead." On Dec. 31 Eugène Jungers, former governor of Ruanda-Urundi, was appointed successor to Ryckmans.

(G-H. D.)

Belgian Congo: *see* BELGIAN COLONIAL EMPIRE.

Belgium. A kingdom of western Europe. Area: 11,775 sq.mi.; pop. (May 31, 1946): 8,355,232. Chief towns (pop. 1945): Brussels (cap., 1,282,438); Antwerp (767,619); Liège (534,725); Ghent (435,278); Hasselt (207,907); Mons (247,812); Namur (209,080); Bruges (197,431). Languages: Dutch, French and German; religion: Christian (mainly Roman Catholic). Ruler: King Leopold III, Prince Charles (*q.v.*) regent. Prime minister: Camille Huysmans (appointed Aug. 17, 1946).

History.—On Jan. 9, 1946, Achille van Acker announced the dissolution of the legislature, declaring that "differences of opinion concerning essential aspects of my policy had become manifest in the innermost circles of the government." The electoral campaign was very short and took place without any noteworthy incident. On Feb. 17, 2,724,796 voters went to the polls, the right to vote having been taken away from 322,000 Belgians accused of want of patriotism. The results for the chamber of representatives were as follows:

	Christian-Socialists	Liberals	Socialists	Communists	Democratic Union
Number of votes:	1,006,293	211,143	746,738	300,099	51,095
Seats	92	17	69	23	1

Owing to the laws governing the composition of the upper house, the Christian-Socialist majority was more impressive in the senate than in the chamber: out of 167 seats, the Christian-Socialist party won 83. According to the rules of parliamentary practice, the regent entrusted Auguste de Schrijver with the

formation of a government; but the leader of the Christian-Socialist party failed before the solid front presented by the Socialists and Communists. Prince Charles then turned to Paul-Henri Spaak, who, on March 13, formed a government composed of Socialist members and technicians from outside parliament. A week later the chamber refused its support and M. Spaak and his government were forced to resign. After a renewed and fruitless attempt on the part of M. De Schrijver, the prince regent called upon the services of Van Acker, who, on March 31, formed a cabinet comprising six Socialists, six Liberals, four Communists and three technicians from outside parliament. In his ministerial declaration, M. van Acker admitted that the question concerning the king still remained undecided and required a solution; he announced, furthermore, "three battles to be waged—that of coal, that of prices and that of exports."

On May 23, at the end of a session of the National Labour conference, the government decided to "freeze" wages and institute an all-round reduction in prices of 10%. These measures put a noticeable brake on the alarming rise in the cost of living, but their effect was hindered by trades union demands and by the dearth of certain commodities. On Nov. 24 the municipal elections took place. Compared with the results of the general elections of Feb. 17, the Liberals improved their position and the Christian-Socialists marked new successes, as opposed to the Socialists, who just maintained their seats, and the Communists, who lost many. Four days later the senate rejected the budget of war pensions presented by the government. Although put in minority the latter refused to resign and presented the budget for the second time. In protest, the members of the opposition left the house, but on Dec. 3 they returned and the quarrel was settled.

On July 9 Van Acker's government was defeated in the senate, after it had been proved that the minister of justice had intervened in favour of a company accused of economic collaboration and had endeavoured to influence the judicial authorities. A prolonged crisis ensued. It came to an end on Aug. 2 with the formation of a government presided over by Camille Huysmans, which was virtually the same as the preceding one. The Christian Socialist party remained in opposition, chiefly on account of the question relating to the king.

The second half of 1946 was marked by a slowing down in economic recovery. The coal and metallurgical industries were sluggish, as compared with the first quarter of the year. As for the cost of living, it rose so rapidly as even to exceed prices current before May 23.

As regards foreign policy, Belgium associated itself wholeheartedly with the decisions adopted by the United Nations. Paul-Henri Spaak, minister for foreign affairs, was elected president of its first general assembly. The relations between Belgium and Spain were marked by numerous diplomatic incidents brought about over the subject of Léon Degrelle. After refusing for nearly 15 months to hand over the Rexist traitor to Belgium, the Spanish government allowed him to escape mysteriously on Aug. 23. The matter was brought to the notice of the United Nations organization.

The agreements signed in Brussels on May 24 between Belgium and Holland, providing for an increase in reciprocal trade between the two countries, marked a decisive step along the road leading towards that economic union between Holland, Belgium and Luxembourg decided upon in London on Sept. 5, 1944.

Education.—1938: primary schools 8,712, scholars, 955,038; higher schools 273, scholars 86,279; universities (1937–38) 4, students 10,776.

Banking and Finance.—Revenue (est. 1946) \$1,328,000,000; expenditure (est. 1946) \$1,603,000,000. Public debt (Aug. 31, 1946) \$8,662,054,000. Gold reserve (Aug. 31, 1946) \$765,000,-



MONARCHISTS, carrying poster of King Leopold III in a demonstration at Wilyryk, Belgium, during 1946, demanded his recall to the throne from virtual exile

ooo. Exchange rate (average 1946) 1 franc = 2.29 U.S. cents.

Trade and Communication.—External trade (merchandise): imports (1945) \$314,390,000; exports (1945) \$90,981,700. Communication: roads suitable for motor traffic (1945) 6,433 mi.; railways open to traffic, main (1945) 3,089 mi.; airways (1938), distance travelled 1,457,050 mi., passenger mileage 8,255,980 mi., baggage mileage 172,799 ton mi., mail mileage 86,434 ton mi., newspapers 57,875 ton mi. Shipping (July 1, 1939) 450,199 gross tons, under construction (March 31, 1946) 104,940 tons. Motor vehicles licensed (1944) 53,823; wireless receiving sets (1938) 1,062,000; telephone subscribers, local (1938) 287,323.

Agriculture.—The activity of the black market made the drawing up of valid statistics for agriculture impossible. Returns made on Jan. 1, 1946, of cultivated land under cereals suitable for bread provided the following acreage figures: winter wheat 340,215; spelt 18,409; maslin (mixed crop of wheat and rye) 4,947; rye 259,134. Production in 1945 was estimated as follows: (in short tons) butter 17,900; cheese 6,280; potatoes 1,340,000; sugar beets 976,000; mangels 4,517,000; turnips and swedes 61,000; fodder carrots 42,000; (in U.S. bushels) wheat 11,381,000; rye 5,935,000; barley 5,196,000; oats 25,293,000; maslin 161,000; linseed 544,000; flax 32,000.

Manufacturing.—Industry and labour: industrial production (1946) general 57 (1929 = 100); textiles (monthly average, May 1946) 8,681 short tons. Unemployment (July 1946) 43,881.

Mineral Production.—Monthly average (in short tons): (July 1946) cast iron 213,400; crude steel 216,700; (June 1946) copper 7,536; lead 337; zinc 7,195; (Aug. 1946) coal 2,019,600. (See also BELGIAN COLONIAL EMPIRE.) (G-H. D.)

Benefactions: see DONATIONS AND BEQUESTS.

Benton, William (1900—), U.S. assistant secretary of state, was born April 1 in Minneapolis, Minn. He was graduated from Shattuck Military academy, Fairbault, Minn., and received the bachelor's degree from Yale university, New Haven, Conn., in 1921. He entered the advertising agency business in New York in 1922. In 1929, in partnership with Chester Bowles, he founded the Benton and Bowles agency,

which rose rapidly to become one of the most successful in the advertising business. He resigned the active direction of the agency in 1935 and in 1942 sold his remaining interest in the firm.

Benton became vice-president of the University of Chicago in 1937, devoting himself to the development of radio and classroom motion pictures as instruments of education. At Benton's instance the university acquired Encyclopaedia Britannica, Inc., in 1943, of which he became chairman of the board. He launched Britannica into the classroom motion picture field and served as board chairman of Encyclopædia Britannica Films Inc. In collaboration with Paul Hoffman he founded (and served as vice-chairman of the board of trustees for) the Committee for Economic Development, which instituted studies and plans for reaching and maintaining high levels of employment and productivity in the postwar period.

Benton was appointed assistant secretary of state, in charge of public affairs, on Sept. 1, 1945. He resigned from all operating responsibilities outside the department of state. His special responsibilities within the department included: (1) the domestic information work of the department; (2) a projected program of international information and cultural exchanges, on a bilateral basis; and (3) U.S. participation in the United Nations Educational, Scientific and Cultural Organization.

On Jan. 1, 1946, Benton's program under the second of these was crystallized in opening of the Office of International Information and Cultural Affairs, which was charged with helping to project to the peoples of other nations "a full and fair picture of American life, and of the aims and policies of the United States Government." During the year this office carried on short wave broadcasts in 24 languages; exhibited documentary films for audiences of many millions abroad; provided full texts of official U.S. statements relating to foreign policy to foreign editors by wireless, and by mail background material on U.S. life; stimulated the exchange of students, scholars and scientists; and maintained small information staffs, and U.S. information libraries, in 62 countries. Congress appropriated \$19,284,000 for this work for fiscal 1948, and \$5,820,000 for cultural and scientific exchanges with the other American republics.

In collaboration with the war department, Benton appointed education missions to Japan and to Germany which recom-

mended steps to democratize the educational systems of those countries.

Congress approved U.S. participation in the United Nations Educational, Scientific and Cultural organization in June, and Benton headed the U.S. delegation to the first general conference of the organization at Paris in November and December.

Bentonite. Sales of bentonite in the United States rose from 546,768 short tons in 1944 to 573,998 tons in 1945, an increase of 7% in quantity, while value rose only 5%. Most of the increase in output came from South Dakota, Wyoming and California; these states produced 69% of the total in 1945, against 67% in 1944. Drilling muds for oil wells took 28% of the 1945 total, foundry facings 28% and oil filtering and decolorizing 25%. (See FULLER'S EARTH; MICA.) (G. A. Ro.)

Bequests, Philanthropic: see DONATIONS AND BEQUESTS.

Berlin. Residence of the Hohenzollern electors and kings from 1442 to 1918, capital of the German reich from 1871 to 1945, Berlin is the largest and most important city of Germany. It was the centre of Germany's rail, highway and air lines, of its political and financial life, and of its system of cheap water transportation by rivers and canals. From June 1945, it has been the seat of the Allied Control council which supervises the administration of occupied Germany. The city has an area of 332 sq.mi., and a population (census of Oct. 29, 1946) of 3,170,000, or about 1,000,000 less than in 1939.

Berlin is divided into four sectors, each under the control of one of the principal Allies: the Russian sector in the centre and east, mainly industrial, is the largest (pop. 1,170,000); the U.S. sector in the southwest, largely residential, is the most attractive (976,000); the British in the west has attractive lakes and woods (603,000); and the French in the northwest is the smallest (421,000). On Oct. 20, 1946, elections were held in all sectors for the choice of a city council and cabinet which was then

entrusted with a large part of the city government. As a result of World War II—bombs, artillery and fire—about 80% of the residential buildings were damaged and 20% rendered uninhabitable. (See also GERMANY.) (S. B. F.)

Bermuda. An archipelago and a British crown colony, consisting of about 360 small islands about 580 mi. east of Cape Hatteras, North Carolina. Area: 19.3 sq.mi.; pop. (1945 est.): 35,000. The capital is Hamilton (pop., 1945 est., 3,500); the only other town of importance is St. George (pop., 1939, 2,665). Only about 16 of the islands are inhabited. Bermuda has a representative government including a legislative council of nine members (three officials and six nominated non-officials) and a house of assembly of 36 members elected equally by the nine parishes. Governors in 1946: William Addis (acting), until Jan. 23; then Adm. Sir Ralph Leatham.

History.—The traditionally heavy Bermudan tourist traffic revived considerably in the season of 1945-46, with a resultant stimulus to all forms of activity in the islands. Hamilton was the scene of an eight-power radio-cable conference in the closing weeks of 1945, which, on Dec. 4, 1945, signed an executive pact cutting international communications rates and taking other significant steps. A civil aviation conference at Hamilton agreed on Jan. 15, 1946, on the mutual commercial use of nine military airfields built by the United States in British possessions in the North Atlantic and the Caribbean; one of these was Kindley field, the principal installation in Bermuda. Because of dissatisfaction with the handling of various domestic problems, Dr. E. F. Gordon, president of the Bermuda Workers' association, announced on March 4 that he would petition for the appointment of a royal investigating commission. Adm. Sir Ralph Leatham in May assumed the post of governor, to which he had been appointed in January. The United States and British governments on Sept. 19 reaffirmed the Bermuda aviation agreement, although the U.S. senate commerce committee on April 16 had approved a resolution to the effect that the pact was illegal because not negotiated in treaty form. An empire parliamentary assembly conference met at Hamilton during the week of June 10; four representatives each from the U.S. house of representatives and senate attended the sessions. Gov. Leatham in October proposed that within 10 years universal suffrage for those over 25 years of age should be established; he also attacked inflationary tendencies. The house of assembly in its response to the message replied sharply.

On Aug. 2, Bermuda definitively ended its 38-year-old ban against motor vehicles. A break in the traditional prohibition had been made during World War II and the executive council on Dec. 31, 1945, voted to end the ban, but much public opinion against the step crystallized in the early months of 1946. The final legislation imposed severe restrictions on the horsepower, type and speed of automobiles and prescribed regulations in such a way as to favour importation of British makes. By September, 827 motor vehicles had been licensed.

Education.—Schools are almost entirely private but receive increasing governmental support. At the beginning of 1944, 28 schools enrolled 5,160 pupils. The total expenditure on education in 1943 was £73,449.

Finance.—The monetary unit is the pound sterling, linked to the pound in London and in the British West Indian possessions. Estimated 1945 revenues and expenditures were respectively £782,100 and £838,123. The debt at the beginning of 1944 was £75,000. The treasury reported a deficit of £60,000 on June 30, 1946, but by Sept. 30 the net deficit was reported as reduced to £48,257. During World War II the colonial government accumulated an emergency reserve of about £250,000; by Sept. 30, 1946, total reserves were reported as £327,042.



BARTER CENTRE in Berlin which was organized in 1946 to combat the black market

Trade and Communication.—The chief imports are clothing and textiles, foodstuffs, and hardware and furnishings; the principal exports are lily bulbs, green vegetables and potatoes. Total 1945 imports were valued at £2,444,470 (1944: £2,465,676); of that amount the United States provided £1,601,866, the United Kingdom £163,589 and Canada £599,034. The U.S. is customarily the chief buyer of Bermudan products.

Bermuda has about 25 mi. of narrow-gauge railway and 120 mi. of highway. The Bermuda Railway company at the end of 1945 offered the entire mileage and its rolling stock to the colonial government for £115,000, claiming it faced an annual loss of £35,000 to £40,000 and had an accumulated loss of £600,000 from the time it began operations in 1931. The government bought out the railway company at that figure, ownership passing on Jan. 25, 1946. The house of assembly on July 15 granted the Canadian government a four-year monopoly on a Canada-Bermuda air service.

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Beryllium. The output of beryllium ores in the United States rose from 95 short tons in 1939 to 388 tons in 1944, and declined abruptly to 39 tons in 1945. Of the 7-year total of 1,426 tons, 1,096 tons came from South Dakota. The bulk of the supply was from imports, mainly from Brazil, Argentina, India and Australia, increasing from 810 tons in 1940 to 4,840 tons in 1943, but dropping back to 3,115 tons in 1944 and 1,201 tons in 1945. The United States absorbed about three-quarters of the world output during the war years.

(G. A. Ro.)

Bessarabia: see RUMANIA.

Best Sellers: see BOOK PUBLISHING.

Betting and Gambling. The amount of money involved in world-wide gambling during 1946 may have approached or even equalled the estimated \$15,000,000,000 which was bet in all forms of gambling in 1945. Nevertheless, gambling was not so general among wage-earners in the middle income groups, and if the money bet remained at a peak amount it was because of a general increase in the amounts bet by a diminished number of bettors.

In both the United States and the United Kingdom, the only accurate measure of the volume of betting was the totalizators which register legalized bets on horse and dog races. In the United States, there was little betting on dog races, but the sum of bets placed through pari-mutuel machines at horse-race tracks was approximately \$1,900,000,000, by far the highest figure in history. In 1945 it had been \$1,325,000,000. The reason for the increase, however, was partly that there were more race meetings in states which permit and tax pari-mutuel betting. In 1946 there were 2,500 days of racing, in 1945 only 1,850 days. Therefore in 1945 a greater proportion of the betting was done through bookmakers.

In Great Britain, greyhound racing vied with horse racing for popularity; but while the amount bet was estimated to be about the same as in 1945 (£140,000,000), observers reported that in the last six months of 1946 there was a noticeable decline.

Strikes, a lower level of employment and somewhat lower average earnings, combined with a general feeling of insecurity as to the economic future, were accountable for the lessened attendance at U.S. gambling houses by the small bettor who risked at most a few dollars. Some gambling houses closed, and others handled far less money than they had in the war years. Bingo remained the game most popular among small bettors, but did not attract quite so many players, nor those so regu-



PATRONS of the gambling ship "Lux," formerly the navy vessel "Bunker Hill," at a roulette table as the luxurious vessel rode at anchor off Long Beach, Calif., in Aug. 1946. On Sept. 17, the U.S. department of justice impounded the ship under the admiralty laws

larly, as it had in the war years.

Betting on sporting contests increased. Bookmakers in the United States were deluged with bets on the winners of contests in baseball, football, basketball, hockey and other games popular in that country. Proprietors of football and baseball pools took in more than \$75,000,000 in the United States, and in Great Britain the football pools were so generally played that they nearly replaced straight betting on the results of contests between two teams.

In the United States, betting on amateur and professional sports became so general, and the amounts wagered so high, that professional gamblers organized the booking of such bets. Representatives of the gamblers "scouted" the principal teams and reported on their chances of winning, as a handicapper does in horse racing. In some cases the interest of professional gamblers cast a cloud over the contests themselves: The president of the National Association of Professional Baseball leagues, W. G. Bramham, on resigning from that office in 1946, asserted that players had been bribed to lose games. In the final match of the 1946 season in the National (Professional) Football league, a player was declared ineligible because he had been approached by a representative of professional gamblers with an offer of payment if he played so as to make his team lose the game. At the end of 1946, the heads of the University of Notre Dame and the U.S. Military academy at West Point, whose football teams had played the most widely publicized games of the past two decades, announced a suspension of the series; and while no specific reason was given, it was assumed to be the number of professional gamblers whose interest had been attracted to that annual game. In 1946, the game between West Point and Notre Dame had ended in a scoreless tie, which had produced the greatest profit of football history for bookmakers; for, in a game between teams so evenly matched, the bookmaker usually permits the bettor to select either team and bet that it will win by one point. In these circumstances, the bookmakers keep all money bet with them if the game ends in a tie.

Gambling on card games, never very great in proportion to

the gambling on sporting contests or on dice and mechanical games played in gambling houses, was no greater in 1946 than it had been in 1945. Stakes in bridge and poker games increased slightly, a normal consequence of inflation in the amount of currency in circulation.

On the continent, the casino at Monte Carlo and some of the other casinos were open and were well patronized, the play frequently being in large sums. In soviet Russia, the wartime practice of government-operated lotteries as a form of taxation was continued and there was normal betting on horse races, sporting contests and card games.

(A. H. Md.)

Beveridge Report: see SOCIAL SECURITY.

Bevin, Ernest (1881–), British labour leader and cabinet minister, was born in Winsford, Somerset, England, the son of an agricultural labourer. Bevin, who became general secretary of the Transport and General Workers' union, played a leading part in the general strike of 1926, which was broken by Winston Churchill. In 1937 he was appointed chairman of the General Council of Trades Union congress. In May 1940, Churchill named him minister of labour and national service, and on Oct. 3, 1940, Bevin was promoted to the war cabinet. After the Labourite victory at the polls, July 26, 1945, Bevin was appointed foreign secretary by Prime Minister Clement Attlee (July 27).

Bevin was a major participant in the meetings of the Council of Foreign Ministers in London (Sept.–Oct. 1945) and at the Moscow meetings (Dec. 1945). Throughout 1945 and during most of 1946, Bevin was sharply critical of Soviet foreign policy. At the London sessions of the U.N. security council, he attacked Soviet activities in Iran, and nettled by Andrei Vishinsky's charges that the presence of British troops in Greece and Java endangered world peace and security, Bevin asserted (Feb. 1, 1946) that the "incessant propaganda from Moscow against the British Commonwealth" constituted the "real menace" to peace. Bevin also attended the meetings of the council of foreign ministers in Paris and the subsequent peace conference in that city. Generally, the British foreign secretary closely aligned his policy with that of his U.S. colleague Secretary James F. Byrnes. Later opposition developed within the British trades union and the Labour party against his making common cause with "Wall street imperialists." Putting his foreign policy to the test before commons, Bevin won a 353 to 0 vote of confidence (Nov. 18); however, many Labourites abstained from voting. After his return to England in December from the sessions of the United Nations and council of foreign ministers in New York, Bevin declared (Dec. 22), that Britain does not "tie herself" to anyone except with regard to her obligations under the U.N. charter and extends "the hand of friendship" to all.

Bible Society, American: see SOCIETIES AND ASSOCIATIONS.
Bicycling: see CYCLING.

Bidault, Georges (1899–), French statesman, was born on Oct. 5 in Moulins, France. He served in the French army during World War I from 1917 to 1919. After the war, he resumed his studies at the Sorbonne university, graduating with high honours, and later taught history in secondary schools. In 1932, he and members of a left wing Catholic group founded the Catholic newspaper *L'Aube*, with Bidault as foreign editor and columnist. At the outbreak of World War II, he joined the army with the rank of sergeant. He was taken prisoner and held in the reich until 1941. On returning to France, he joined the underground and in 1943 became president of the National Council of Resistance. A fort-

night after the liberation of Paris, he was named foreign minister (Sept. 9, 1944), in Charles de Gaulle's provisional government and accompanied De Gaulle to Moscow where they signed (Dec. 10), the Franco-Soviet pact of mutual alliance. Bidault headed the French delegation that attended the United Nations conference in San Francisco in (April–June) 1945 and represented France at the first council of foreign ministers in London (Sept.–Oct. 1945), and at the U.N. sessions in London in early 1946.

At the Paris sessions of the council of foreign ministers in the spring and summer of 1946 and at the following 21-nation peace conference, Bidault generally endorsed the Anglo-U.S. policies, although he frequently dissented with James Byrnes and Vyacheslav Molotov.

After the elections of June 2, 1946, he was elected provisional president by the constituent assembly. He also became premier, June 24, thus holding concurrently the posts of president, premier and foreign minister.

He resigned after the Communist victory at the polls in Nov. 1946 and was succeeded by Léon Blum, Dec. 12, 1946. He returned to the post of foreign minister (Jan. 22, 1947) in the government of Paul Ramadier.

Bikini Island. Approximately 20 coral reef islands in the Ralik chain of the Marshall Islands, in 11° 30' N. lat. and 165° 30' E. long., and about 190 mi. E. of Eniwetok and 250 mi. N.W. of Kwajalein.

Bikini was the site of the atomic bomb tests conducted by the United States navy in July 1946. The first scientists arrived in February in preparation for "Operation Crossroads." Prior to the test 92 target ships ranging from battleships to submarines were anchored in the 25 mi. long lagoon. For the purposes of the experiment 4,800 animals were placed on the ships. A task force of 1,000 vessels and 42,500 men participated. On July 1 a United States army bomber took off from Eniwetok and dropped an atomic bomb set to explode close to the surface of the water. A second test in which an atomic bomb was exploded under water took place on July 25.

The 161 natives, of mixed Melanesian-Polynesian stock, were removed to Rongerik Atoll 130 mi. to the east in February. Though Rongerik, previously uninhabited, appeared to have all the advantages of Bikini, the exiled natives expressed a desire to return to their home island in Oct. 1946. The request was refused because of the presence of radioactivity on Bikini. (See also ATOMIC ENERGY.)

(P. A. V.)



NATIVES MOVING THEIR BELONGINGS from Bikini atoll, prior to the atomic bomb tests in July 1946, to an LST which carried them to Rongerik atoll, a new home 130 mi. away

Billiards. The pocket billiards championship of the world, which had been in his possession in 1942, returned to Irving Crane, 33-year-old cue expert from Livonia, N.Y., in the final month of 1946. Crane finished first in an eight-man field that competed in the round-robin title tournament at Philadelphia, Pa., winning six of his seven matches against the outstanding players in the sport. Runner-up to Crane was the defending titleholder, Willie Mosconi of Barrington, N.J. Mosconi won five and lost two. However, the erstwhile champion romped off with the high run honours, a string of 125, and the best game prize, a 2-inning performance.

Pocket billiards dominated the cue game throughout the year, as Welker Cochran of San Francisco retained the world's three-cushion diadem through idleness. Prior to the pockets tourney, Mosconi and Crane engaged in a transcontinental challenge match for Willie's crown. Starting at Philadelphia and terminating at Chicago, the tour wound up with Mosconi still champion as the result of an 8,727-7,508 victory in 86 games.

(L. EF.)

Biochemistry. **Nutrition, Vitamins.**—The structural formula and synthesis of one form of folic acid, the liver *Lactobacillus casei* factor, was reported. Called pteroylglutamic acid, it contains a 2-amino-4-hydroxy-6-methylpteridine, para-aminobenzoic acid and glutamic acid. The synthetic compound caused remission in cases of human macrocytic anaemias, especially pernicious anaemia and sprue; in chicks it prevented perosis and was necessary for feathering. Other forms of folic acid contain this basic unit bound to protein or to additional glutamic residues: the fermentation factor has two, the yeast factor has six additional glutamic acid units. Although these conjugated forms are equally effective for bacterial growth, they are less effective in the treatment of pernicious anaemia (and other human anaemias) and the disease seems to be characterized by an inability to liberate the pteroylglutamic acid from its combinations. These observations provide for the first time a role for para-aminobenzoic acid in human metabolism.

Niacin or Tryptophan.—Either is completely and separately active in preventing poor growth of rats on corn diets low in niacin. Addition of tryptophan to the diet of rats increases urinary niacin excretion and therefore causes niacin synthesis; also the addition of niacin to the diet improves the utilization of tryptophan. The existence of a positive pellagragenic factor (aside from niacin and tryptophan deficiency) was indicated by the induction of niacin deficiency by feeding 3-acetylpyridine, and later by the separation of a pellagragenic factor from corn. Indole acetic acid, a plant hormone known to be present in corn, was found to have such an antiniacin action.

Studies on the intravenous infusion of amino acids to supply the protein requirement showed that in dogs the natural amino acids are much better tolerated (without vomiting) than mixtures containing racemic amino acids; that the addition of glycine improves the tolerance to racemic mixtures and that *dl*-methionine (in addition to glutamic and aspartic acids previously reported) is especially poorly tolerated.

That mixtures of amino acids do not have the same nutritive value as an equivalent weight of protein was indicated by the better weight gains of rats receiving a diet of the latter and the improvement in growth rate caused by the inclusion of 5% of protein (but not the acid hydrolysed protein) with diets containing amino acid mixtures. Streptogenin is the name given to a bacterial growth factor found in partial (trypsin) hydrolyses of certain protein (for example casein and fibrin, but not egg white), which stimulates the growth of rats whose protein requirement is furnished only by amino acids. Since streptogenin

activity is completely lost on acid hydrolysis, the active material is thought to be a peptide.

Several new growth factors were described or isolated: a heat-labile stimulating factor for *Streptococcus faecalis* (previously shown to be necessary for maintenance of weight and blood of monkeys), a heat-labile rat-growth-stimulating factor from liver, a fat-soluble heat-stable guinea pig antistiffness factor from cane juice, an animal protein factor (not streptogenin) necessary for growth of chicks and *L. casei* and a chick growth factor from cow manure.

Metabolism.—With the aid of isotopes as tracers the following biological conversions were demonstrated: glycine from *L*-serine, with loss of the latter's beta-carbon; creatine from the amidine group of arginine in the rat, but not the pigeon; glucose from inositol; protoporphyrin of haemoglobin from glycine. After the feeding of N^{15} containing glycine, the N^{15} content of the haeme of the blood haemoglobin was found to remain high and constant for many weeks and then suddenly (within a few days) to fall to the original value. This indicates that the erythrocyte has a definite life span (which experiments in humans indicate to be 127 days) and that the protoporphyrin of haemoglobin is not used again in haemoglobin synthesis. In vitro, in the presence of rat liver slices, the conversion of acetate to cholesterol (dependent on oxygen and intact cells) and the acetylation of natural amino acids were observed. A study of the distribution of C^{13} in uric acid following the administration to pigeons of various C^{13} containing compounds showed a diversified list of precursors for this purine: CO_2 is the precursor of carbon 6; carbons 2 and 8 (in the urea groups) are derived from the carboxyl carbon of acetate; carbon 4 from the carboxyl groups of either lactate or glycine and carbon 5 from the alpha (or beta) carbon of lactate. Later it was found that C^{13} of formate fed to pigeons is recovered in carbons 2 and 8 of uric acid but not in any other carbons. This shows that in the pigeon, formate may be derived from the carboxyl group of acetate, but not by reduction of CO_2 .

Competitive Inhibition.—Many studies were reported on the interference with nutrition by compounds structurally similar to vitamins or essential amino acids or interference with enzyme action by substances structurally related to coenzymes. To be classed as competitive inhibition the action of the inhibitor must be prevented by adequate quantities of a chemically related natural substance. In the case of inhibition of bacterial growth the term antibacterial index is used to mean the ratio of the molar concentration of inhibitor to that of metabolite which is necessary for maximum inhibition. Usually antibacterial indexes are considerably greater than 1 (from 10 to 300) and indicate a preferential affinity for the natural metabolite. Following are a few of the many examples reported in 1946: the inhibition of yeast growth by gamma-hexachlorocyclohexane, reversed by inositol; the inhibition of *D*-amino acid oxidase by competition with the flavin-adenine-dinucleotides of the antimetabolites atabrine and quinidine; the inhibition of growth of *Escherichia coli* by sodium propionate and its reversal by beta-alanine; the competitive action of seryl-glycyl-aspartic acid and seryl-glycyl-glutamic acid, the former causing wilting of tomatoes and inhibiting growth of *L. casei* (streptogenin effect), and the latter preventing these actions.

Mechanism of Insulin Action.—The first reaction in the utilization of glucose (whether for oxidation, glycolysis or glycogen formation) is the conversion to glucose-6-phosphate by the action of the enzyme hexokinase. When studied in extracts of rat muscle, this hexokinase activity was found to be inhibited by anterior pituitary extract, and this inhibition was found to be overcome by the addition of insulin. Extracts of muscles of rats made diabetic with alloxan show a depressed hexokinase activity, which is restored by addition of insulin. Adrenal cortical extracts do not themselves depress hexokinase activity, but they increase the inhibition caused by the anterior pituitary material. Diabetic rats injected with insulin have muscles which show normal hexokinase activity. These experiments indicated that the action of insulin is to promote the hexokinase reaction by preventing the latter's inhibition by the anterior pituitary hormone, which inhibition is in turn augmented by the cortical hormone. (See also PHYSIOLOGY; VITAMINS.)

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Biography: see AMERICAN LITERATURE; ENGLISH LITERATURE.
Biology: see BOTANY; GENETICS; MARINE BIOLOGY; PHYSIOLOGY; ZOOLOGY.

Birth Control. The year 1946 marked the 25th anniversary of the Planned Parenthood Federation of America, Inc. (formerly the Birth Control Federation of America). The year was distinguished by advances in the field of religious acceptance and by international recognition of family planning as an aid in solving population problems related to world peace.

International.—Speaking before the International Health conference of the United Nations, Dr. Djamil Pasha Tutunji, health director of Trans-Jordan, declared that birth control is as important to world peace as the control of the atom bomb.

The first postwar international sex conference, attended by representatives of eight countries, was held in Stockholm, Sweden. Delegates from the unoccupied countries, where planned parenthood programs had been curtailed but not abolished, reported development of a three-fold program of child-spacing, treatment of infertility and education for marriage, in line with work of the U.S. group. Visiting physicians from India, China, Japan, New Zealand, Spain, Brazil, Argentina, South Africa and Italy all reported growing awareness of the importance of planned parenthood in an over-all health program.

Religion.—Recognizing that planned parenthood is one way to combat the country's growing divorce, abortion and juvenile delinquency rates, the National Clergymen's Advisory committee of the Planned Parenthood federation passed a resolution seeking the establishment of planned parenthood services in hospitals, public health clinics and other agencies where the service should be given. The resolution, signed by 3,200 Protestant and Jewish religious leaders, was given nation-wide publicity by the press. The united action of the clergymen in favour of planned parenthood completed the year's program which opened with an address by Bishop G. Bromley Oxnam, president of the Federal Council of the Churches of Christ in America, before the 25th annual dinner.

Medical and Public Health.—The New York Academy of Medicine conducted a survey of contraceptive services in New York city hospitals and found that only 5 of the city's 89 hospitals had contraceptive clinics. The mistaken belief that birth control is illegal was believed to keep many patients from seeking medical advice on child-spacing from out-patient departments which they attended for other medical help. The New York academy report recommended that contraceptive information be made available when it was medically indicated.

The addition of Virginia and Mississippi to the states which include planned parenthood in their public health services brought the total number of such states to eight.

Press and Radio.—Fifty-six articles making favourable mention of planned parenthood appeared during the year in popular and technical magazines. Both the United Press and the Associated Press wire services carried the story of the clergymen's resolution, and in many communities newspaper editors augmented the original story with statements from local clergymen whose names appeared among the 3,200 signers.

Radio's attitude toward planned parenthood underwent a noticeable change during 1946. Bishop Oxnam's address broadcast over the network of the Columbia Broadcasting system was the most frank discussion of the religious significance of birth control ever heard on a network. The National Broadcasting company gave the federation network time for a round-table discussion of "Birth—By Choice or Chance." Participants, who discussed the religious, medical and social aspects

of planned parenthood were: Dr. Guy Emery Sipler, editor of *The Churchman*; Dr. Janet Fowler Nelson, newly appointed consultant on education for marriage and family living, for the federation; and Dr. Alan F. Guttmacher, associate professor of obstetrics, Johns Hopkins medical school. The program was transcribed and copies made available to planned parenthood groups for rebroadcast.

The first series of planned parenthood programs was broadcast in the spring over WFAS, White Plains, N.Y. Scheduled originally as a 13-week series, it was extended to 20 weeks, and the entire series was repeated over the same station in the fall. Scripts of this series were made available to all planned-parenthood leagues and committees.

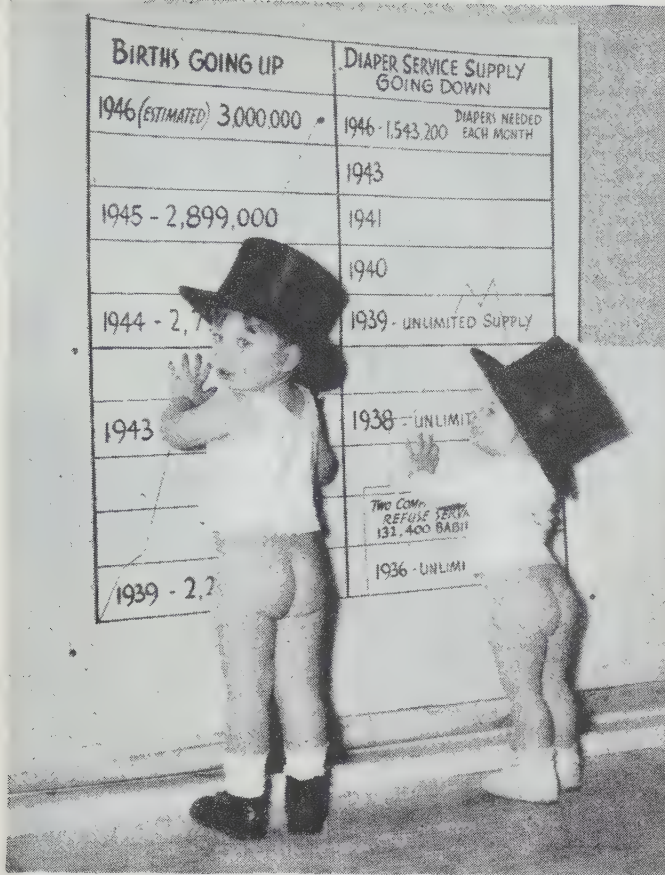
Education.—In addition to its extensive literature on child spacing, infertility, marriage counselling and population, the federation published two new pamphlets dealing with venereal disease and juvenile delinquency. *The Story of Two Families*, produced in co-operation with the Institute for Venereal Disease Education of North Carolina, pointed out in popular cartoon style the relationship between venereal disease and parenthood. *The Roots of Delinquency* stressed the fact that most juvenile delinquency began at home and was traceable in a large measure to irresponsible parents.

Fund Raising.—Preparations were made for the first nationwide campaign for \$2,000,000 to open in Feb. 1947. A portion of the money was to be used for research which it was hoped would lead to the development of a simple, inexpensive contraceptive and add to current knowledge of the treatment of infertility. The federation also hoped to expand its current program and establish new clinics which would place medically reliable methods of contraception within the reach of all married women regardless of geographical location or economic status.

Organization.—The Planned Parenthood federation was the national agency and clearing house for 38 state leagues and more than 200 affiliated local committees. There were in 1946 about 600 planned parenthood centres in hospitals, public health clinics and extramural clinics operated by volunteer committees. (See also BIRTH STATISTICS.) (M. SR.)

Birth Statistics. In 1946, the first full year of peace, there was an appreciable increase in births over 1945 for the United States, Canada, and England and Wales. The provisional birth rate for the United States for the first eleven months of 1946 was 16% greater than that for the corresponding period of 1945. This gain was not evenly distributed over 1946. The first four months actually had lower birth rates than the same months of 1945, but the following months saw rapidly increasing gains over the like months of the previous year; the provisional birth rate for Nov. 1946, namely 28.8 per 1,000, was 52% greater than that for Nov. 1945. The upward trend in the birth rate during 1946 may be closely associated with the rapid upswing in marriages consequent to demobilization of the armed forces after World War II. Total births for 1946, which were more than 3,350,000, included unregistered births; it was estimated that around 3,180,000 births were registered. This greatly exceeded the 2,735,456 registered in the United States in 1945, the latest year of complete record; the birth rate for that year was 19.6 per 1,000 population.

Canada, like the United States, also experienced a marked gain in births during 1946 over 1945, according to reports from cities of 10,000 or more inhabitants; reports covering the first ten months of both years indicate a 14% gain. In Canada, the period of rapid gain began with April, a month earlier than in the United States. In 1945, the latest year of complete record, 288,398 births were reported in Canada, with a birth rate of 23.8 per 1,000 population. Provisional reports from England



BIRTH STATISTICS do not mean much to these children. But posed in top hats and little else, they added an appropriate effect to the chart illustrating the acute shortage during 1946 of cotton textiles used for diapers

to 29, undoubtedly the result of the withdrawal of men of these ages for overseas service; all other ages showed increases. From 1943 to 1944, decreases in reproduction rates were experienced by fathers of all ages under 35; the continuing increases at the higher ages were attributed to the favourable economic opportunities, resulting from wartime industry, for these older men to increase their families. The age-specific changes in the reproduction rates of women corresponded closely to those for men.

In 1944, the latest year of complete record for the United States, the rate of births among women according to age was as follows: ages 15 to 19 years, 51 births per 1,000 women; at ages 20 to 24, the rate was 142; ages 25 to 29, 132; ages 30 to 34, 92; ages 35 to 39, 52; ages 40 to 44, 15. The rates at ages under 35 in 1944 were lower than those in 1943, while at the later ages they were higher.

Within the female reproductive ages from 10 to 54 years, there were 60.2 births per 1,000 women in 1944. Of these, 20.3 per 1,000 were first births, 15.9 second births, 9.2 third births, 5.0 fourth births, and 8.6 births of fifth or higher orders. The rate of first and second births in 1944 was lower than in 1943, while those for higher orders were practically identical in the two years.

Considered with regard to race, among the white population of the United States in 1944, there were 19.8 births per 1,000 total persons of all ages. Among Negroes, the rate was 23.7 per 1,000; for the Indians it was 28.5.

The rate of illegitimate births in the white population of the United States reached a high point in 1944 when there were 1.20 such births per 1,000 females of ages 10 to 54; in 1943, the rate was only 1.05 per 1,000; this increase was concentrated largely among women of ages 20 to 29 years. Among the Negroes, there were 11.37 illegitimate births per 1,000 women of ages 10 to 54 in 1944; there had been little change in this rate from 1941. Practically 2% of total white births are reported as illegitimate, in contrast to 17% among the Negro births.

The proportion of births attended by a physician in a hospital in the United States rose rapidly, the figure for 1945 being 78.8%. In 1944, 75.6% of all births were so attended, as compared with 55.8% in 1940 and 36.9% in 1935. On the other hand, there was a marked decline in the proportion of births attended by a physician outside a hospital, from 50.6% in 1935 to only 17.7% in 1944. There was likewise a drop in the proportion of births attended by a midwife, from 10.7% in 1935 to 6.4% in 1944. In the latter year, of the white births, 81.0% were attended by a physician in a hospital, 16.9% by a physician elsewhere, 1.9% by a midwife, while the balance were not specified; in contrast, the corresponding figures for Negro births were, respectively, 37.0%, 23.1% and 39.0%. The situation in regard to attendance by a physician at birth was particularly poor among the Negroes in the south Atlantic and south central states.

In the United States, some births fail to be registered with local authorities. On the basis of a test conducted in connection with the census of 1940, it was found that 98.5% of the births occurring in institutions were registered, while of those not occurring in institutions 86.1% were registered. ("Vital Statistics"—Special Reports, Vol. 23, No. 8.) Because of the increasing proportion of births occurring in institutions, there was a corresponding increase in the proportion of births that were registered. It was estimated ("Vital Statistics"—Special Reports, Vol. 23, No. 10) that this proportion increased from 90.5% in 1935 to 94.1% in 1944; for the white population, the rise was from 92.5% to 96.0%, while for the Negroes it rose from 78.7% to 82.7%. The percentage of completeness in registration in 1944 for white births was estimated to range from 90% in the east south central states to 99.2% in the New

and Wales, covering London and the great towns for the first eleven months of 1946, showed a 26% gain over the like period of 1945. For England and Wales as a whole, 684,273 births were reported during 1945, the birth rate being 16.1 per 1,000 population.

In a study, "Some Effects of Famine on the Population of Greece" (*The Milbank Memorial Fund Quarterly*, July 1946), V. G. Valaoras traced the course of the number of births each month in Athens and Piraeus over the war period from 1940 to 1945. The war in Greece started in Oct. 1940. The experience studied showed a rapid fall in the number of births during 1941 beginning with April, when the country was occupied. At the same time, deaths began to rise because of famine conditions, so that from May forward, there was an excess of deaths over births. This situation lasted for two years, through March 1943. In his discussion, the author states that, "The decrease in the number of births during the famine period is attributed not only to the numerous miscarriages and abortions observed during that time, but mostly to a physiological sterility which perhaps affected both parents but was most evident in women. Menstruation was temporarily suspended in more than 70% of adult females."

A survey of wartime changes in age-specific reproduction rates in the United States (*Statistical Bulletin of the Metropolitan Life Insurance Company*, July 1946) showed that the first definite increase occurred from 1940 to 1941 among young fathers of ages 20 to 29; this age group was among the first affected by the draft for military service. From 1941 to 1942 there were marked increases in the rates for fathers at all ages, the advance being relatively most rapid at ages 15 to 19 and becoming progressively smaller with advance in age. From 1942 to 1943, there was a decrease in the reproduction rate among men of ages 20

England states; for Negro births, the range is from 74.7% in the west south central states to 97.9% in the New England states. On the basis of these estimates, it is found that there were 2,969,186 births in the United States in 1944, in place of the recorded figure of 2,794,800.

A comparison of age-specific reproduction rates for white women in the United States with those for the women of Canada in 1941 ("Statistical Bulletin," Sept. 1946), showed that the latter had the higher rates at all ages after 20 years; further, the peak in the rates comes at ages 20 to 24 years for women of the United States, while for Canadian women it comes five years later, at ages 25 to 29. Even at the peak age for American women, 20 to 24 years, Canadian women had a higher reproduction rate, the excess amounting to 3%. Lastly, the decline in the rates with advance in age is much less rapid for Canadian women than for women of the U.S. At age 30 to 34 years, the rate for Canadian women exceeded that for women of the U.S. by 51%, and at ages 40 to 44, the excess amounted to 137%. (See also CENSUS DATA, 1946.)

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Bismuth. United States, Peru, Canada and Mexico are, in order of importance, the chief producers of bismuth, accounting for 90%–95% of the total output. U.S. production was not reported, but has ranged from 500 to 1,000 tons annually. For others the 1944 outputs (with 1945 in parentheses) are as follows, in short tons: Canada 62 (105), Mexico 182 (178), Peru 459 (341); world total 1,320 (1,210).

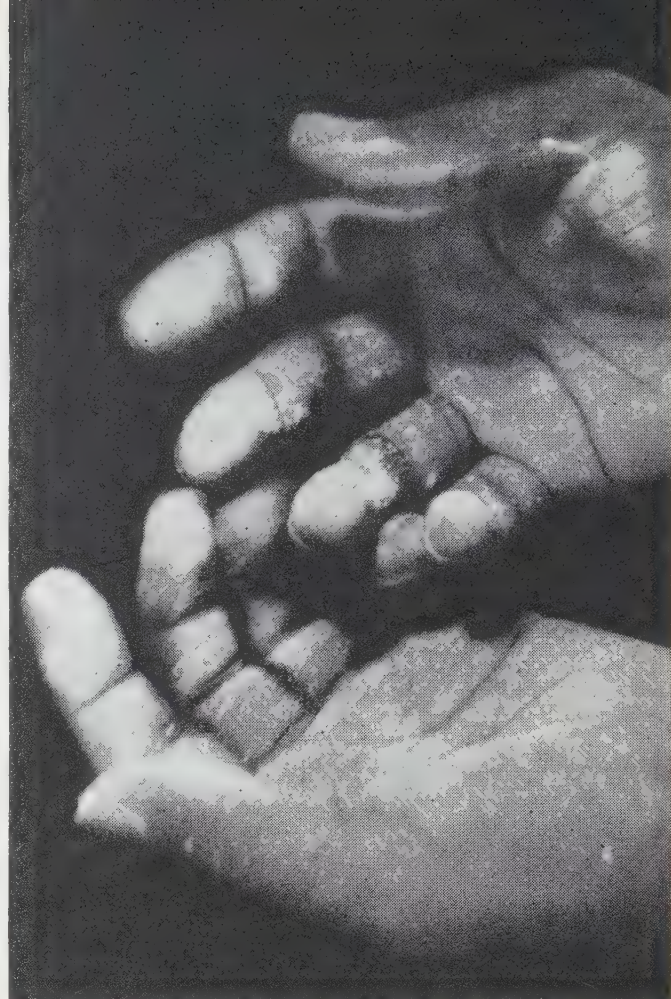
(G. A. Ro.)

Black Markets. The term black market brings to many minds a picture of back-alley law breaking engaged in by hardened criminals constantly at odds with law and order. But to the agency most concerned with black market activity during and after World War II—the Office of Price Administration—the term always carried a much wider meaning. As commonly used by the agency, black market meant any sort of transaction in violation of price and rationing regulations, whether engaged in under the guise of conventional business practice or covertly pursued by professional racketeers.

In that broader sense, the Office of Price Administration's task of dealing with black markets continued to be a heavy one in 1946, even though, except for sugar, the agency's rationing programs had come to an end.

A number of factors made it increasingly difficult to maintain necessary controls and to apprehend violators of price regulations. The elimination of most rationing controls, coupled with the suspension of many limitation and allocation orders by the Civilian Production Administration and the department of agriculture, left uncontrolled a huge demand for still limited civilian supplies. Wartime industries were not yet fully reconverted to peacetime production. Feeding and supply requirements of foreign areas laid waste by war were at their peak. In the U.S. the population was increasing substantially as military demobilization went forward. And of utmost importance to the agencies charged with administering remaining controls was the fact that patriotic public support for government controls measurably diminished with the end of the war.

An expanded enforcement staff concentrated its efforts at the earlier levels of distribution in order to reduce the pressures which would otherwise be passed on and multiplied at later levels. In addition, trained investigators who had been assigned to combat counterfeiting of ration evidence were gradually shifted over to the work of apprehending major violators of



HANDS OF SUGAR RATION STAMP THIEF at New York City Stamp Verification centre glow with fluorescent powder under ultra-violet light. Officials set a trap for thieves in 1946 by daubing the cancelled stamps with this powder

price regulations.

During the first 11 months of 1946, the agency conducted 125,580 investigations. Violations were found in approximately 80% of the cases investigated. More than 40,000 civil and criminal actions were filed in federal and state courts, leading to many jail sentences and to the collection of more than \$17,000,000 in fines and settlements.

Until November, when their operations were ended, the local price control boards made up for the most part of volunteer aides recruited by the Office of Price Administration, held approximately 248,000 conferences with retailers charged with violation.

Black market practices, of course, found their greatest outlet in connection with the sale of short commodities most desired by the public. During 1946, major problems were encountered in the fields of meats, sugar, building materials and used cars.

Meats.—No scarce commodity was so dearly desired by such great numbers of people as meat. In this field the black market problem was always present on a major scale. As a seasonal shortage made itself felt in April 1946, violations mounted rapidly, and OPA enforcement officers were filing an average of 500 court cases monthly. Slaughter fell off sharply in May and June as livestock was withheld from the market awaiting the outcome of congressional debate on whether price controls should be continued beyond June 30. The Price Control act expired on June 30 when the president vetoed an extension bill which in his judgment had been weakened beyond the point of effectiveness. Immediately a large flow of livestock to market was noted as producers rushed to take advantage of soaring prices in a free market. Re-control took place in September and

by October supplies again had dropped sharply. On Oct. 14 all controls on meats were removed by direction of the president. Although this shifting between control and decontrol made enforcement of meat regulations difficult, thousands of actions, nevertheless, were brought against violators during the period.

Sugar.—The chief problems in connection with sugar rationing were the counterfeiting and theft of sugar ration evidences. With sugar rationing continuing throughout the year, many violators were apprehended and suspended from receiving or handling sugar, and large numbers of peddlers and distributors of counterfeit ration currency were prosecuted.

Building Materials.—Under pressure of increased demand for building and construction materials, violations with respect to lumber and other building materials mounted. In the second half of 1946 actions were instituted against such violators for more than \$15,000,000, and many major criminal proceedings were instituted.

Automobiles.—During 1946 the over-all supply of cars continued to be far short of demand. Large-scale rings of black market operators were selling thousands of automobiles at over-ceiling prices. OPA investigators and special agents broke major black markets in Detroit, Mich.; Cairo and Springfield, Ill.; Louisville, Ky.; Leesburg, N.C. and Los Angeles, Calif. Quick arrests, coupled with substantial fines and jail sentences caused a noticeable reduction in this illegal activity.

Other Fields.—Illegal transactions in the field of textiles, scrap metal and waste paper showed a substantial decline in the face of sharp enforcement activity. In New York, the leading textile selling centre of the United States, a special grand jury was in continuous session from Dec. 1945 through 1946, hearing evidence of criminal activity in textiles.

Rent.—While the expression black markets was not generally used in the fields of rents, enforcement activity against persons charging improper rentals or attempting illegal evictions increased substantially. Numerous cases were developed against persons demanding illegal bonuses, with resultant criminal prosecutions.

On Nov. 8, the president ordered the lifting of all price controls except those covering sugar, certain syrups and rice. Rent control and sugar rationing also continued in effect. This action had followed decontrol of meat and most other food products in October. Black markets in the decontrolled areas automatically ended. The enforcement staff of OPA reorganized to dispose of all pending cases in the decontrolled commodity fields. Some 20,000 enforcement cases were pending covering violations which occurred before decontrol. The price control act provided that offenses committed prior to termination of controls were to be treated as though the regulations were still in force for the purpose of sustaining any proper suit, action or prosecution. (W. E. Rv.)

Great Britain.—During 1946 the black market in Great Britain was smaller than in previous years since the controls were slightly fewer, but the market in cloth was still extremely large. This could be seen from the number of thefts and the very small amount of cloth recovered subsequently. Rolls of cloth and suit lengths were easily sold owing to the shortage. There was also a big market for clothing as distinct from cloth: this was made obvious by the large percentage of house-breaking offenses in which clothing formed part of the loot.

The black market was helped by the lenient manner in which the courts dealt with offenders when they were caught. The usual penalty was a fine, which meant little to persons making large profits. Only in the largest and most important cases were terms of imprisonment imposed, as in a linseed oil conspiracy which came to an end only in 1946. No fewer than 104 persons were prosecuted for various offenses in connection with these dealings

in oil and sentences totalling more than 60 years and fines of more than £20,000 were imposed. The crime started with large thefts by truck-drivers engaged in carting the oil from the pressing mills to the refineries. The oil was sold to various receivers who, in turn, through intermediaries, passed it on to a number of firms in the paint industry. Hundreds of thousands of gallons of linseed oil, of which there was particular scarcity, reached the black market in this way. An idea of the profits may be formed from the case of one receiver and his agent who made more than £11,000 in a period of six months.

At the end of World War II a large black market started in building materials. All building repairs of more than £10 in value required a licence from the ministry of works and planning, owing to shortages of material and labour. Some builders, who were prepared to take the risk of prosecution by using materials and labour which should have been available for work where a licence had been obtained, would undertake unlicensed repair work simply because they were offered a bigger profit than they could make on the licensed job.

Europe.—The black market continued to flourish on the continent of Europe in 1946, particularly in food, for in countries like France ordinary people were not able to get their proper rations and had to resort to the black market in order to exist. In Spain this was even more the case. Money lost its value and a system of barter arose. In Germany cigarettes took the place of currency, while in Italy, where no confidence was felt in the lira, everyone was eager to secure commodities. (R. M. Ho.)

Blandy, William Henry Purnell (1890—), U.S. naval officer, was born on June 28 in New York city and was graduated from the U.S. naval academy at Annapolis in 1913. Advancing through the grades, he was made a rear admiral (temporary) and appointed chief of the navy's bureau of ordnance, Feb. 19, 1941. He was transferred in 1944 to the Pacific war theatre as commander of an amphibious task force and participated in the fighting at Saipan, Iwo and Okinawa. Blandy, who had been raised to the rank of a vice-admiral, was made special weapons head of the navy and later commander of Joint Task Force I, Jan. 13, 1946, with the responsibility of conducting the atomic bomb tests at Bikini atoll. Subsequent charges that the test might be construed by foreign powers as a warlike gesture prompted Blandy's statement of April 16, 1946, that the Bikini operation was a "defensive measure," of caution and economy rather than one of "aggression."

Both the atomic bomb tests at Bikini (on July 1 and July 25, 1946) were conducted under his supervision and Blandy stated, July 29, that one of the lessons learned from the Bikini experiments was that warships of the future would require redesigning to meet the needs of the atomic age. In his report to Washington on Sept. 4, he disclosed that only 9 of the 92 ships in the target area escaped sinking, damage or radioactive contamination. On Nov. 12, 1946, Adm. Blandy was assigned to command the 2nd task fleet in the Atlantic.

Blood Plasma: see MEDICINE; PHYSIOLOGY; SURGERY.

Blue Cross: see INSURANCE.

Blum, Léon (1872—), French statesman, politician and Socialist leader was born on April 9, 1872, in Paris. For his early career, see *Encyclopædia Britannica*. Blum, who was twice premier of prewar France, was arrested in 1940 by the Vichy government and imprisoned by the Germans. In May 1945, he was liberated by U.S. troops from a German concentration camp in the Italian Alps.

After his return to Paris, Blum again became an influence in

French politics and appeared as a prosecution witness at the trial of Marshal Henri Pétain in July 1945. On Jan. 28, 1946, Premier Felix Gouin made Blum a special ambassador to foreign countries with authority to negotiate foreign loans. Blum's major mission was his trip to Washington where he signed (May 28) an agreement with the U.S. government settling French lend-lease accounts and securing credits totalling about \$1,370,000,000.

While Blum favoured co-operation with the French Communist party, he opposed a merger with it and endorsed the views expressed, Sept. 1, at the close of the Socialist Party congress, for continued independence. After Georges Bidault's resignation in late 1946, Blum was elected as interim premier by 575 out of the 590 votes cast in the French general assembly, Dec. 12. He formed an all-Socialist cabinet Dec. 16. Hardly 48 hours after his government took office, it was beset by an outbreak of fighting in French Indo-China where Viet Nam forces, demanding independence, attacked French troops. Blum, dispatching Gen. Jacques Leclerc to Indo-China, stressed that he planned to restore order before opening negotiations for Viet Nam independence. After the Fourth republic was officially proclaimed, Blum, who was in ill health, resigned as premier and was succeeded by Paul Ramadier, Jan. 17, 1947, who had been justice minister in the outgoing government.

Boetto, Pietro, CARDINAL (1871-1946), Italian prelate, was born May 19 in Vigone, near Turin. He entered the novitiate of the Society of Jesus at the age of 17, was ordained at 30 and became rector of the Jesuit college in Genoa in 1903. He held a succession of posts including that of secretary to the provincial of Turin province and later he became provincial of Turin. He was also procurator general of the Jesuits and in 1931 became consultant of the Sacred Congregation of Affairs of Religious. In the last named position, he worked closely with Pope Pius XI, who in 1935 named him a cardinal. He was raised from cardinal deacon to cardinal priest in 1938, when he also became archbishop of Genoa. Cardinal Boetto served as a member of a number of important Vatican institutions. In April 1945 he was credited with having persuaded the German forces in the Liguria area to surrender without battle—thus saving the densely populated region from further havoc. Cardinal Boetto, who was the only Jesuit member of the Sacred College of Cardinals, died in Genoa, Jan. 31.

Bogomolets, Alexander Alexandrovitch (1881-1946), Russian biologist, was born in a Kiev jail where his mother was held as a political prisoner. His father was a country doctor. He attended Odessa university and was professor of pathophysiology at Saratov university (1911-15) and at Moscow university (1925-31). He was dean of the Institute of Experimental Biology and Pathology at Kiev, and in 1930 was elected president of the Ukrainian Academy of Sciences. Dr. Bogomolets developed a serum, known as A.C.S. (anti-reticular cytotoxic serum) that many medical authorities hailed as a possible agent in treatment of such maladies as arteriosclerosis, arthritis and high blood pressure. During World War II, A.C.S. was used in treating wounded Red army soldiers and claims were put forth that it quickly healed wounds and knitted fractures. Other claims that it was a specific cure for cancer were repudiated by Dr. Bogomolets although he did assert that the serum would prevent deterioration of connective tissues and indicated that it had been used with positive results in post-surgical care of cancer patients to prevent recurrence of tumours. Bogomolets, who also was absorbed in the study of longevity, had evolved the theory that the normal life span of man should be between

125 and 150 years. In an interview in June 1946 he said it should be possible for a man to attain this age provided he used A.C.S. "when his connective tissues begin to deteriorate and he takes reasonable care of himself." The same month, his book *The Prolongation of Life* appeared in English and stirred up considerable public interest. Among his earlier works are *The Crisis in Endocrinology*, *The Science of Constitutions and Diatheses* and monographs on internal secretion, immunity and the pathology of circulation. Dr. Bogomolets himself, suffering from heart disease, was unable to use his own serum and he died on July 19 (at the age of 65), according to a Moscow radio report.

Bolivia. A land-locked republic in south central South America. Area, 419,470 sq.mi.; pop. (1944 est.), 3,533,900. The legal capital is Sucre (est. pop., 1946, 32,000); the real seat of government is La Paz (est. pop., 301,000). Other cities (with pop. estimates) include Cochabamba (80,000), Oruro (50,000), Potosí (40,000), Santa Cruz (32,800), and Tarija (27,000). Racial distribution is estimated to be 52.34% Indian, 27.5% mestizo, 13.08% white, 0.22% Negro and 6.85% unspecified. Bolivia is a unitary republic with a president popularly elected for a four-year term, a bicameral congress composed of a senate of 27 members and a chamber of deputies of 110 members and a judiciary headed by a supreme court of justice. Roman Catholicism is the predominant religion. Presidents in 1946: Lieut. Col. Gualberto Villarroel, to July 21; Nestor Guillén (provisional), July 21-Aug. 16; Tomás Monje Gutiérrez, from Aug. 16.

History.—The principal occurrence of 1946 was the bloody revolution which, in the latter half of July, overthrew the Villarroel government. The early months of 1946 were characterized by chronic disturbances. The elections of May 5 increased the strength of the Movimiento Nacional Revolucionario (the government party) to 13 out of 27 in the senate and 71 out of 110 in the chamber of deputies. The government on May 30 imposed a state of siege and, according to the opposition, began a reign of terror. Small units of the army air force attempted an unsuccessful revolt on June 13. The climax of the rebellious



SOLDIERS of the Villarroel government in Bolivia who joined the revolutionists during the uprising in the summer of 1946, in which President Gualberto Villarroel was killed

disturbances began at La Paz July 18 and resulted in two days of severe street fighting.

Pres. Villarroel named a completely military cabinet on July 20 and vainly tried to escape by plane. Rebels on July 21 attacked the presidential palace, hurled Villarroel from a balcony to the street where the aroused mob stripped the body and hanged it from a lamppost. Total casualties in the three days of fighting were estimated at 260 killed and 520 wounded. A provisional government was immediately set up under Nestor Guillén, dean of the La Paz district of the superior court; it quickly promised free elections (later scheduled for Jan. 4, 1947), political amnesty, abolition of censorship and other democratic measures. On Aug. 16, Tomás Monje Gutiérrez, president of the superior court, was inducted as provisional president. An attempted assassination of Pres. Monje on Sept. 27 resulted in a mob lynching of the would-be assassin and two others; the president was unhurt. The Bolivian embassy at Washington, D.C., on Oct. 28 revealed a document allegedly proving that the revolt of Dec. 1943 was instigated by Germany.

Education.—The latest available data showed almost 1,800 primary schools with approximately 160,000 enrolled, and about 80 intermediate schools with more than 11,000 enrolled; Bolivia has six universities. Illiteracy is estimated at 80%. The government in 1946 began, in co-operation with the Inter-American Educational foundation, a new curriculum for rural schools, emphasizing agriculture, health and sanitation.

Finance.—The theoretical monetary unit is the gold peso, valued at 20.6 cents U.S. currency; most transactions, however, are carried on in terms of bolivianos, valued at from 1.66 cents (Sept. 30, 1946) to 2.36 cents (Nov. 15), depending on the type of exchange. The 1946 budget totalled 1,286,371,147 bolivianos, an increase of about 33,500,000 bolivianos over that for 1945. In order to tighten the fiscal administration, the government prohibited the sale or transfer of gold between private persons. Credit authorizations, as of June 30, 1946, by the Export-Import bank of Washington, D.C., totalled \$15,500,000, of which \$1,200,000 was listed as the amount outstanding and \$14,300,000 as the undisbursed balance. The Bolivian government during the first half of the year authorized the Bank of the Argentine Nation (the largest such institution in Argentina) to open a La Paz branch. The official cost-of-living index for 1945 was 835 as against 100 for Dec. 1936.

Trade and Communication.—Foreign trade in 1946 continued on an uncertain basis because of protracted tin purchase negotiations. U.S. imports from Bolivia in 1945 were valued at \$27,900,000 (1944: \$31,100,000) and exports to Bolivia at \$14,200,000 (1944: \$12,400,000). Total value of Bolivian mineral exports in 1945 increased \$800,000 from that of 1944. Metal exports in the first five months of 1946 included: fine tin, 14,931 long tons; fine lead, 4,278 short tons; fine zinc, 9,913 short tons; fine copper, 2,685 short tons; wolfram, 51,809 short ton units; fine antimony, 2,739 short tons. Rubber exports in the first eight months of 1946 were 1,736 metric tons to the U.S. and 314 tons to Argentina; this represented a proportionate decrease from 1945 exports, which totalled 4,094.6 metric tons for the year.

Railway mileage is 1,407 and highway mileage 3,710. Construction proceeded slowly on the Bolivian section of the Arica (Chile)-Santos (Brazil) transcontinental railway. Construction on the Cochabamba-Santa Cruz highway, contracted in July 1945, continued, although under serious labour difficulties. The government appropriated 1,500,000 bolivianos for studying the feasibility of a highway from La Paz to the eastern lowlands. A railroad strike was settled June 2 by conceding wage increases. In the latter part of the year, Lloyd Aéreo Boliviano and Chile's Línea Aérea Nacional began negotiating a reciprocal agreement allowing each to fly into the territory of the other.

Agriculture.—Crop prospects were considered good at the beginning of 1946 but two months later a combination of drought, hailstorms and strikes of Indian farm workers reversed predictions. The government, in an effort to increase wheat production, raised the price to be paid by the mills. The government also attempted to improve livestock breeding in the altiplano. Coffee production in 1944-45 was estimated at 9,400,000 bags of 60 kg. The government continued with plans to establish an agricultural colony of 500 Mennonite families, each to be granted 200 ha. of land.

Mining.—Protracted tin purchase negotiations were finally concluded late in 1946, to run, however, only through Dec. 31, 1946. Terms included a base price of 62.5 cents a lb., a retro-active bonus of one cent a lb. for the first half of 1946 and a three-cent bonus for the second half if deliveries for the year reached a minimum of 17,600 metric tons, tonnage bonus penalties if deliveries fell short of that figure and continuation of a smelting bonus of 1.5 cents a lb. Exports of the four producing companies contracting with the U.S. were 10,385 metric tons in the first half of 1946. Production of the Patiño interests was under contract, at the same prices, to Great Britain. Bolivian production of fine tin in 1945 was 43,147 metric tons (1944: 39,342 tons). Production of crude petroleum in 1945 was 381,554 bbl. (1944: 313,262 bbl.). Y.P.F.B. (the government petroleum agency) and the revolutionary junta agreed on a new petroleum policy involving construction of additional pipelines and topping plants, the drilling of 50 new wells and exploitation of certain zones by private capital under Y.P.F.B. direction; the new program, it was stated, would be financed in part by the Export-Import bank.

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Bombing: see ATOMIC ENERGY; MUNITIONS OF WAR.

Bonaire: see CURAÇAO.

Bonds: see STOCKS AND BONDS.

Bonnet, Henri (1888–), French diplomatist, was born on May 26 in Chateauponsac (Haute-Vienne), France. He studied at the Université de Paris and was graduated from the École Normale Supérieure. He was drafted into the army during World War I, rising to a captaincy and was cited several times for bravery.

After the war, he became foreign editor (1919) of *L'Ere Nouvelle*, a Paris newspaper, and from 1920 to 1931, he was associated with the League of Nations in subexecutive posts. He left Geneva in the latter year to become director of the International Institute of Intellectual Co-operation and from 1931 to 1940 he was also vice-president of the Centre of Studies of Foreign Policy in Paris.

Bonnet fled to London after the collapse of French resistance in 1940 and later emigrated to the United States. In 1943, he was named commissioner for information by the Committee of National Liberation and went to Algiers to assume his new post. The following year, he was made information minister of the provisional government in Paris and on Nov. 28, 1944, he was appointed ambassador to the United States. Bonnet attended the United Nations conferences in San Francisco in 1945, and represented France at the security council sessions that opened in New York city, March 25, 1946. During debate on the Iranian dispute, Bonnet supported Andrei Gromyko's request that the case be dropped, April 15, and two days later, voiced approval of Dr. Oscar Lange's resolution calling for a diplomatic break with Franco's regime. On May 3, he was appointed to the U.N. atomic energy commission.

Chapter 10

52



A large rose tree stood near the entrance of the garden: the roses on it were white, but there were three gardeners at it, busily painting them red. This Alice thought a very curious thing, and she went near to watch them, and

just as she came up she heard one of them say "look out, Five! Don't go splashing paint over me like that!"

"I couldn't help it," said Five in a sulky tone, "Seven jogged my elbow."

On which Seven lifted up his head and said "that's right, Five! Always lay the blame on others!"

"You'd better not talk!" said Five, "I

A PAGE FROM the original manuscript of Lewis Carroll's *Alice's Adventures in Wonderland* (originally entitled *Alice's Adventures Under Ground*). This rare collector's item brought \$50,000 at an auction sale in 1946

Book-Collecting and Book Prices. The post war era found bookmen ready to resume the activities so abruptly concluded at the outbreak of World War II. This was especially true in Great Britain where, in 1946, restrictions which had prevented the importation of rare books were rescinded. Removal of these wartime provisions enabled British collectors to compete in foreign markets but the effect was not at once measurable. During the war years the United States had produced a creditable group of bibliographical works, an activity denied Great Britain; but with a return to a period that promised a more normal existence Great Britain hastened to prove that it was still bibliographically alert. Most important indication of this awareness was the announcement that the Bibliographical society (London) was preparing to issue a reprint edition of *The Short-Title Catalogue*; and an extended edition of Theodore Besterman's *World Bibliography of Bibliographies* was in press.

The British booktrade returned to almost full-time activity; there was no sign that the high and often inflationary prices of the war years would decrease. U.S. dealers complained that in many instances they were unable to purchase books in Great Britain because of high prices. This condition, but in a more aggravated state, prevailed on the continent where inflation produced an uncertainty that made trading difficult and often impossible. Continental shops priced their stocks on a day-to-day basis, using black market commodity prices as the standard. This factor was duly reflected in the United States which, for the first time in six years, was able to send buyers to the continent.

The rare book market in the United States was on an infinitely more stable foundation, and continued to react to keen collector interest; prices for genuinely rare books continued high. New York's Parke-Bernet galleries, which had become the rare book centre of the world, was able to report that its 1945-46 season had reached an all-time high of \$6,684,045, but it must be noted that the figure included the sum total realized for not only literary properties but also other collected materials. In April Parke-Bernet sold the first part of the Eldridge R. Johnson collection, the most spectacular item being the original manuscript of Lewis Carroll's *Alice's Adventures Under Ground* which brought \$50,000. Some months later there was put on foot a movement to purchase the manuscript by semi-public subscription for the purpose of presenting the manuscript to the British people as a gift from the United States. Also in April, the same galleries dispersed the third portion of the Frank J. Hogan library, disposing of, among other pieces: the Manley-Rosebery copy of the First Folio of Shakespeare (1623), \$50,000; a made-up, but nevertheless highly desirable copy of the first edition of *Pilgrim's Progress* (1678), \$8,000; a first edition of Chaucer's *Canterbury Tales* (1478), lacking 80 leaves and with a few other leaves supplied, \$13,000; a first edition of the King James version of the Bible (1611), \$4,000.

At the opening of the fall auction season in the United States good books continued to find a ready market at equitable prices but there was the merest hint that buyers were becoming cautious and that the buying tide might turn. Earlier in the season the London rooms disposed of the fifth part of the C.F.G.R. Schwerdt collection of sporting books; prices realized were high. The sale of this final part of the library brought £24,000.

In bibliography the United States produced several works worthy of mention: *A Primer of Book-Collecting* by John T. Winterich and David A. Randall, an extended revision of the original Winterich work which was first published in 1926; *American Book-Prices Current: Index 1941-1945* by Colton Storm, completing the index for the work from 1916 through 1945; Mary A. Benjamin's *Autographs: A Key to Collecting*.

(J. Bk.)

Book Publishing. Title production figures for the U.S. for 1946 reflected a prosperous year with an increase of 1,187 over 1945, in contrast to the steady drop in production during the years of World War II. Fiction presented the greatest single increase with 429 new titles, followed by juvenile books, with 186 new titles. Books dealing with games and sports, fine arts, business, geography and travel had the greatest proportional increases, indicating the nation's peacetime concerns. Philology and technical and military publications continued to decline; philosophy and ethics also declined after their sharp increase in 1945. Table I, compiled by *Publisher's Weekly*, summarizes U.S. book publication for 1945 and 1946.

Best Sellers.—Daphne du Maurier's *The King's General* led the 1946 list of fiction best sellers with a book-store sale of 228,235 and a book-club sale of 867,336, totalling 1,095,571. Taylor Caldwell appeared for the first time on the annual best-seller list, ranking second with her *This Side of Innocence*, a Literary Guild selection which had a trade sale of 221,000, and a total sale of 1,276,000. Third place was taken by another newcomer to the annual list, Frances Parkinson Keyes, for her *River Road*. Russell Janney's *The Miracle of the Bells*, the only fiction best seller that was not a book-club selection, placed fourth followed by *The Hucksters* by Frederick Wakeman, *The Foxes of Harrow* by Frank Yerby, *Arch of Triumph* by Erich Maria Remarque, *The Black Rose* by Thomas B. Costain, *B. F.'s Daughter* by John P. Marquand and *The Snake Pit* by Mary Jane Ward. Betty MacDonald's *The Egg and I*, fourth in 1945, headed the nonfiction list in 1946 with a trade sale of 496,000

Table I.—U.S. Publication of Books, 1945 and 1946

International Classification	1945			1946			Net Change
	New books	New editions	Total	New books	New editions	Total	
Philosophy, Ethics	183	24	207	164	28	192	-15
Religion, Theology	396	42	438	479	51	530	+92
Sociology, Economics	279	22	301	284	27	311	+10
Law	101	16	117	98	26	124	+7
Education	115	9	124	128	19	147	+23
Philology	117	34	151	76	32	108	-43
Science	266	75	341	244	106	350	+9
Technical & Military Books	275	101	376	261	76	337	-39
Medicine, Hygiene	185	117	302	195	105	300	-2
Agriculture, Gardening	42	8	50	37	18	55	+5
Domestic Economy	94	22	116	116	28	144	+28
Business	130	22	152	166	50	216	+64
Fine Arts	170	8	178	236	31	267	+89
Music	48	7	55	54	17	71	+16
Games, Sports	57	11	68	110	24	134	+66
General Literature	230	35	265	283	54	337	+72
Poetry, Drama	351	29	380	392	49	441	+61
Fiction	860	433	1,293	1,134	588	1,722	+429
Juvenile	666	25	691	798	79	877	+186
History	298	45	343	306	53	359	+16
Geography, Travel	86	12	98	103	30	133	+35
Biography	344	48	392	406	50	456	+64
Miscellaneous	93	17	110	100	24	124	+14
Total	5,386	1,162	6,548	6,170	1,565	7,735	+1,187

and a total sale of 1,038,500. Joshua L. Liebman's *Peace of Mind* was second, succeeded by Elliott Roosevelt's *As He Saw It*, Frances Perkins' *The Roosevelt I Knew*, Ernie Pyle's *Last Chapter*, Thomas Sugrue's and Col. Edmund Starling's *Starling of the White House*, Victor Kravchenko's *I Chose Freedom*, Emery Reves's *The Anatomy of Peace*, Ralph Ingersoll's *Top Secret* and Gene Fowler's *A Solo in Tom-Toms*.

Great Britain.—British book production rose sharply in 1946 with a total output of 11,411 new titles, new editions and reprints, the highest figure after 1939. The greatest single increase was shown in the trade, commerce and industry classification which produced a total of 1,640 including 1,381 *Reports on German Industry* by the board of trade. Considerable gains were made in the fiction and children's book fields, as well as in politics and religion. Table II, compiled by *The Bookseller*, gives statistics for the British book-publishing industry, 1944-46. (See also AMERICAN LITERATURE; ENGLISH LITERATURE; NEWSPAPERS AND MAGAZINES.)

Table II.—British Publication of Books, 1944, 1945 and 1946

Classification	1944	1945	1946
Aeronautics	159	67	66
Art and Architecture	103	140	230
Biography and Memoirs	295	246	319
Children's Books and Minor Fiction	595	715	989
Educational	384	365	483
Engineering, Electricity and Mechanics	153	112	198
Essays and Belles-Lettres	159	170	266
Fiction	1,559	1,246	1,995
History	213	135	232
Law and Parliamentary	132	234	225
Medical and Surgical	303	256	321
Naval and Military	246	124	124
Poetry and the Drama	249	287	334
Politics and Political Economy	678	503	631
Religion and Theology	495	464	654
Sociology	89	194	205
Travel and Adventure	108	82	109
Other	1,316	1,407	4,030
Total	7,241	6,747	11,411

Books: see BOOK PUBLISHING; CHILDREN'S BOOKS; see also under AMERICAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; etc.

Book Sales: see BOOK-COLLECTING AND BOOK PRICES.

Bormann, Martin (1900-), German politician, was born on June 17 in Halberstadt, Germany. An avowed and vocal pan-German, he participated in the German free corps raids along the Latvian border after the close of World War I. Bormann was imprisoned in 1923 for participation in a political murder, and after his release he joined the National-Socialists. He became head of the Nazi press in Thuringia in 1926 and was deputy supreme leader of the *Sturmabteilung* (Storm troops). In 1933 he became chief of staff to Rudolf Hess, then deputy Fuehrer, and also a member of the Reichstag. On Oct. 16, 1942, Adolf Hitler appointed Bormann to fill the post of deputy Fuehrer, succeeding Hess who

had made his strange flight to Scotland the year before. As such, Bormann exercised even greater administrative control over the party than had Hess. Bormann was active in persecution of the Jews, in the looting of artistic and cultural properties in eastern Europe and in expanding the German slave labour program. He disappeared shortly after the death of Hitler and it was presumed that he was either dead or in hiding. He was indicted Aug. 29, 1945, along with other Nazi leaders on charges of war crimes and was found guilty and sentenced to death in absentia by the international military tribunal at Nuernberg on Oct. 1, 1946. In its verdict, the court ruled that if Bormann were captured later, the Allied Control Council would be permitted to review his sentence if any mitigating factors in his defense were brought up.

Borneo. An island of the Malay archipelago, between 7° N. and 4° 20' S., 108° 53' and 119° 22' E.; area 293,496 sq.mi. (calculation of Topographical Bureau, Batavia); 830 mi. long N.E. to S.W., 600 mi. maximum breadth. Pop. about 3,100,000, of which 90% were Indonesian (Malays and Dyaks), the remainder Europeans (about 5,000) and Chinese (250,000); pop. density about 10 per square mile.

Many of the Indonesian natives lived on a very primitive level of culture and social organization and almost all were illiterate. Many were Moslems, although pagan worship predominated. Malay as well as countless native dialects were spoken.

Borneo was divided under British and Dutch control into a number of administrative units. Dutch Borneo, located in the southern portion of the island, included about three-fourths of the total area with about two-thirds of the population.

British Borneo.—British Borneo consisted of: (a) North Borneo (pop. 1931, 270,000; area, 29,500 sq.mi.), formerly administered by a chartered company on behalf of the British government, became a British colony on July 15, 1946; (b) Brunei (pop. 1931, 30,000; area, 2,200 sq.mi.), on the northern coast, a protectorate formerly ruled by a sultan with a British resident, but after World War II its administrative status was not clear; (c) Sarawak (pop. 1938, 467,000; area, 50,000 sq.mi.), on the northwest coast, formerly a protectorate under the rule of Sir Charles Viner Brooke, the "White Rajah," until July 1, 1946, when it became a British colony after the state had been turned over to Great Britain by the rajah with the endorsement of the Sarawak state council; and (d) Labuan (pop. 1934, 7,500; area, 30 sq.mi.), a small island off the North Borneo coast, formerly under the jurisdiction of the Straits Settlements but after World War II a part of the colony of North Borneo. Principal towns of British Borneo: Kuching, capital of Sarawak (1941 pop. 34,000); Sandakan, capital of North Borneo (pop. 13,700); Brunei, capital of Brunei (1938 pop. 12,000); Miri (Sarawak) (1941 pop. 10,000); and Jesselton (North Borneo) (1940 pop. 10,000).

Dutch Borneo.—With a population (1930) of 2,200,000, an area of 210,000 sq.mi., Dutch Borneo consisted before World War II of 2 residencies ruled directly by residents responsible to the governor of Dutch Borneo, who in turn was responsible to the governor general of the Netherlands Indies, and 17 native states headed by native rulers but under Dutch control. As a result of active native discontent after the end of the war in opposition to Dutch rule, especially in Java and Sumatra where hostilities occurred for many months, at the end of 1946 there was under consideration a plan for the formation of a "United States of Indonesia" in equal partnership with the Netherlands in the "Netherlands—Indonesia Union." This plan, which was drawn up by a Dutch and Indonesian delegation, would establish three autonomous states in the United States of Indonesia: the Indonesian republic (Java, Sumatra

and Madura), Dutch Borneo and East Indonesia (Celebes, Moluccas, the Lesser Sundas and possibly Dutch New Guinea). Principal towns of Dutch Borneo: Bandjermasin, capital (1930 pop. 65,700); Pontianak (45,200); and Balikpapan (29,800).

Economy.—Borneo had a primitive agrarian economy, with rice the chief food, supplemented by sweet potatoes, maize, soybeans, coconuts, fruits and fish. The island's chief economic importance, however, was its petroleum resources; it also produced rubber, coal and forest products. During World War II Borneo supplied Japan with considerable quantities of these resources. Major oil fields were at Seria (Brunei), Tarakan (Dutch Borneo) and Miri (Sarawak); major oil refineries were at Balikpapan (Dutch Borneo) and Lutong (Sarawak). About 20,000,000 bbl. of crude petroleum were produced in 1940. In the same year an estimated 650,000 tons of coal and 30,000 tons of rubber were produced. Borneo had a railroad with total trackage of about 100 mi. and a number of small industrial railroads; in 1940 there were about 2,000 mi. of roads, less than half of which were usable throughout the year. (See also BRITISH EMPIRE; NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.)

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Boron Minerals. The production of boron minerals in the United States increased from 277,586 short tons in 1944 to 325,935 tons in 1945, the largest output after 1937. Four producers reported outputs of borax, anhydrous sodium tetraborate, kernite, boric acid and colemanite, all from California. The ceramic industry was the major consumer, but use in fertilizers was expanding.

Normally, the United States supplies a large share of the world demand, and one-third or more of the domestic output was exported. During World War II exports dropped heavily, but during 1946 a postwar renewal of export sales was easing the shock of shrinking home consumption in markets no longer stimulated by war demands, chiefly in the glass industry.

(G. A. Ro.)

Boston. Ninth largest city of the United States, with a population of 770,816 by the federal census of 1940. Boston is a seaport at the head of Massachusetts bay and is the capital of the state of Massachusetts. Area, 43.9 sq. mi., comprising most of Suffolk county.

U.S. Representative James M. Curley (Dem.) became mayor (4-yr. term) on Jan. 7, 1946. On Jan. 18 Mayor Curley was found guilty in a federal court in Washington, D.C., of using the mails to defraud and sentenced to 6 to 18 months' imprisonment and \$1,000 fine. This sentence was suspended while the case was being appealed.

Veterans' services were reorganized in the veterans' rehabilitation division which processed 59,897 individuals. The acute housing shortage was increased by the great influx of students into the colleges of the metropolitan area. The army released Camp McKay, South Boston, and it was converted into 248 units of veterans' housing. The Boston Housing authority developed 600 additional units in Franklin field and Alsen playground. Two federal housing projects were abandoned because of the expense of complying with the Boston building code. The state legislature refused to sanction Mayor Curley's proposed bond issue for current expenses but authorized borrowing for an extensive program of off-street parking facilities, including a garage under the famous Boston Common. The legislature also made appropriations for a new vehicular tunnel between Boston and East Boston.

The Boston Port authority purchased the Castle Island ter-

minal in South Boston which was built by the army during World War II at a cost of \$15,000,000.

The work on extending the runways at Logan International airport was nearly completed. The first Boston-to-Paris plane service was established from Bedford airport. The Boston elevated fare for local rides was raised from five to ten cents. The Boston Medical Center for Children was initiated by the merger of five institutions.

The temporary \$200 a year cost-of-living salary adjustment for city and county employees was made permanent and an additional increase of \$200 was authorized for 1947. A new Teachers alliance comprising a majority of the 4,000 public school teachers demanded a salary increase of from \$800 to \$1,200 which was refused by the mayor. School enrolment was 94,000, a decline of 2,000.

The 1946 tax rate was \$42.00 (1945—\$42.50) on an assessed valuation (real and personal) of \$1,536,385,600, an increase of \$57,213,600. Tax exempt property: 27% of assessed valuation. Budget: (city and county) \$55,328,186.37, an increase of \$5,067,530; (schools) \$17,575,791.87, an increase of \$38,000. In the period Jan.—Oct. 1946, bank clearings increased 9.5%, bank debits increased 1.1%, department store sales increased 29.9%, manufacturing employment decreased 17.5%, manufacturers' payrolls decreased 22.2%.

(S. J. McK.)

Botanical Gardens: see BOTANY.

Botany. The year 1946 witnessed a partial return to normal in the field of botany after the years of World War II. Many botanists serving in the armed forces or assigned to war research projects returned to their permanent posts.

News in regard to the condition of botanical laboratories, museums and herbaria in war-torn countries continued to come in. The herbarium in Berlin-Dahlem, with its large number of type specimens, was completely destroyed, as was the Botanical institute at Jena. The botanical facilities and collections at the University of the Philippines were completely destroyed. The herbarium of the University of Tokyo was unharmed. That of the University of Munich was also saved. The Centraal-bureau voor Schimmelcultures at Baarn, Holland, escaped damage and began active distribution of fungus cultures on the same basis as before World War II.

The year witnessed the organization or reorganization of a number of agencies of importance in the botanical field. The newly organized Institute of Radiobiology and Biophysics at the University of Chicago was headed by a botanist, Dr. R. E. Zirkle. The 11 separate botanical agencies which have existed at Harvard university were consolidated into two administrative units. These were the Institute for Research in General Plant Morphology, which included the Gray herbarium and library, the Farlow herbarium and library, the library of the Arnold arboretum and the Botanical museum; and the Institute for Research in Experimental and Applied Botany, which included the Arnold arboretum, the Bussey institution, the Cabot foundation, the Harvard forest and the Atkins garden and laboratory in Cuba.

After a lapse of several years, the annual meetings of the various plant science societies were resumed. The Botanical Society of America and related societies met with the American Association for the Advancement of Science in St. Louis in March 1946, and again in December, in Boston. The American Institute of Agronomy met at Columbia, Mo., in November. The British Bryological society celebrated its 50th anniversary in London, in September. The British Mycological society also observed its 50th anniversary a month later.

The rapid development of interest in Microbiology, resulting

from wartime discoveries of antibiotics and the importance of micro-organisms for bio-assay purposes, culminated during the year in the establishment of a microbiological section of the Botanical Society of America, which arranged a large and important program at the Boston meeting.

Research Projects Reported Upon in 1946.—L. Ajello succeeded in analyzing the nutritional requirements of a chytrid-Polychytrium. This fungus is capable of synthesizing all the vitamins necessary for its growth. It can use chitin as a source of nitrogen but not of carbon. Nitrogen may be obtained from both organic and inorganic sources.

C. B. Buell and W. H. Weston discovered that fungus cultures can be maintained for long periods of time by covering the slant with mineral oil. The oxygen consumption of fungi being thus grown can be measured accurately and the condition of the culture thus determined.

A. Hollaender, C. P. Swanson and I. Posner found that the sun yields ultra-violet radiation of sufficient intensity to induce a certain amount of mutation in fungus material. Swanson and Hollaender also found that the mutation rate resulting from high energies of ultra-violet is increased if material is treated first with near infra-red, although the latter alone does not produce mutation.

S. Spiegelman and M. P. Kamen produced evidence to show that the cytoplasmic self-duplicating entities present in yeast, which are connected with enzyme synthesis, are nucleoproteins and are derived directly from the genes. Albert Levan, studying the effect of camphor, butyric alcohol and benzene on the nucleus of yeast, showed that the Feulgen-positive material is chromosomal and not centriolar, as has been claimed.

S. R. Bose found an antibiotic substance in a polyopore commonly found in India which is effective against important gram-positive and gram-negative organisms. It appears to be nontoxic.

H. H. Dixon found that nuclei which are not surrounded by walls (e.g., embryo sac, endosperm) tend to divide synchronously as opposed to those which are surrounded by walls. Mitoses sweep through such a tissue in a wave, which suggests that mitosis is controlled by a hormone, the wave of division following the diffusion of the hormone.

Ernest Ball, studying the growth of shoot apices of lupine, which had been slit lengthwise into quadrants, found that each quadrant developed into a normal shoot. This did not come about from dedifferentiation of mature tissues, but was controlled by the apical meristem itself. The shoot apex, therefore, produces the tissues of the shoot, independent of control by the mature shoot.

Very young hypocotyls of seedlings from which roots had been removed were found by Carl D. La Rue to produce outgrowths identical with root hairs. They will not form if the cotyledons are also removed.

It was found by H. E. and G. L. Warmke that the regeneration of short segments of fleshy taproots can be controlled experimentally. Ordinarily, leaves develop from the proximal cut surface, roots from the distal surface. If segments are treated with indolebutyric acid, roots grow from both surfaces; if the segments are subjected to prolonged washing or to chemicals known to reduce auxin content, both surfaces produce leaves. Thus, either roots or leaves can be produced, depending upon whether the auxin content is increased or decreased.

S. G. Wildman, M. Ferri and J. Bonner produced evidence to show that tryptophan is probably the precursor of auxin in spinach leaves. Before auxin can perform in growth, it must combine with a protein to form a specific enzyme. Diffusible auxin is auxin formed from tryptophan but not yet combined with protein.

Books published during the year include:

Action of Radiation on Living Cells, by D. E. Lea; *Pure Cultures of Algae*, by E. G. Pringsheim; *Marine Microbiology*, by C. E. ZoBell; *Modern Aspects of Plant Nutrition*, by Walter Stiles; *pH and Plants*, by James Small; *Genera Filicum—The Genera of Ferns*, by E. B. Copeland; *Guide to Southern Trees*, by E. S. and J. G. Harrar; *Flora of Guatemala, Pt. IV*, by P. C. Standley and J. A. Steyermark. (See also BIOCHEMISTRY; GENETICS.)

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Botanical Gardens.—Brooklyn Botanic garden celebrated Forsythia day, April 10, with the purpose of establishing the forsythia as Brooklyn's official flower. Funds granted by Mrs. Edward C. Blum made possible the observance of the day annually. A postwar conference on community planting was held by 36 organizations from New York, New Jersey and Connecticut. Plans were discussed for beautifying communities by specific planting projects. The New York Botanical garden announced four types of industrial memberships: (1) industrial contributing member, (2) industrial sustaining member, (3) industrial patron and (4) industrial benefactor. Dr. H. A. Gleason (*N.Y. Bot. Gard. Jour.* Oct. 1946) announced that during the period, 1897–1946, the garden had 248 different plant exploring expeditions. In 1946 L. J. Brass was in Nyasaland, Bassett Maguire and Arthur Holmgren in the Intermountain region and Otto Degener in New Providence Island, Bahamas. The Arnold arboretum in 1947 would celebrate its 75th year. It was the first arboretum as such, but after its organization, and indeed within the 20th century, the idea had expanded until there were 60 within the United States in 1946, some of them large and well endowed, such as the Morris arboretum at Philadelphia and the Morton arboretum, Lisle, Ill.

Montreal Botanical garden started two new gardens in 1946. The garden of plants used by the American Indians for food, fibre, dyes, etc. contained 474 species of American plants. A new garden of dwarf fruit trees was also started for the purpose of showing the opportunities offered to small private property owners by dwarfed fruit trees. The Hemlock arboretum at "Far Country," Germantown, Pa., with nine different species of *Tsuga* and 40 varieties of these species, announced that it had no room for further gifts without disposing of some of its plants.

Federated Garden Clubs of Missouri dedicated a boxwood garden at the Missouri Botanical garden. This included a large number of box varieties collected by an expedition to the Balkans. This promised the midwest superior selections of these highly prized evergreens. The Missouri Botanical garden reopened the Canal Zone station with Paul H. Allen as tropical collector. During 1946 Morton arboretum devoted

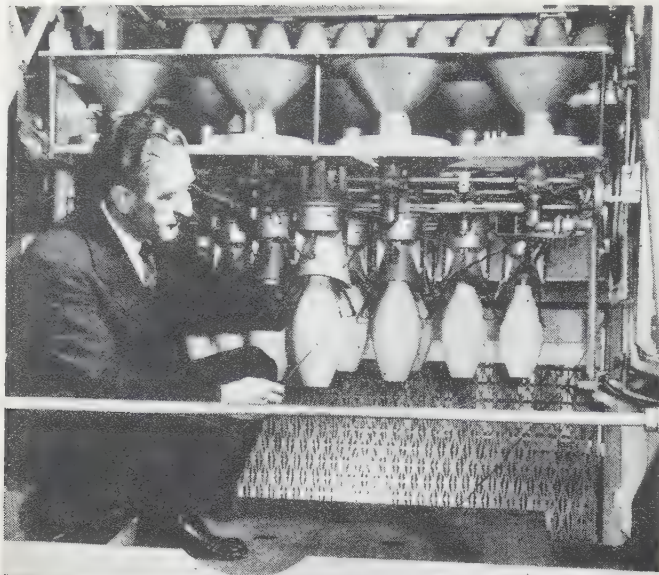
much attention to building roads through the grounds so that traffic could be routed one way during busy seasons, particularly the months of May and October. During 1946 the following important activities occurred at the University of Washington arboretum, Seattle, Wash.: a large number of trees and shrubs were placed in their systematic positions in the arboretum; the second annual Camellia show was held under the auspices of the Amateur Gardeners club of Seattle; and the first annual Rhododendron show was held and jointly sponsored by the Arboretum foundation and the American Rhododendron society. Dr. John H. Hanley, director, was granted six months' leave of absence from the university to study and do research work in England, more particularly at Kew gardens.

Robert Allerton made a gift of "The Farms" (6,000 ac.), Monticello, Ill., to the University of Illinois. Robert Allerton park and the residence with the valuable art collection provide for a co-ordinate research program in forestry, entomology, zoology, biology and in fine and applied arts blending architecture and landscape architecture. One hundred acres were set aside for 4-H clubs and related educational programs. Much of the rich land was to be continued as grain and stock farms to support the educational and research programs. (See also HORTICULTURE.)

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Bowes, Edward (1874–1946), U.S. theatrical producer and radio showman, was born on June 14 in San Francisco. While working as an office boy in a real estate firm, he displayed a talent for the business, and soon became a prosperous real estate agent on his own. He quickly made a fortune, which was just as quickly wiped out by the San Francisco earthquake in 1906. However, he recouped his wealth to some degree and moved to the east coast, where he specialized in supervising construction, operation and direction of several theatres in New York and Boston. He served in the intelligence department in World War I and was a staff specialist in the officers reserve corps with the rank of a major. In 1919, he joined the Goldwyn Pictures corporation as vice president, continuing his connections with that company after its merger in 1924 with the Louis B. Mayer firm. In 1934, he became manager of a New York radio station, and inaugurated an "amateur hour" program. The program soon won nationwide popularity, and the stream of amateurs flocking to his studios from all parts of the nation for a "try at fame" flooded New York city's relief rolls. As a result, Maj. Bowes was compelled to move his auditions elsewhere. In 1935, the Maj. Bowes' "Amateur Hour" was one of the most popular radio programs in the United States. Its rating soon dwindled, however, and by 1945 it no longer was regarded as a "top drawing-card," although it still had a substantial following in rural areas. Maj. Bowes, who left the program in 1945, died in Rumson, N.J., on June 13.

Bowles, Chester (1901–), U.S. advertising executive and government official, was born in Springfield, Mass., Aug. 5. A graduate of Yale, 1924, he became an advertising copywriter and together with William Benton formed the advertising firm of Benton and Bowles, July 1929. Bowles was made chairman of the board of that company in 1936. In Jan. 1942, he took a leave of absence to work on a dollar-a-year job in Connecticut, later becoming OPA administrator for the state. On July 15, Prentiss M. Brown, then OPA national director, named Bowles as general manager of his agency. On Oct. 25, 1943, Bowles succeeded Brown who had resigned four days earlier as OPA administrator. Throughout 1944 and 1945, and also in 1946, Bowles battled continually and vigorously to maintain price controls. His stand was unpopular with many businessmen, and he was subjected to a sustained barrage of intensive criticism. On Feb. 14, 1946, Pres. Truman re-established the Office of Economic Stabilization and named Bowles its director. Bowles appealed to congress (May 18) for funds to fight the black market. After the senate passed a measure extending OPA but weakening its price controls, Bowles resigned (June 28) with a warning that price control under the new bill would be impossible and urged the president to veto it.



AUTOMATIC PINSPOTTER BEING CHECKED by its inventor, Fred Schmidt, before its unveiling at the American Bowling Congress tournament in Buffalo, N.Y., March 14, 1946. The machine was designed to perform all the tasks of the pin boy, including the return of the ball

Bowling. Carrying on from his 1945 success in winning the individual match game championship, Joe Wilman of Berwyn, Ill., led the way in the return of the annual American Bowling congress tests. The A.B.C. returned to the sports scenes after a three-year war recess, attracting a total of 25,567 entries to Buffalo, N.Y. Wilman won the all-events crown with 2,054 pins and thus became the eighth bowler in tournament history to win three crowns. He won the all-events title in 1939 and captained the Chicago Budweisers, winner of the 1942 team championship.

Leo Rollick of Santa Monica, Calif., and formerly of Chicago, won the A.B.C. singles with 737. Henry Kmiodowski and John Gworek, two Buffalo unknowns, swept their way to the doubles championship with 1,360. The Llo-Da-Mar team of Santa Monica captured the team title. As a result of his first in singles, second in all-events and place on the winning team, Rollick became the highest prize winner in tournament history. He totalled \$945.

Andy Varipapa, 52-year-old trick shot artist from Hempstead, L.I., won the national individual match game championship late in 1946. He defeated Allie Brandt of Lockport, N.Y., by 12 pins. (M. P. W.)

Boxing. Record-shattering activity developed in boxing through 1946. No less than 15 championship bouts were held. Every ring division of the eight standard classes held championship battles. The unprecedented admittance price of \$100 was imposed. One club, the Twentieth Century Sporting club, New York city, admittedly the world's foremost promotion organization, grossed close to \$5,500,000 conducting bouts in three arenas, viz., Madison Square Garden, the St. Nicholas arena (indoors) and the Yankee stadium (outdoors), all in New York city.

The year ended with but one class championship in dispute, which was something of an odd record. Only in the lightweight division was there contention over possession of the world championship. Bob Montgomery of Philadelphia, Pa., and Ike Williams, Camden, N.J., were the disputants to this title. Montgomery, recognized as champion in New York state and in Pennsylvania, made two defenses of his championship status. Williams, recognized as champion by the National Boxing association, wielding jurisdiction in all other boxing centres throughout

the country, fought twice in defense of his standing.

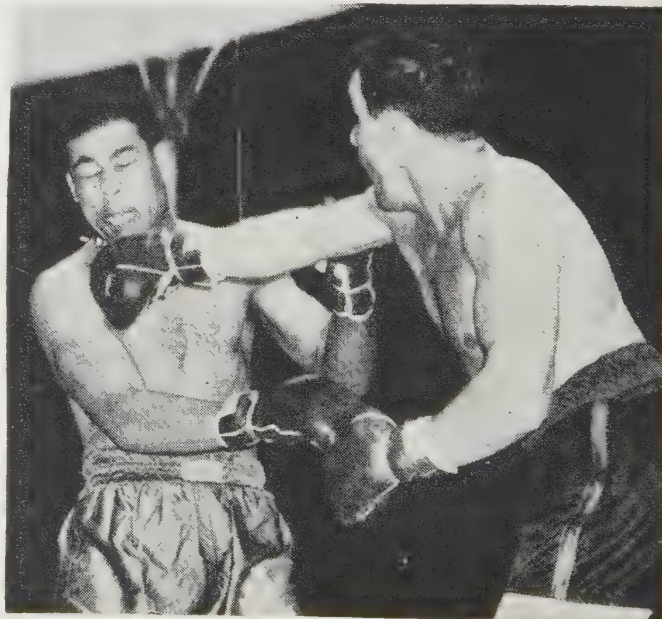
Joe Louis twice defended his world heavyweight championship, passing successfully through his 22nd and 23rd defenses after winning the crown from James J. Braddock in Chicago, Ill., in 1937. He knocked out Billy Conn, Pittsburgh, Pa., in 8 rounds of a scheduled 15-round bout at the Yankee stadium June 19. On Sept. 18, Louis knocked out Tami Mauriello, Bronx, New York city, in 2 min. 9 sec. of the first round of a scheduled 15-round bout in the same arena.

The Louis-Conn bout, eagerly awaited by boxing follower during the four years and more of war service for champion and challenger that followed their first meeting in 1941, was a disappointment, competitively. Yet, it was the medium for the first \$100 ticket charge in boxing history, and exceeded \$2,000,000 in receipts. A crowd of 45,266 saw the battle, paying gate receipts of \$1,925,564 for the privilege. Additional income from radio, television and motion pictures, boosted the receipts beyond the \$2,000,000-mark. The bout against Mauriello was infinitely more exciting though of shorter duration and altogether one-sided for Louis. Knocked across the ring with a right-hand punch to the jaw, the first blow of the battle, Louis rebounded with a savage fire that quickly put the quietus on Mauriello, before a crowd of 38,494, which paid receipts of \$335,063.

The most active champion of the year was Manuel Ortiz, El Centro, Calif., holder of the world bantamweight title. He defended the honour three times, knocking out Luis Castillo, in 13 rounds at San Francisco, Calif., Feb. 25; Kenny Lindsay, in 5 rounds at Hollywood, Calif., May 25, and Jackie Jurich in 11 rounds at San Francisco, June 10.

The year's most spectacular championship bout was waged Sept. 27 in the Yankee stadium, New York city, when Tony Zale, world middleweight champion, knocked out Rocky Graziano, of New York's east side, in six rounds. This was Zale's first title defense, following more than four years of service in the war, and he had to survive the knockdown punches of his most dangerous hitting challenger. He did this in a manner to thrill 39,827 onlookers, who contributed receipts of \$342,497.

Gus Lesnevich, world light-heavyweight titleholder, participated in a record-making championship bout of international flavour. He knocked out Freddie Mills, European champion, in ten rounds at London, Eng., May 4, before a crowd of 12,000



JOE LOUIS IS SMASHED ON THE CHEEK by a powerful right from Tami Mauriello in New York's Yankee stadium on Sept. 18, 1946. A few seconds later Louis knocked out the challenger to retain his heavyweight championship of the world

persons, who paid receipts of \$176,000. The receipts were announced as a record for Great Britain.

Willkie Pep, Hartford, Conn., knocked out Sal Bartolo, Boston, Mass., in 12 rounds at Madison Square Garden, New York city, June 7, to gain undisputed possession of the world featherweight title. The 126-lb. championship had been in dispute until this match. Ray Robinson of New York city, won a 15-round decision over Tommy Bell, Youngstown, O., Dec. 20, in Madison Square Garden, to clear away confusion that surrounded the world welterweight championship. The resignation of Marty Servo of Schenectady, N.Y., who announced his retirement because of illness earlier in the year, left this title without a recognized holder until Robinson and Bell fought under agreement the winner would be universally recognized as champion.

In defense of his world lightweight championship standing Montgomery knocked out Allie Stolz, Newark, N.J., in 13 rounds at Madison Square Garden, June 28, and on Nov. 26 in Philadelphia knocked out Wesley Mouzon, in 8 rounds. Williams retained his claim to the N.B.A. distinction by knocking out Enrique Bolanos, in 8 rounds at Los Angeles, Calif., April 30, and Ronnie James, in 9 rounds at Cardiff, Wales, Sept. 4.

Only one flyweight championship was recorded. In this bout Jackie Patterson, the champion, won a 15-round decision over Joe Curran, in Glasgow, Scotland, July 10.

Amateur and intercollegiate boxing experienced wider activity on a competitive basis and greater interest from the spectator standpoint. In the Amateur Athletic union's national championship tournament held at Boston, a Hawaiian team tied with marines from Cherry Point, N.C., for the team championship, each with ten points. Duplicate trophies were awarded. In the 23rd annual Intercollegiate Boxing association championship tournament held at West Point, the cadets won the team championship for the fourth time after 1936, with 20 points. (J. P. D.)

Boynton, Percy Holmes (1875-1946), U.S. educator, and authority on American and English literature, was born on Oct. 30 at Newark, N.J., and was graduated from Amherst college, Amherst, Mass., in 1897. He continued his education at Harvard university, Cambridge, Mass., where he received his A.M. degree in 1898, and in 1902 he joined the University of Chicago faculty where he became professor of English, 1923; he retired as professor emeritus in 1941. Author of several works on English and American literature which became standard textbooks, and a recognized literary expert, he was a well-known lecturer and a frequent contributor of articles on literature to magazines. A lover of fine music, he encouraged and developed a series of symphony concerts during his years on the campus. He served as dean of the university's College of Arts, Literature and Sciences, 1912-28, and as the principal of the summer school, 1914-17. Prof. Boynton was the first member of the faculty to sponsor the University of Chicago Round Table, a weekly radio program. His works include: *Principles of Composition* (1915), *History of American Literature* (1919), *Some Contemporary Americans* (1924), *More Contemporary Americans* (1927), *The Rediscovery of the Frontier*, and *The Challenge of Modern Criticism* (1931), *Literature and American Life* (1936) and *The American Scene in Contemporary Fiction* (1940). He died at New London, Conn., on July 8.

Boy Scouts. The 36th annual meeting of the National Council of the Boy Scouts of America was held in St. Louis, Mo., May 16-17, 1946. Walter W. Head of St. Louis, who had served as president for 20 years, retired and Amory Houghton of Corning, N.Y., was elected president. More than 1,000 delegates and friends of scouting participated including



BOY SCOUTS IN CHICAGO pay tribute to Abraham Lincoln during ceremonies in Lincoln park on Feb. 12, 1946

General Joseph W. Stilwell and Fleet Admiral Chester W. Nimitz.

Cub scout activities (for boys 9-11 years old) emphasized skills and fun around the home under the leadership of "Den Mothers" and "Den Chiefs" (older scouts); boy scouts (boys 12 years and older) camped in great numbers as troops under troop leaders. There was an extraordinary gain in the number of Negro boys who had the opportunity to come into scouting. Senior scouting (for young men 15 years and older) attracted a large number either as air scouts, explorer scouts or sea scouts. The new scout unit, the senior scout outfit, made it possible for a young man to follow any or all of the scout programs.

A National Scout Round-Up was held in the fall months giving opportunity to thousands of non-scouts to come into scouting.

In addition to troop camps, scouts conducted trail building camps, especially in Wisconsin, and wilderness camping expeditions; sea scout cruises were held; Philmont Boy Scout ranch attracted experienced campers for wilderness camping; an important feature was instruction in air scouting given by officers in the army air corps to air scouts with opportunity for flying.

In addition to civic service many scout units put over post-war service projects at the request of the government. These included collections of needed clothing and materials, distribution of government informational material, and raising victory gardens to help the food situation.

The theme of 1946 was "Scouts of the World Building Together." In February the "Shirts Off Our Backs" campaign resulted in hundreds of cases of good used uniforms and

equipment being sent to scouts abroad. Through the World Friendship fund contributed by scouts a special badge was manufactured and sent to scouts abroad whose badges had been destroyed during the war; two books published by Lord Robert Baden-Powell, founder of scouting, *Aids to Scoutmastership* and *Scouting for Boys*, were printed and distributed to scouts abroad. The Sixth World Jamboree was scheduled to be held in France in the summer of 1947 together with the International Conference of Scout Leaders.

There was an increase in membership over the previous year. As of Nov. 30, 1946, the membership was as follows:

Total Boys	1,499,184
Total Leaders	493,186
Total Membership	1,992,370
Total Units	64,080

(L. W. BA.)

Braden, Spruille (1894—), U.S. diplomat and statesman, was born March 13 in Elkhorn, Mont. He was graduated from the Sheffield Scientific school at Yale university in 1914 with a degree in mining engineering. Braden, whose father had founded the Braden Copper company which had interests in North and South America, worked in executive positions in mining in South America. After World War I, he was financial adviser to several South American governments. He entered the diplomatic service in 1933 as delegate to the Inter-American Conference of American States in Montevideo. Later he was ambassador to Colombia and ambassador to Cuba.

In May 1945 Braden was named by President Truman as U.S. ambassador to Argentina. After assuming his post, Braden denounced fascism and actively campaigned for establishment of democracy in Argentina. Braden's activities were resented by Col. Juan Domingo Perón, who criticized what he termed U.S. "meddling" in the internal policies of Argentina.

In Aug. 1945, Truman announced Braden's appointment as assistant secretary of state in charge of American republic affairs. Approval of his appointment was delayed because of charges made by some congressmen that Braden was "interfering" in Argentine affairs and demands for his ouster were made by pro-Perón factions in congress, but his confirmation was unanimously approved by the senate on Oct. 22, 1945. Throughout 1946 Braden continued his vigorous attacks on what he termed dictatorships of both the right and left in South America. On Nov. 29, 1946, the state department announced that Braden had the entire confidence of both President Truman and Secretary James F. Byrnes and that he would remain in his post.

Bradley, Omar Nelson (1893—), U.S. army officer, was born in Clark, Mo., on Feb. 12. He was graduated from the U.S. Military academy in 1915 and later from the Infantry school, the Command and General Staff school and the Army War college. Early in 1941 he was commandant of the Infantry school, and in Feb. 1943 he was sent to North Africa where he assumed command of the 2nd corps, which he led to victory at Tunis and Bizerte. In Jan. 1944 Gen. Dwight D. Eisenhower disclosed that Bradley had been made commanding general of the U.S. ground forces for the invasion of Europe. When the invasion started, June 6, Bradley headed the U.S. 12th army group. On Aug. 30 it was disclosed that Gen. Bradley had been given equal status with Gen. Bernard L. Montgomery. The U.S. armies under Bradley's command hammered their way into the Siegfried line by the winter of 1944. After recovering from the nazi counterblow in the Ardennes forest, Bradley's forces overran a large part of the reich by the close of the war in Europe. He was made a

full general (temporary) on March 13, 1945, and was named (June 7, 1945) by Pres. Truman as administrator of veterans' affairs. The following September, he announced plans to overhaul the veterans' service. In early 1946, John Stelle, national commander of the American Legion, attacked Bradley's administration. The general, who received the full support of the president, later accused Stelle of obstructionism and misrepresentation.

Bragdon, Claude (1866–1946), U.S. architect, was born on Aug. 1 in Oberlin, O. He practised his profession in Rochester, N.Y., from 1901 to 1923 and during that time designed railroad stations in the United States and Canada, as well as churches, public buildings and art galleries. His plan of the New York Central railroad station in Rochester was considered one of his finest works. In 1923, he began designing sets for plays and in 1935 lectured on architecture at Princeton university. In addition, he was one of the country's leading experimenters in "colour music." His use of light and colour to reflect the mood of music was first demonstrated with considerable success at the community singing festivals in Rochester known as "Song and Light." A mystic and theosophist, he wrote several books outlining his beliefs, and he aided in the translation and was publisher of *Tertium Organum* by the Russian author Ouspensky, whose views, he said, correlated his own. Several of Bragdon's books were translated into Japanese, Russian and Italian. His works include *The Beautiful Necessity* (1910), *Four-Dimensional Vistas* (1916), *Architecture and Democracy* (1918) and *More Lives Than One*, an autobiography (1938). He died in New York city on Sept. 17.

Brazil. The second largest nation of the western hemisphere and the most populous of Latin America; language: Portuguese; religion: predominantly Roman Catholic, with about 1,000,000 Protestants (including their families) of various denominations; capital: Rio de Janeiro (1945 pop. estimated at 1,951,900); president: José Linhares, former chief justice, until Jan. 31, 1946; from then on, Gen. Eurico Gaspar Dutra.

Brazil has an area of 3,286,170 sq.mi., second only to that of Canada in the western hemisphere. The country is divided into 20 states, a federal district and 5 territories (under provision of the Additional act to the 1946 constitution), including the island of Fernando de Noronha, 225 mi. off the northeastern coast.

The population (1940 census: 41,565,083) was officially estimated at 45,300,000 as of Jan. 1, 1945. Of the population 22% was classified as urban, 9% as suburban and 69% as rural. The capital, Rio de Janeiro (coterminous with the federal district), is the largest city of Brazil.

History.—The principal event in the political history of Brazil during 1946 was the return of the country to a constitutional and democratic form of government. The provisional government of José Linhares came to an end with the inauguration of Gen. Eurico Gaspar Dutra (Jan. 31), elected by a large majority of popular votes in the general elections of Dec. 2, 1945.

In early February the national congress met in the capital, and constituted itself at once into a constituent assembly for the specific purpose of adopting a new constitution, the preliminary draft of which was approved June 1 and, after the adoption of a number of amendments, solemnly promulgated on Sept. 18.

In general, the 1946 constitution is more liberal and democratic than the 1937 charter. It provides for a legislative power exercised by a national congress composed of two houses, a federal senate and a federal chamber of deputies. During the interval between legislative sessions a permanent commission was to exercise certain legislative powers. The senators are elected for an eight-year period, and the deputies for a four-

year period. Members of congress are elected by equal, direct, compulsory and secret suffrage under a system of proportional representation. The president and the vice-president are elected simultaneously and directly by the people. They hold office for five years. The president may not be elected to the presidency within five years after the expiration of his term of office.

The judiciary is composed of a federal supreme court, federal courts of appeals, judges and federal military courts, judges and electoral courts and judges and labour courts.

Each state was to be governed under the constitution which it adopts, within the framework of the federal constitution. Municipalities would be organized as autonomous administrative units.

One of the important innovations of the new constitution is section three, on social rights, empowering the federal government to create state-owned monopolies in the public interest. The government was specifically authorized to suppress any economic organization, group, company or individual firm regardless of its nature which endeavoured to dominate internal markets, eliminate competitors or exploit consumers through price control or any other activity. The government was also authorized to proceed with the nationalization of banks and insurance and investment companies.

The nationalization of public utilities was to be regulated by law. Mines and subsoil resources, as well as waterfalls, constitute property distinct from the soil for the purpose of exploitation or industrial use. Their exploitation was declared to be dependent on federal authorization or concession. Such concession would be granted only to Brazilians or to firms organized in Brazil. The constitution also provided that 3% of the federal revenues during the following 20 years was to be spent to develop the Amazon region.

The new constitution also authorized the government to intervene in labour disputes, although it recognized the general principle of freedom of association and the right to strike, with certain limitations as might be deemed necessary in the public interest. Labour courts were to be created for the solution of controversies between workers and employers. The ownership of journalistic enterprises and broadcasting stations was prohibited to corporations with to-the-bearer shares and to foreigners.

The constitution provided that a minimum of 10% of federal revenues should be devoted to public education. The states



VIEW OF THE VOLTA REDONDA STEEL PLANT in Brazil, about 150 mi. from Rio de Janeiro. The plant went into operation in June 1946

were to devote at least 20% of their revenues to the same purpose.

The Communists under the able leadership of Luiz Carlos Prestes were the only party opposed to the adoption of the new constitution. Claiming a membership which grew within about a year from 4,000 to 130,000, they were probably the most politically aggressive and well-organized party of Brazil.

There were altogether 13 political parties recognized by the national electoral tribunal. The most important were: the Social Democratic party (conservative, the majority party); the National Democratic union (chief opposition party); the Communist party of Brazil (declared legal only a few months before the Dec. 1945 elections) and the Brazilian Labour party (of which former president Getulio Vargas was honorary president).

The day after the promulgation of the new constitution the constituent assembly elected Sen. Nereu Ramos to the position of vice-president and returned to its congressional status as divided into senate and chamber of deputies.

Worthy of note was also the return in August from exile in Portugal (from 1939) of Plinio Salgado, former leader of the Integralist party (fascist) declared illegal by Vargas. The Integralists organized themselves as a new political party (Party

of Popular Representation) duly registered under the existing laws.

Internationally, Brazil was elected to fill one of the non-permanent seats in the Security Council of the United Nations. As one of the nations which signed the terms of surrender of the axis powers in Europe, Brazil participated in the Paris peace conference, representing the Latin American points of view.

Relations of Brazil with the United States continued most cordial despite bitter attacks on the part of the Brazilian Communist press against what it called "American imperialism." A possible cause of friction between the two countries, the return of the air and naval bases constructed during World War II along the Brazilian coast with the assistance of the United States, was removed by the withdrawal of U.S. personnel as soon as circumstances and technical requirements allowed. With other American nations Brazil maintained friendly relations. At the end of the year an Argentine-Brazilian trade agreement was signed in Buenos Aires.

Education.—The constitution of 1946 contained a clause (article 168) which provided that primary instruction was to be obligatory in Brazil and should be given in the national language (Portuguese) only.

The new constitution also provided that official primary instruction should be free for all and that official instruction beyond primary should be gratuitous for those who proved lack or insufficiency of means. It was also provided that industrial, commercial and agricultural enterprises in which more than 100 persons worked would be obliged to maintain free primary instruction for employees and their children.

Religious instruction was to constitute a discipline in the regular schedule of official schools.

According to official data, there were 49,607 primary, secondary and specialized schools at the end of 1942, with 128,871 teachers and a registration of 3,834,515 students. At the end of 1944 it was estimated that there were about 40,000 schools, with about 3,710,000 students. Of these schools, 39,000 were elementary and the remainder secondary, vocational and universities. There were seven official universities, all of them state institutions except the University of Brazil (Rio de Janeiro) which was maintained by the federal government. There were also several independent state schools of law, medicine and engineering. A Catholic university was established in the city of São Paulo in Aug. 1946. During the year the University of São Paulo received from the Rockefeller foundation a \$75,000 grant for research in nuclear physics.

Finance.—The cruzeiro continued the monetary unit of Brazil. It is divided into 100 centavos (cents). The official rate of exchange was abolished on July 22, 1946. The selling rate in the free market fell to 19.53 cruzeiros per U.S. dollar. The rate was further reduced on July 3 (to 18.96 cruzeiros per dollar) and in August it was again reduced to 18.72 cruzeiros per dollar.

The government's expenditures for 1946 were estimated at Cr.\$9,281,789,968 and revenues at Cr.\$10,010,148,000. According to the latest Brazilian treasury reports available, as of Sept. 30, 1946, there existed in circulation Cr.\$19,741,664,213 in paper currency, which represented an increase of Cr.\$422,637,473 over the amount outstanding on Aug. 31. The president of the Bank of Brazil warned the nation that it faced an economic crash unless the government were to take emergency anti-inflation measures. Among the measures taken by the government to cope with the situation was the formulation of a project to reform the national banking system with a view to regulate the national currency and credit as well as to develop the national economy by means of a group of semi-official banks.

At the end of the year negotiations were initiated in London with British authorities to obtain the liquidation of the favourable balance of blocked sterling accrued to Brazil during World War II. The amount of the credits and deposits was estimated at about £50,000,000. The amount of gold and foreign balances accumulated by Brazil in the United States was estimated at \$645,000,000.

During the year the United States Export-Import bank opened a credit of \$50,000,000 in favour of Brazil for the purchase of railroad materials; other smaller credits were announced later for the purchase of locomotives



BALL OF CRUDE RUBBER from the Amazon forests of Brazil being cut at a factory near Belém in 1946. Stones or pieces of metal are removed, the quality is determined and the crude rubber is then washed, rolled into sheets and shipped to the markets

and aeroplanes.

U.S. direct investments in Brazil were estimated at \$337,242,028 in 1943 and British investments at \$951,063,396.

Trade and Communications.—During the first seven months of 1946 Brazil exported merchandise valued at Cr.\$9,840,260,000. In the entire year of 1945 Brazilian exports totalled Cr.\$12,197,510,000. Imports increased with the cessation of hostilities. For the first seven months of 1946 Brazil imported goods amounting to Cr.\$6,693,813,000. In 1945 (entire year) Brazilian imports amounted to Cr.\$8,617,320,000.

The increase in the favourable balance of trade contributed to the inflationary trends. The cost of living increased in some cases as much as 30% after 1940, in itself a year of very high cost of living.

Five countries absorbed more than 70% of the Brazilian exports: the United States 44%; Argentina 9%; Great Britain 9%; China 5% and Italy 3.5%. About 87.5% of Brazil's imports came from the following five countries: United States 66.5%; Argentina 8%; Great Britain 7%; Sweden 3% and Netherlands West Indies 3%. The value of Brazil's purchases from the United States during the first six months of 1946 was estimated at Cr.\$3,727,347,000 (\$186,367,350 U.S. currency) and the value of Brazil's sales to the United States totalled Cr.\$3,553,899,000 (\$117,694,950 U.S. currency).

Brazil's imports from the other Latin American countries decreased in tonnage from 1,047,921 in 1945 to 318,861 tons in 1946 and in value from \$72,128,100 to \$32,150,100 U.S. currency. At the same time Brazil's exports to those countries rose from the 1945 total of 318,572 tons to 437,725 tons in 1946. The value of these exports was \$66,997,950 in 1945 and \$71,592,100 U.S. currency in 1946. The principal customers of Brazil in Latin America were: Argentina, Uruguay, Venezuela, Chile and Colombia.

Trade with Europe also increased about 30% in 1946 as compared with 16.16% of total Brazilian trade with those countries in 1945.

The government took measures in August to protect home consumption by placing embargoes on many exports of prime necessity and lifting the duties on many imports of similar goods.

Trade relations with Argentina were expected to improve in consequence of an agreement signed between Brazil and that country in October (to go into effect in Jan. 1947), under which Argentina was to supply at least 1,200,000 tons of wheat per year to Brazil and the latter promised Argentina the sale of 5,000 truck and 40,000 automobile tires. From 1948 to 1951 Argentina guaranteed to purchase in Brazil such tires as it would need which could not be supplied by Argentine industry, and Brazil promised to sell to Argentina all tires which were exportable surplus. Brazil further promised to assure the sale of cotton textiles of the same quality as usually furnished Argentina during the period of 1940-45.

During the first ten months of 1946 Brazil exported 12,971,367 bags of coffee (132 lb.) as against a total of 10,816,458 bags in the corresponding period of 1945. Prices were also better. In the first ten months of 1945 coffee shipments brought in Cr.\$3,092,670,000 whereas during an equivalent period in 1946 Brazilian coffee exports produced Cr.\$5,135,184,000. The increase was mostly because of improved conditions in Europe. The shipments of Brazilian coffee to the United States in 1946 were about the same as in 1945. But during the first ten months of 1946, Europe bought from Brazil 215,000 bags of 132 lb.

On Aug. 21 the governments of the United States and Brazil signed an agreement on coffee prices and supplies whereby the United States promised to take immediate steps to increase green coffee prices 8.32 cents per pound after its arrival at dock in New York. This increase was in addition to a ceiling price established in Dec. 27, 1941. In return, Brazil agreed not to alter its exchange rates in any way as to

increase the cost of coffee to the buyer nor otherwise restrict the flow of coffee toward the United States.

It was estimated that the yield of coffee in Brazil during the 1946-47 crop would be about 14,500,000 bags of 132 lb. Domestic consumption was estimated at about 5,000,000 bags.

Brazil abolished the National Department of Coffee in August. This department had assumed the control of prices and production for a number of years.

An experimental export of cattle from Brazil to Mexico during the year was somewhat of a disappointment when an epidemic of hoof and mouth disease among Mexican herds was attributed to infection by contact with bulls imported from Brazil.

Transportation problems continued to hinder the economic progress of Brazil. The government asked for a loan of between \$350,000,000 and \$400,000,000 from the Export-Import bank for the development of the national transportation system. The bank agreed to lend Brazil \$50,000,000 but it was suggested that the remainder be borrowed from the International bank.

The railroads of Brazil (about 22,000 mi. in operation) were in urgent need of repairing. From 1942 the principal railroad of Brazil, the Central do Brasil, had been pushing its lines northward intending ultimately to provide through rail connection between the north and the south of the country. Announcement was made in the latter part of the year that the Central do Brasil had completed its part and all that remained to connect Bahia with the south was the balance of a stretch of 250 km., on which work was being pushed by the National Railroad department.

The government took over the British owned São Paulo Railway Co. on the expiration of the concession. This railway was only 60 mi. long but was considered one of the world's richest lines, carrying most of São Paulo's coffee to the port of Santos. There were about 38,000 mi. of surface roads and 124,000 mi. of common roads in 1945.

In 1944 seven aviation companies operated in Brazil with a total of about 116,000 km. routes. The planes of these companies transported about 44,000 passengers, more than 4,000,000 kg. of baggage, more than 774,000 kg. of mail and more than 3,469,000 kg. of freight. The first plane of a regular Rio-Rome line landed in the Italian capital's airport on Sept. 6. This service was undertaken by a Brazilian company and trips on reciprocal basis with Italy were planned with stops in Rio, Recife, Dakar, Lisbon and Rome. Another Brazilian company, Aerovias Brasil, established a new transport service between Rio, São Paulo and Buenos Aires.

In September a new air agreement between the United States and Brazil was announced. Under its provisions, U.S. aviation companies were assured three routes in Brazil, including a new and short one over central Brazil. In return, Brazil was allowed to operate into Miami, New York, New Orleans and even Chicago.

Agriculture.—In 1943 (last nearly-normal year for Brazilian agriculture), about 13,833,365 ha. were under cultivation. In that year the following areas were devoted to the principal crops: corn 4,266,211 ha. coffee 2,490,855 ha.; cotton 2,413,562 ha.; rice 1,171,755 ha. and beans 1,036,069 ha. In 1942 the total Brazilian production of corn was about 86,000,000 bags of 60 kg. each. Minas Gerais, Rio Grande do Sul and São Paulo were the largest producers of corn, accounting for two-thirds of the total.

Coffee continued to be one of the most important export crops. Total production in the 1945-46 crop was estimated at 14,500,000 bags of 132 lb. each.

The livestock production continued high, although beef production declined because of transportation difficulties. Brazil produced 2,675,000 bales of cotton in 1944. Other important agricultural products were: cacao, sugar, coconuts, rubber, timber, fruits, nuts, oleaginous seeds, babassu, carnauba wax.

Manufacturing.—The industrialization of the country continued at a

very rapid pace in 1946. The industrial employment had jumped about 240% in 15 years. São Paulo led the rest of Brazil in industrial plants, with 11,557 units where 369,070 workers produced \$444,450,000 U.S. currency worth of goods annually. Rio de Janeiro came second with 4,323 plants, 150,600 workers and a yearly production of about \$312,750,000 U.S. currency. The total annual industrial output of Brazil was estimated at about \$1,125,000,000 U.S. currency. São Paulo's industrial plants employed 43.1% of Brazil's industrial labour and had 38.2% of all plants and 39.4% of production value.

The first production of steel on a regular scale at Volta Redonda, the big steel mill under construction for several years, took place at 11 A.M. on June 23. The output of steel in Volta Redonda was at the rate of about 300,000 tons yearly.

Firestone Tire Co., through its Brazilian branch at Santo André, state of São Paulo, produced its millionth tire in 1946. The factory was geared to produce about 104,000 tires per year. The National Motor Factory of Brazil received an order for 10,000 refrigerator motors in 1946 from U.S. industries.

The first aviation motor manufactured in Brazil was tried out in flight with satisfactory results on Aug. 20, near Rio de Janeiro.

Mineral Resources.—The output of coal was estimated at 1,958,909 tons during the first quarter of 1945, valued at more than Cr.\$210,000,000 (\$10,000,000 U.S. currency).

Prospecting for oil was carried to the states of Paraná, Sergipe and Pará under government auspices. The total amount produced in the entire year of 1945 was 79,500 bbl. of 42 gal. each. Many wells were shut because of insufficient refining facilities. The National Petroleum council estimated that with additional drilling in proven areas and with full production from complete wells, about 2,500 bbl. per day could be produced.

The existing refineries were owned by the Brazilian government and operated by the council. During 1945, 79,500 bbl. of crude oil were produced and the following products manufactured: gasoline 15,900 bbl.; kerosene 7,950 bbl.; gas oil 15,900 bbl.; lubricating oils stock 19,875 bbl.; paraffin 15,900 bbl. and coal (bottoms) 3,975 bbl. (See also ARGENTINA.) (R. d'E.)

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Bread and Bakery Products. The year 1946, for the baking industry, was

BREAD COLLECTED IN ONE DAY FROM STREET BINS in the Hammersmith borough of London, Eng., was displayed in a campaign to emphasize the seriousness of waste during the bread shortage in early 1946



Area and Population of States and Territories of Brazil, 1945
(Latest estimates available as published by the Instituto Brasileiro de Geografia e Estatística)

State or territory	Area (sq. mi.)	Pop. (Jan. 1, 1945)	Capital
North			
Acre (terr.)	57,153	88,700	Rio Branco
Amazonas	595,474	463,900	Manaus
Rio Branco (terr.)	97,438	15,100	Boa Vista
Pará	470,752	1,017,200	Belém
Amapá (terr.)	55,489	25,600	Macapá
Guaporé (terr.)	96,986	27,300	Pôrto Velho
Northeast			
Maranhão	133,674	1,354,300	São Luís
Piauí	94,819	900,600	Teresina
Ceará	57,371	2,290,100	Fortaleza
Rio Grande do Norte	20,236	844,100	Natal
Paraíba	41,591	1,561,400	João Pessoa
Pernambuco	38,315	2,935,600	Recife
Alagoas	11,031	1,043,600	Maceió
Fernando de Noronha (terr.)	7	1,200	.....
East			
Sergipe	8,321	595,000	Aracajú
Baía (Bahia)	204,393	4,292,900	Salvador
Minas Gerais	228,469	7,458,400	Belo Horizonte
Espírito Santo	17,688	851,000	Vitória
Rio de Janeiro (state)	16,372	2,030,200	Niterói
Federal District	451	1,941,700	Rio de Janeiro
South			
São Paulo	95,459	7,890,200	São Paulo
Paraná	82,741*	1,409,300*	Curitiba
Santa Catarina	31,118	1,242,800	Florianópolis
Rio Grande do Sul	110,150	3,651,100	Pôrto Alegre
Central-West			
Goiás	225,266	907,800	Goiânia
Mato Grosso	485,405*	460,900*	Cuiabá

*The Territories of Iguaçu and Ponta Porã were abolished, and their areas reintegrated into the states from which they were originally detached, under the terms of the Additional Act to the 1946 Constitution.

marked by the full impact of the postwar task of feeding hungry people throughout the world, and the demand for wheat for this purpose.

In every country governments gave prime consideration to methods for conservation and equitable distribution of flour and bread, and the United Nations Relief and Rehabilitation administration marked wheat as the basic food for relief feeding purposes.

In the United States the department of agriculture required, beginning March 1, 1946, that millers produce not less than 80 lb. of flour from each 100 lb. of wheat which was ground. Such flour, called 80% extraction, in contrast to the normal extraction rate of 72% or lower, introduced problems both to millers and bakers.

Baking practices required adjustment in order to handle the new type of flour and considerable ingenuity was brought to bear to produce loaves of good eating quality.

The purpose of the order requiring the longer extraction of flour was to conserve wheat, but the initial effect seemed to be to divert wheat to animal feeds to replace the milling products that were produced in lesser amounts as a result of the order. The United States government was then obliged to restrict the utilization of wheat and flour in order to meet commitments for export of wheat to Europe and Asia.

By the end of the summer the crisis had passed and, on Sept. 1, the 80% extraction requirement was removed and, shortly thereafter, the restrictions on the amount of flour a baker could use were eliminated.

During the months the wheat and flour orders of the government were in effect the baking industry co-operated fully with the spirit and letter of the orders. Further, the enrichment program was maintained even though confusion of ideas about the nutritive value of the 80% extraction flour had led some persons into thinking that such flour was equivalent to enriched flour in nutritive value. Instead, analyses showed that 80% extraction flour and bread had much less thiamin, riboflavin, niacin and iron than the enriched products which had been in production from early in 1943.

After the wheat crop was harvested there was a gradual withdrawal of numerous other government restrictions affecting the baking industry, notably the regulations controlling the price of bakery products and the requirement that all white bread and rolls be enriched to meet standards for thiamin, riboflavin, niacin and iron. The baking industry, through its national organizations, urged bakers to continue the enrichment of their products even though it was on a voluntary basis. In many of the states legislation requiring the enrichment of all commercially produced bread and rolls was on the statutes, New Jersey having enacted such legislation in 1946 to bring the total to 19 states.

In Great Britain the level of extraction of flour was increased to 85% and in most countries on the European continent white bread disappeared because of the need to conserve grain. Bread became rationed in Great Britain, for the first time after the outbreak of World War II, but in the United States reliance was placed on a voluntary system of restriction by consumers, with rationing of flour to bakers for a few months before the new wheat crop was harvested.

While conditions were abnormal the baking industry in the United States, according to unofficial estimates by the industry, had the greatest dollar volume of sales in its history, equal to about \$2,500,000,000. (See also FLOUR.) (F. C. BG.)

Bretton Woods: see BANKING; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND.

Brewing and Beer. Caught in a wave of record demand for beer and ale in the face of limited allotments of raw materials, brewers in the United States faced unprecedented problems in production and distribution during 1946.

With conditions at the beginning of the year indicating a return to normal production, the industry had to revise its program suddenly when a presidential directive, effective March 1, 1946, restricted brewers to 70% of their 1945 usage of grain. The order, issued as an emergency measure designed to alleviate the world food shortage, not only affected malt, which is the basic ingredient of beer and ale, but also other grains, including corn and rice, used as malt adjuncts. Use of wheat was forbidden entirely.

However, this was not a drastic restriction, inasmuch as wheat is rarely used in brewing. Even in 1945, when some wheat was used to make up for curtailment in permissible use of malt, the amount used by the brewing industry was only 998,000 bu., representing but 8/10,000 of the total U.S. crop for that year.

The restriction also embraced "sugars and syrups," as they are termed in government reports, since nearly all of the types used by brewers are derived from corn and are not to be confused with table types such as cane and beet sugar.

Immediately following the government directive, directors of the United States Brewers foundation met in Chicago and adopted a resolution calling upon all brewers to reduce beer production by 30% so as to maintain quality standards. Sectional meetings of brewers were held throughout the country to endorse this action and put the recommendations into practice.

Since demand for beer and ale was at least 25% greater than it was in the previous year, the actual beverage shortage brought about by the reduced allotments of grain was estimated by brewing authorities at about 50%.

Some relief for the industry's production problem was made when, on Oct. 21, the grain restriction was modified, retroactive to Sept. 1, permitting brewers to use 90% of the quantity of grains used in 1945.

Because of favourable conditions in the grain supply situation, the government made a further liberalization of restrictions on brewers' use of grains on Dec. 1. The amended order authorized brewers to use in the three-month quota period be-



BEER KEGS, USED DURING WORLD WAR II to save shipping space, piled up at a brewery in Milwaukee, Wis., in 1946 because of the increased production of bottled beer

ginning Dec. 1, 1946, an amount of grain equal to 100% of their use in the corresponding quota period of the previous year. Wheat and table rice remained prohibited.

Expiration of the OPA act early in July prompted the foundation to act again in the public interest by urging, in telegrams sent to brewers throughout the country, that the price line be held, adding, "We should do our part to prevent inflation. We recommend that you so advise your wholesalers and retailers."

Beer for Military Needs.—During World War II brewers had been required, by government order, to set aside 15% of their grains for the production of 3.2 beer for the use of the armed forces. (This is very slightly lower than the alcoholic content for the national average of beer, which is about 3.4% by weight). The set-aside was ordered after it had been established by service authorities that beer had been a valuable aid to morale and substantially contributed to the army's sobriety. With the gradual return of a large number of the military to civilian life, this set-aside was reduced to 5% on Dec. 1, 1945, to 4% on June 13, 1946, and 3% on Sept. 1, thus releasing more beer for domestic markets. Another reason for the reduction in military requirements abroad was that some of the beer required for overseas was being supplied by breweries in occupied lands, requisitioned and manned by U.S. troops and civilian aides.

By-Products.—Unlike other food industries which draw upon the farms for their source of ingredients, the brewing industry extracts only a portion of the total nutrients contained in the raw materials. It returns the remaining constituents—estimated at 35% of the original total—to the farmer in the form of feed-stuffs containing most of the proteins in the original grain. These by-products are residual grains, which consist of wet and dried brewers' grains recovered from the brewing process and are considered excellent protein supplements for dairy cattle, and brewers' yeast. The latter, a by-product of the brewing process, had been supplied in increasing quantity during the years 1942-46 both as a human nutrient supplement and as a protein and vitamin supplementary feed for livestock and poultry to provide a balanced ration.

It is the richest known natural source of vitamins of the B complex and contains between 40% and 50% of high-grade protein.

Moderation and Law Enforcement.—Close co-operation between brewers, wholesalers and retailers fortified the effectiveness of the self-regulation program, one of the continuing projects of the industry which won wide attention from other fields and public commendation from enforcement authorities. Designed to promote moderation and sobriety and to maintain wholesome, orderly conditions wherever malt beverages are sold, the program utilizes trained investigators to observe the conduct of retail beer outlets and to report to law-enforcement authorities those licensees who fail to correct law violations after warnings.

Statistical reports show that approximately 95% of the retail beer licensees investigated in an average year approach the high standards set for the industry.

Sales Records.—Following are the sales records in U.S. barrels (31 gal.) by fiscal years ending June 30: 1933 (85 days), 6,277,728; 1934, 32,266,039; 1935, 42,228,831; 1936, 48,759,840; 1937, 55,391,960; 1938, 53,926,018; 1939, 51,816,874; 1940, 53,014,230; 1941, 52,799,181; 1942, 60,856,219; 1943, 68,636,434; 1944, 76,969,764; 1945, 79,590,598; 1946 (official but not audited), 80,735,720.

Taxes.—Federal excise and special taxes on beer for the fiscal year 1946 totalled \$653,949,192, bringing the cumulative total after relegalization in 1933 to \$4,773,609,185. State and local taxes and licence fees in 1946 were estimated at \$175,000,000,

raising the cumulative figure for that revenue to about \$1,695,000,000.

From April 7, 1933, the date of relegalization, the combined public revenues from beer approximated \$6,468,000,000. Beer was in 1946 taxed at \$8 per barrel, contrasted with the tax rate of \$1 per barrel from 1902 to 1914. There were no state taxes before prohibition. (See also LIQUORS, ALCOHOLIC.)

(C. D. Ws.)

Bridge, Contract: see CONTRACT BRIDGE.

Bridges. The world's longest spans of the various types built up to the end of 1946 are listed in Table I.

Table I.—World's Longest Spans

Type	Bridge	Location	Year	Span
Cable suspension	Golden Gate	San Francisco	1937	4,200 ft.
Transporter bridge	†Sky Ride	Chicago	1933	1,850
Canilever	*Quebec	Canada	1917	1,800
Steel arch	Bayonne	New York	1931	1,652
Eyebars suspension	*Florianópolis	Brazil	1926	1,114
Concrete arch	Sando	Sweden	1943	866
Continuous truss	Dubuque	Mississippi river	1942	845
Simple truss	*Metropolis	Ohio river	1917	720
Continuous girder	†Frankenthal	Rhine	1939	591
Vertical lift	*Cape Cod canal	Massachusetts	1935	544
Wichert truss	Homestead	Pittsburgh	1937	533½
Swing span	*Fort Madison	Mississippi river	1927	525
Tubular girder	*Britannia	Menai straits	1850	460
Timber span	†Wattlingen	Switzerland	1928	390
Bascule	*Sault Ste. Marie	Michigan	1914	336
Masonry arch	Plauen	Saxony	1905	295
Single leaf bascule	*16th street	Chicago	1919	260
Concrete girder	Villeneuve	Seine river	1939	256

*Railroad bridge.

†Not standing.

Plans were completed in 1946 for a new Tacoma Narrows bridge, Tacoma, Wash. (of 2,800-ft. main span), to cost \$9,000,000, using the piers of the original \$6,000,000 structure which was dramatically destroyed by aerodynamic oscillations on Nov. 7, 1940, four months after its opening. The new design, based on a 4-year wind tunnel study on a scale model 100 ft. long, was to be 50% heavier than its predecessor and would use stiffening trusses 33 ft. deep instead of the 8-ft. plate girders of the original structure. Open steel floor gratings were to be used to relieve aerodynamic action.

The Bronx-Whitestone bridge, New York city, with a main span of 2,300 ft., was modified and strengthened in 1946, at a cost of \$1,300,000, by adding stiffening trusses 14 ft. deep on top of the 11-ft. stiffening girders, together with other measures for curbing the aerodynamic oscillations.

Studies of the aerodynamic oscillations of the Golden Gate bridge at San Francisco, Calif. (the world's longest span) were made in 1945-46 by means of ten vibration recording instruments placed at distributed points on the main and side spans.

In 1946 official studies were instituted for the construction of a second bridge across San Francisco bay. The Transbay bridge (San Francisco-Oakland, Calif.), completed in 1936 at a cost of \$78,000,000, was approaching its rated capacity traffic of 80,000 vehicles per day after only 10 years of operation, and the bonds were to be retired in 1952 instead of in 1976, as originally contemplated. As the bridge generated new traffic, the toll rates had been progressively reduced from 65 to 25 cents. To protect the steel members of the Transbay bridge from corrosion, a zinc coat 1/100-in. thick was applied (1946) to 1,300 sq. ft. of the structure exposed to salt spray. A patented "gun" sprays the fused metal on the bare steel surface. The treatment was said to last eight or nine years, as compared with three years for ordinary paint applications, but was found disappointing after a few months' exposure.

In England, a suspension bridge planned (1946) across Milford Haven, Pembroke, was to have a main span of 1,000 ft., with clear height of 120 ft., to cost \$4,500,000. The British government also announced plans for a new suspension bridge, to be the largest in Europe, to be erected across the lower

reaches of the River Severn (near Bristol, England, and Chepstow, Wales). The bridge was to have a main span of 3,000 ft. between towers 450 ft. high, and 2 side spans of 1,000 ft. each. The vertical clearance for shipping would be 110 ft. above high water near the towers and 120 ft. in the centre. When completed, the bridge would have 4 traffic lanes, providing a capacity of 4,000 vehicles per hour. The cost of the project was estimated at £7,500,000 (\$30,000,000).

The traffic capacity of the \$60,000,000 George Washington bridge over the Hudson river at New York city was enlarged to 8 lanes in 1946 by completing the 2 centre lanes which were left as an opening in the floor when the bridge was opened in 1931.

To replace the old steel arch bridge over the Rhine at Duesseldorf, Germany, built in 1898 and demolished in World War II, a multiple-span suspension design was adopted (1946) with 4 main spans of 312 ft. utilizing the existing piers together with new intermediate piers. Horizontal tie cables between the tower tops were to be used to yield stiffness with economy.

Designs, surveys and test borings were commenced in 1946 for a bridge across the strait of Canso, between the mainland of Nova Scotia, Canada, and Cape Breton Island.

The first suspension bridge west of the Mississippi, the Bidwell Bar bridge of 240-ft. span over the Feather river near Oroville, Calif., built as a toll bridge in 1889, was to be retired from service in 1947. The wire cables were still in sound condition after 90 years.

The world's outstanding suspension bridges in 1946 are listed in Table II.

Table II.—Longest Suspension Spans

Year	Bridge	Location	Span
1937	Golden Gate	San Francisco	4,200 ft.
1931	George Washington	New York	3,500
1936	Transbay	San Francisco	2,310
1939	Bronx-Whitestone	New York	2,300
1929	Ambassador	Detroit	1,850
1926	Delaware river	Philadelphia	1,750
1924	Bear Mountain	Hudson river	1,632
1903	Williamsburg	New York	1,600
1883	Brooklyn	New York	1,595½
1938	Lion's Gate	Vancouver, B.C.	1,550
1930	Mid-Hudson	Poughkeepsie	1,500
1909	Manhattan	New York	1,470
1936	Triborough	New York	1,380
1931	St. Johns	Portland, Ore.	1,207
1929	Mount Hope	Rhode Island	1,200
1926	*Florianópolis	Brazil	1,114
1939	Deer Isle	Maine	1,080

*Eyebar chain.

The bridge at Nijmegen (Netherlands) over the Waal river, completed in 1939, is a 2-hinged steel arch of 790 ft. span, making it the longest-span arch in Europe. An ingenious erection method was used for raising the segments of the arch truss, utilizing for temporary support the trusses fabricated for another bridge. This bridge became famous when it was captured undamaged by the British and U.S. airborne army which landed at Nijmegen in 1944.

A new bridge built in 1945 over the Seine at Neuilly has a steel arch span of 269 ft., the longest welded arch span in the world. The structure replaced Jean Rodolphe Perronet's bridge of stone arches built in 1768–80.

Completed in 1943 despite great difficulties, the Queen Alexandrine bridge in Denmark, spanning the wide sound between Seeland and Moen, is a high-level structure 2,440 ft. long, consisting of a 390-ft. steel arch flanked on each side by 5 arches of reinforced concrete.

The new Skanstullsbron bridge, carrying southbound traffic out of Stockholm, Sweden, was completed in 1946, after 4 years of construction work, at a cost of \$5,130,000. The central steel arch and the flanking spans of concrete and steel form a structure 1,875 ft. long and 86 ft. wide, carrying a 4-lane motor highway, a railroad track and pedestrian traffic.

The Eads bridge over the Mississippi river at St. Louis, Mo., a double-deck railroad and highway structure of 3 steel arches of 502 ft., 520 ft. and 502 ft., completed in 1874, was modernized in 1946 with a new upper (highway) deck. The old timber and steel-framed deck was replaced with a concrete-filled, shallow I-beam grating on new steel cross beams, to provide a 40-ft. roadway and 2 sidewalks, while reducing the dead load by 800 pounds per ft. of bridge.

The world's longest steel arch spans in 1946 are listed in Table III.

Table III.—Greatest Steel Arch Spans

Year	Bridge	Location	Span
1931	Kill Van Kull	New York	1,652 ft.
1932	Sydney harbour	Australia	1,650
1935	Birchenough	Southern Rhodesia	1,080
1917	Hell Gate arch	New York	977½
1941	*Rainbow	Niagara Falls	950
1936	*Henry Hudson	New York	800
1939	Waal river	Nijmegen, Netherlands	790

*Hingeless arch.

The largest bridge under construction in the United States in 1945–47 was the Memphis bridge over the Mississippi, a 4-lane highway cantilever structure, 3,695 ft. long, costing \$10,500,000. The channel span is 790 ft. For constructing the deep piers, the caissons were sunk by open dredging but were convertible to pneumatic working chambers if required. The caissons were floated out to the site and then sunk through willow mats previously placed to receive them.

The Cooper river bridge at Charleston, S.C., with cantilever spans of 1,050 ft. and 640 ft., built in 1929, had a 240-ft. section of its approach spans demolished by a ship collision in 1946. For the emergency temporary repairs, resourceful use was made of the Bailey trusses that had been developed and applied in World War II for military bridging.

The once-famous Red Rock cantilever bridge of 660-ft. span over the Colorado river at Topock, Ariz., built in 1890 and strengthened in 1910 by building a concrete pier under the middle of the suspended span, was converted in 1946 from an abandoned railroad bridge to highway use by redecking for automobile traffic.

The world's largest cantilever bridges in 1946 are listed in Table IV.

Table IV.—Longest Cantilever Spans

Year	Bridge	Location	Span
1917	*Quebec	St. Lawrence river	1,800 ft.
1889	*Forth	Scotland	1,700
1943	Howrah	India	1,500
1936	Transbay	San Francisco	1,400
1930	Longview	Columbia river	1,200
1909	Queensboro	New York	1,182
1927	Carquinez strait	California	1,100
1930	Harbour bridge	Montreal	1,097
1929	Cooper river	Charleston, S.C.	1,050
1940	Story bridge	Queensland	924

*Railroad bridge.

The Chester (Illinois) bridge over the Mississippi river, a continuous truss highway bridge with two spans of 670 ft., originally built in 1940 and destroyed by being blown off its piers during a violent windstorm in 1942, was replaced by a new structure in 1946 of the same type and span length using the existing main piers.

Clay's Ferry bridge, over the Kentucky river south of Lexington, Ky., officially opened to traffic in 1946, was the highest bridge east of the Mississippi and the highest of its kind in the United States. The structure consists of a 3-span continuous deck-type steel truss (with spans of 320 ft., 448 ft. and 320 ft.) flanked by simple truss spans and concrete girder spans, and carries the highway 250 ft. above the river. The highest main pier is 198 ft. high. It replaced an old timber and iron bridge which was built in 1869 as a private turnpike bridge, operated at a loss for many years, sold at public auction in 1906 for



SKILLED WORKMEN giving a coat of paint to the George Washington bridge over the Hudson river at New York city during 1946. The job was expected to take about four years and to require 30,000 gal. of paint

\$4,755, thereafter yielding a net income (from tolls) of \$30,000 a year and purchased in 1929 for \$200,000 by the state of Kentucky, which collected the purchase price from tolls in 20 months and tore down the toll gates.

Construction of an \$11,000,000 steel bridge across the mouth of Tampa bay at St. Petersburg, Fla., was planned to start early in 1947. The project comprises 9 mi. of embankment and 3 mi. of open trestle bridges, including one continuous truss span of 800 ft.

The world's outstanding continuous truss bridges in 1946 are listed in Table V.

Table V.—Longest Continuous Truss Spans

Year	Bridge	Location	Span
1942	Dubuque	Mississippi river	845 ft.
1944	St. Louis county	Mississippi river	804
1917	*Sciotoville	Ohio river	775
1929	Chain of Rocks	Mississippi river	699
1929	*Cincinnati	Ohio river	675
1928	Cape Girardeau	Mississippi river	672
1946	Chester	Mississippi river	670
1930	Quincy	Mississippi river	628
1934	Bourne	Cape Cod canal	616
1935	Sagamore	Cape Cod canal	616

*Railroad bridge.

For improving the inner harbour of Cleveland, O., work was commenced in 1946 on the replacement of six narrow railroad bridges and the rebuilding of another. The cost of \$13,250,000 was to be shared by the railroads and the federal government.

A spectacular fire, originating in the wooden floor of the 45-year-old Alexandra bridge (railroad and highway) connecting Ottawa, Ont., and Hull, Que., destroyed a considerable part of the bridge (1946).

To replace the several wrecked bridges over the Rhine at Cologne, Germany, a substantial temporary crossing was built in 1946 by British royal engineers and German contractors. The structure consists of a central 240-ft. truss span, flanked by shorter Bailey spans.

The world's longest simple truss spans in 1946 are listed in Table VI.

Table VI.—Longest Simple Truss Spans

Year	Bridge	Location	Span
1917	*Metropolis	Ohio river	720 ft.
1929	Paducah	Ohio river	716
1922	Tanana river	Alaska	700
1911	*Douglas MacArthur	St. Louis	668
1933	*Henderson	Ohio river	665
1919	*Louisville	Ohio river	644

*Railway bridge.

The first bridge span constructed entirely of structural aluminum, a deck plate-girder span of 100 ft., was built in 1946 over the Grasse river at Massena, N.Y., to carry E-60 railroad loading. The complete span weighs only 53,000 lb. Almost identical steel spans in the same bridge weigh 128,000 lb.

The longest welded continuous girder bridge built up to 1946 was the St. Rose bridge, north of Montreal, constructed in 1945-46. It is 1,500 ft. long, comprising 14 girder spans, 90 to 126 ft. long, in one continuous construction, with expansion at the end abutments only.

A new bridge over the Anacostia river on South Capitol street in Washington, D.C., commenced in 1946, was of plate girder type, with a main crossing 854 ft. long, to cost \$4,500,000. The planned replacement of the Fourteenth street highway bridge over the Potomac was to cost \$7,000,000.

Construction of the North State street bridge and the South Canal street bridge, both over the Chicago river, Chicago, Ill., interrupted by World War II, was resumed in 1946. Both are double-leaf trunnion bascule bridges. The North State street bridge is of 245-ft. span, 108 ft. wide, each leaf weighing 4,200 tons.

Traffic over the Lake Washington concrete pontoon bridge at Seattle, Wash., continued to exceed all estimates, amounting to 2,250,000 automobiles, trucks and busses in 1945, so that it was thought the \$5,900,000 bonded debt might be retired in 1952 instead of 1968, as originally planned.

Collapse of two spans of a bridge over the Manasquan river, near Brielle, N.J., in 1946 was attributed to attack of the foundation piles by teredos.

On June 15, 1946, King Gustav V of Sweden and King Haakon VII of Norway formally opened the Svinesund bridge

over the Idefjord river on the main highway connecting the two countries near Oslo. This international bridge was started and nearly completed just prior to World War II. The main span is a 509-ft. concrete arch (the sixth largest in the world), flanked by arcades of shorter spans, carrying the roadway 270 ft. above the water.

A novel design, using a reinforced concrete rigid frame of 266-ft. span instead of an arch, was adopted (1945-46) for a large flume crossing of the Crooked river, near Bend, Oregon.

In the United States, despite shortages of materials, equipment and manpower, and the steeply rising construction cost, bridge construction took a decided upswing after the halt during World War II. Total bridge construction placed under contract was \$53,000,000 in 1945 and \$90,000,000 in 1946. (See also **ROADS AND HIGHWAYS**.)

The longest existing spans on the respective continents in 1946 are listed in Table VII.

Table VII.—Longest Spans on the Respective Continents

Continent	Bridge	Location	Year	Type	Span
North America	Golden Gate	San Francisco	1937	Suspension	4,200 ft.
Europe	Forth	Scotland	1889	Cantilever	1,700
Australia	Sydney harbour	New South Wales	1932	Steel arch	1,650
Asia	Howrah	India	1943	Cantilever	1,500
South America	Florianópolis	Brazil	1926	Suspension	1,114
Africa	Birchenough	Southern Rhodesia	1935	Steel arch	1,080

(D. B. S.)

Bridgman, Percy Williams (1882—), U.S. physicist, was born April 21, at Cambridge, Mass. A student at Harvard university, he received his A.B., A.M., and Ph.D. degrees there (1904, 1905 and 1908) and remained with that institution as fellow (1908-10); later he became professor of physics, mathematics and natural philosophy. A fellow of the American Academy of Arts and Sciences and a member of the National Academy of Sciences, Dr. Bridgman is an authority on high pressures. He invented apparatus which helped him in the study of physical effects of high pressures and among other discoveries was credited with being the first to produce dry ice. He also did research on the electrical conduction in metals and the properties of crystals. In 1927, he wrote his first book, *The Logic of Modern Physics*. Although a nonnuclear physicist, he was regarded as one of the scientists connected with the discovery of the atomic bomb; however, the nature of his work during World War II was never disclosed. The recipient of numerous scientific awards, Dr. Bridgman was given the Nobel prize for physics on Nov. 14, 1946.

Briquettes, Fuel: see FUEL BRIQUETTES.

British Borneo: see BORNEO.

British Columbia. British Columbia is the third largest and most westerly of the nine provinces comprising the Dominion of Canada. The crown colonies of Vancouver Island (1849) and of British Columbia (1858), after uniting in 1866, became the sixth province to enter the Canadian confederation on July 20, 1871. Occupying an area of 366,255 sq.mi., of which 6,976 sq.mi. are water, the province is bounded on the west by the Pacific ocean, on the south by the states of Washington and Montana, on the east by the Province of Alberta, and on the north by Alaska, Yukon and the Northwest Territories.

The population, on June 1, 1946, was estimated to be 960,000 (1941 census, 817,861); approximately 70% (1941, 599,783) of whom were residents of the southwestern corner—the lower Fraser valley and Vancouver Island regions. The principal ports of Greater Vancouver (1941, 351,491), Greater Victoria (75,218), the capital, and New Westminster (21,967) are located

in the southwest corner. Urban dwellers numbered 443,394, rural dwellers 374,467; the bulk of the population (558,085) was reported to be of English, Irish or Scottish descent; other European races numbered 175,512; there were 42,472 persons of Asiatic descent; and native Indians numbered 24,875.

History.—In the first session of the 21st legislative assembly (Feb. 21, 1946–April 11, 1946) John Hart, premier and minister of finance reported: revenue of \$40,813,808 collected during the fiscal year ended March 31, 1945, had exceeded ordinary expenditures of \$33,908,889 by \$6,904,919; (\$1 Canadian=\$1 U.S. in 1946); the net public debt on Dec. 31, 1945, was \$132,160,430; anticipated revenues were \$42,152,387 and expenditures \$42,089,508 for the fiscal year 1946-47. Measures passed by the assembly included: creation of a one-man milk board, with jurisdiction over the marketing of milk; the Consumer Credit act, authorizing the government to introduce regulations covering consumer credit and instalment buying, when federal war-time regulations were withdrawn; the Public Schools Amendment act—following the recommendations of the Maxwell-Cameron report—provided for the consolidation of school districts into 74 large administrative areas, the levy of a uniform tax of 5 mills on real estate, and provincial grants-in-aid; legislation permitting the government to increase its advance to the British Columbia Power commission from \$10,000,000 to \$20,000,000; authorized the government to borrow \$500,000 for the purpose of making grants to municipalities which, under the National Housing act, had arranged to acquire lands suitable for low-cost rental housing projects; empowered the government to replace the existing 7 cents tax on gasoline used by private vehicles with a 10 cent tax—this statute anticipated a 3 cent reduction, expected about April 1947 in the federal war-time gasoline tax; the Hours of Work Amendment act established the maximum number of working hours a week at 44, in place of the former 48 hour maximum; the Annual Holidays act, requires nearly every employer to provide each employee with at least one week's holiday with pay per year (280 working days); other legislation created a new department of health and welfare from branches of the department of the provincial secretary; the Constitution Act Amendment act, increased the sessional allowance payable to each member of the legislative assembly from \$2,000 to \$3,000.

Lumber operations in the forests and in the mills came to a halt between May 15 and June 26, as the result of an industry-wide strike of the International Woodworkers of America. In June, survey parties began field studies of potential routes for an extension of the Pacific Great Eastern railway from Prince George to Dawson Creek. The P.G.E. railway was also given motor transport privileges over the unfinished Peace River highway. Provincial minimum wage scales were raised about 30%, also in June. In July, the Milk board came into being and provincial price regulations were imposed in the Lower Fraser valley and Victoria regions. On Oct. 1 Charles A. Banks succeeded Lt. Col. W. C. Woodward as lieutenant governor of British Columbia. C. H. Locke, K.C., was retained as counsel by the provincial government in Oct. to oppose the application of the Railway Association of Canada for a 30% increase in railway freight rates.

In Dec. Premier Hart reported verbally the culmination of protracted negotiations with the dominion government. Under a contemplated 5-year tax agreement, April 1, 1947–March 31, 1952, the province would vacate temporarily the income tax, corporation taxes and succession duty fields; as compensation the dominion would pay an annual subsidy to the province of not less than \$18,072,000; based on 1942, this annual subsidy would change with population and gross national production per capita. The dominion also indicated its intention to withdraw

its wartime tax of three cents per gallon on gasoline in favour of a provincial levy. This tax agreement was to be submitted for ratification to the legislative assembly in the spring of 1947.

At the close of 1946, members of the provincial executive council, or cabinet, and their portfolios were: John Hart, premier and president of executive council; H. Anscomb, finance; G. S. Pearson, provincial secretary, labour, health and welfare; E. C. Carson, public works; E. T. Kenney, lands and forests; G. M. Weir, education; F. Putnam, agriculture; G. S. Wismer, K.C., attorney general; R. C. MacDonald, mines, municipal affairs; L. H. Eyres, railways, trade and industry, fisheries.

Education.—During the school year ending June 30, 1945, 125,135 students were enrolled: in the elementary (83,773), junior high (16,577), superior (3,361) and high (21,424) schools of the province. Teaching staffs comprised 2,744 teachers in elementary, 542 in the junior high and 1,068 teachers in superior and high schools.

Communications.—While new construction was proceeding, provincial highways were maintained at their 1944 level; the total mileage as of March 31, 1944, excluding the Alaska highway, amounted to 21,946 mi., of which 9,529 mi. were surfaced; 9,842 mi. were improved earth; 2,575 mi. were unimproved earth roads. Construction of the new 250-mi. Peace River highway—Prince George to Dawson Creek, and of the 81-mi. Hope-Princeton highway moved forward during the year; in addition some 170 mi. of highway were given bituminous surface.

Railway mileage, in 1944, amounted to 3,857 mi. of single track. In the same year, the total number of telephones, 173,011, included 57,149 on automatic switchboards.

Manufacturing, Agriculture, Mineral Production.—Preliminary provincial estimates indicated that the net value of production in the primary industries, during 1946, surpassed that of the previous year except in the case of fisheries; the details were: \$108,000,000 in agriculture (1945, \$103,387,000); \$40,-

way freight loaded, index of employment and salaries and wages paid revealed declines from their 1945 levels.

(G. N. P.)

British East Africa. Under this heading are grouped British colonial territories on the east coast of Africa, of which certain essential statistics are given in the table. See BRITISH EMPIRE for area, population, capital towns, status and governors. (See also RHODESIA, NORTHERN AND SOUTHERN.)

History.—During 1946 the major occupation of the governments of the East African territories was the change-over from war to peace, and the implementation of plans which had been under consideration from 1943. Demobilization of the forces affected some 100,000 natives of Kenya; 90,000 of Tanganyika; 70,000 of Uganda; and 30,000 of Nyasaland—plans for training men for civilian work had been prepared as well as schemes for rehabilitating and caring for the disabled. The wartime regulation which permitted the conscription of native labourers for essential war work and production was rescinded, and the last of the conscripts, who served for periods of from 2 to 15 months, was discharged in September. During the period of the regulation some 80,000 natives of Tanganyika and 60,000 of Kenya had been conscripted. Most of the 70,000 prisoners of war who had been sent to the territories were repatriated. A contingent from East Africa command including representatives of all territories went to Great Britain to take part in the victory parade in June, and the band of the King's African Rifles played in the marching column. The strength of the African forces in the territories was fixed at 8,000; the prewar strength was less than 1,500.

Plans for reconstruction covering periods of five or ten years were prepared by the governments. Grants from the British treasury under the Colonial Development and Welfare act, 1945, together with increased taxation and in some cases local loans, were to be devoted to education, health, soil conservation, agriculture, housing, communications and water supplies, for the greater part in the native interest. Very large sums were required in addition to the grants, and Sir Wilfrid Woods, who visited the territories during the year in order to make a fiscal survey, reported that for the next five years annual expenditure from revenue would be £6,333,000 in Kenya; £4,000,000 in Tanganyika; and £3,250,000 in Uganda. At the opening of the budget session of the legislative council at Dar es Salaam on Dec. 2, the governor announced that a ten-year plan had been drawn up for Tanganyika at an estimated cost of £18,000,000.

Private enterprise also played its part. In Kenya European settlement was to be increased by 500 new farmers at a cost of £1,600,000, to be raised by local loans. A wattle-producing project which aimed at securing exports worth £1,000,000 within 15 years was also initiated. In Tanganyika two major mineral developments were underway. At Shinyanga a diamond pipe believed to be the largest in the world was discovered. At Mpanda enormous deposits of lead and other minerals were found and the government proposed to build a railway to the area costing £1,000,000. In the same territory, a groundnut mission sent out by the British government reported favourably on large production schemes.

Industrial development, which under the stimulus of war made some headway, showed only moderate prospects in peacetime. The most promising industries were those of building materials and ceramics. An expert in the latter industry was engaged in research in the territories. Import quotas remained in force.

Immigration by non-natives, controlled throughout the war, was made the subject of regulations. Minimum capital requirements of would-be immigrants were fixed at £800 for farmers,

Economic Activity in British Columbia, 1944-46

	Unit	1944	1945	1946 Preliminary Estimates
AGRICULTURE:				
Total value of production	\$	97,737,916	103,387,000	108,000,000
Livestock	\$	11,139,000	13,052,000	12,500,000
Poultry products . . .	\$	11,421,300	13,364,000	14,000,000
Dairy products	\$	19,713,681	21,231,000	21,000,000
Fruits and vegetables .	\$	27,983,103	26,761,000	30,000,000
Field crops	\$	22,287,000	23,679,000	25,000,000
Miscellaneous	\$	5,193,832	5,300,000	5,500,000
FISHERIES:				
Total value of production	\$	34,900,990	44,531,858	40,000,000
Pack of canned salmon	cases	1,097,555	1,739,308	1,347,512
FORESTRY:				
Total value of production	\$	146,611,000	147,655,000	160,000,000
Timber scaled	M.B.M.	3,096,333	3,081,235	3,150,000
Paper production . . .	ton	310,734	334,362	335,000
MINING:				
Total value of production	\$	54,923,803	63,343,949	70,250,000
Lead	\$	13,265,886	17,674,884	23,460,100
Zinc	\$	12,055,328	19,431,921	21,290,000
Coal	\$	8,217,966	6,454,360	6,035,000
Gold	\$	7,547,309	7,150,451	4,951,952
INTERNAL TRADE:				
Index of wholesale sales	1935-39=100	199.0	226.5	274.0
Index of retail department store sales . . .	1935-39=100	177.1	194.3	230.0
Railway freight loaded	ton	9,541,029	8,399,597	7,700,000
Consumption of electric power	000 kw. hr.	2,577,000	2,788,577	2,815,000
Construction, building permits	\$000	17,538	24,672	43,385
Bank debits	\$000	3,735,622	4,416,364	5,600,000
Index of employment .	1926=100	185.7	175.1	166.0
Salaries and wages paid	\$000	388,100	371,625	352,000

000,000 in fisheries (1945, \$44,531,858); \$160,000,000 in forestry (1945, \$147,655,000); and \$70,250,000 in mining (1945, \$63,343,949). While the value of wholesale and retail sales, building permits, bank debits and consumption of electric power showed increases over 1945, other statistical series, such as rail-

British East Africa

Territory and Area in sq. mi.	Revenue		Expenditure		Imports (Thousand £)	Exports (Thousand £)	Allotments Under Colonial Welfare and Development Act, 1945 (Thousand £)	Road, Rail and Shipping	Education: Elementary and Secondary
	(1945)	(1945)	(1945)	(1945)					
KENYA 224,960	7,754	7,701	7,123	5,793			3,500	(1937) arterial rds. 3,160 mi.; rlys. 1,290 mi.; shpg. cleared 2,352,250 net tons (1944)	(1937) Europ.: schls., 35, schlrs., 2,091; African: schls., 52, schlrs., 4,593; Indian: schls., 7,635; mission schls., 100
TANGANYIKA . . . 342,700	(1944) 4,207	(1944) 4,193	(1944) 5,829	(1944) 4,192			5,250	(1939) rds. 2,927 mi.; rlys. 1,377 mi.; shpg. cleared 3,077,951 tons	(1945) Europ.: schls., 11, schlrs., 1,200; African: schls., 222, schlrs., 28,000; Indian: schls., 82, schlrs., 8,000
UGANDA 80,300	(1944) 2,658	(1944) 2,598	(1945) 3,281	(1945) 9,939			2,500	(1938) rds. 7,488 mi.; rly. 332 mi.	(1938) ele.: schls., 300, schlrs., 34,232; sec.: schls., 22, schlrs., 1,250
NYASALAND . . . 37,374	(1944) 1,029	(1944) 1,033	(1945) 1,641	(1945) 1,876			2,000	(1939) main rds. 1,852 mi.; rly. 289 mi.	(1939) Europ.: elem., schls., 4, schlrs., 117; African: schls., 4,279, schlrs., 204,761
ZANZIBAR 640 and PEMBA 380	(1946 est.) 642	(1946 est.) 753	(1944) 1,249	(1944) 1,175			750	(1939) rds.(z.)151 mi.;(p.)71 mi.; shpg. cleared 331,215 net tons (1944)	(1938) ele. schlrs. (govt. schls.) 2,428; (priv. schls.) 2,930
BRITISH SOMALILAND . . 68,000	(1941-42) 216	(1941-42) 190	(1941-42) 638	(1941-42) 192			750	(1938) rds. for wheeled traffic c. 2,000 mi.	(1938) ele. govt. schls. 2, schlrs., 121; priv.-aided schls.: 14, schlrs., 514
MAURITIUS 720	(1944) 2,603	(1944) 2,387	(1944) 4,928	(1944) 3,472			1,750	(1939) rds. 700 mi.; rly. 141 mi.; shpg. cleared 270,960 net tons (1944)	(1945) elementary schls. (govt.) 55, schlrs., 10,247; ele. schls. (state-aided) 73, schlrs., 17,608; secondary schls. (govt.) 2, schlrs., 463; sec. schls. (aided and unaided) 24, schlrs., 2,998
SEYCHELLES 156	(1945) 95	(1945) 87	(1940) 81	(1940) 88			250	(1939) 60 mi. of cart rd.	(1943) ele. schls.: 29, schlrs., 3,615; sec. schls.: 2, schlrs., 85

£1,000 for miners, £2,500 for traders and £10,000 (or a lesser sum as the governor might direct) for industrialists. The measure was nonracial.

Tanganyika was placed under United Nations trusteeship by the British government which had previously held the territory under mandate from the League of Nations. A continuance of British administration was a condition of the agreement. Former axis estates were taken over by the government and made available for settlement.

The labour adviser to the colonial office visited the East African territories to study labour problems. In his report he stated that the average native worked only 25 hr. per week. Reasons suggested were malnutrition, lack of incentive and the scarcity of consumer goods in the shops. The secretary of state for the colonies visited Kenya, Tanganyika, Uganda and Zanzibar in July and August, when he was undersecretary, to study problems on the spot and to meet leaders from all communities.

Regular air services were increased during the year and were expected to reach six per week in each direction before the end

of the year. The motor vessel "Vipya," the new £60,000 ship owned by Nyasaland railways, sank in a storm in Lake Nyasa a few weeks after its maiden trip, with a loss of 145 lives.

In Uganda plans were made for extending the university college at Makerere to full university status. In British Somaliland the schools at Sheik were completed and a large clinic was built at Hargeisa.

A woman was appointed as a member of the Nyasaland legislative council for the first time.

The Aga Khan celebrated his diamond jubilee at Dar es Salaam by being weighed against diamonds by his followers. The value of the stones was £350,000.

Tsetse fly still infested two-thirds of Tanganyika, one-third of Uganda and one-seventh of Kenya. Experiments in the destruction of the pest with DDT were being carried out.

(G. R. MN.)

British Empire. The governments of the British Empire and the governors and premiers were as follows on Dec. 31, 1946:

British Empire				Status	Rulers, Governors and Premiers
Country	Area Sq. mi. (approx.)	Population ('000's omitted)	Capital		
Great Britain and Northern Ireland	93,991	47,157 ^A	London	Kingdom	George VI, King-Emperor. Prime Minister of Great Britain: C. R. Attlee. Governor of Northern Ireland: Vice-Adm. Lord Granville. Prime Minister of Northern Ireland: Capt. Sir Basil Brooke.
Channel Islands	75	79 ^A	{ St. Helier St. Peter Port	Part of kingdom of Great Britain and N. Ireland	Jersey: Lt. Gen. Sir A. E. Grassett. Guernsey: Lt. Gen. Philip Neame.
Eire	26,601	2,950 ^Q	Dublin	Republic associated with the British Commonwealth of Nations	President: S. T. O'Kelly. Prime Minister: Eamon de Valera.
Gibraltar	2	20 [†]	Gibraltar	Colony	Lt. Gen. Sir Ralph Eastwood.
Isle of Man	221	51 [†]	Douglas	Part of kingdom of Great Britain and N. Ireland	Air Vice-Marshal Sir G. Bromet.
Malta	122	285 ⁺	Valletta	Colony	F. C. R. Douglas.
<i>Asia</i>					
Aden and Perim	80	46 [†]	Aden	Colony	Sir Reginald S. Champion.
Aden Protectorate	112,000	600 [†]		Protectorate	
Bahrain Islands	213	90 [§]	Manama	Protectorate	Ruler: Sheikh Sir Hamad bin 'Isa al Khalifah.
<i>Borneo:</i>					
State of North Borneo	29,347	300 ^A	Sandakan	Colony	E. F. Twining. W. J. Peel (Brit. res.). Sir Charles Clarke.
Brunei	2,226	41 ^A	Brunei	Protectorate	
Sarawak	50,000	600 ^A	Kuching	Colony	Maj. Gen. Sir H. Rance. Sir H. Monck-Mason Moore.
Burma	261,749	16,824 [§]	Rangoon	British dependency	
Ceylon	25,332	6,651 ^A	Colombo	Colony	Lord Winstor. Sir Mark Young.
Cyprus	3,572	395 ^Q	Nicosia	Colony	
Hong Kong	391	1,072 [†]	Victoria	Colony	Emperor of India: H. I. M. George VI. Viceroy and Governor General: Field Marshal Lord Wavell.
Indian Empire	1,581,410	388,998||	New Delhi	Member of the British Commonwealth of Nations	

British Empire (Continued)

Country Asia (Continued)	Area Sq. mi. (approx.)	Population (000's omitted)	Capital	Status	Rulers, Governors and Premiers
Malaya:					Governor general: Malcolm MacDonald.
The Straits Settlements	1,356	1,435§	Singapore	Colony	Sir F. Gimson.
Malayan Union	51,866	4,124§		Protectorates	Sir E. Gent, Governor. The Rulers of Johore, Kedah, Kelantan, Negri Sembilan, Pahang, Perlis, Selangor and Trengganu.
Palestine	10,159	1,750□	Jerusalem	Mandated territory	Lt. Gen. Sir Alan Cunningham, High Commissioner.
Africa					
Kenya Colony and Protectorate . .	224,960	3,940δ	Nairobi	Colony and protectorate	Sir P. E. Mitchell.
Uganda Protectorate	80,300	3,930δ	Entebbe	Protectorate	Sir John Hall.
Zanzibar (and Pemba)	1,020	250δ	Zanzibar	Colony and protectorate	Sir Vincent Glenday (Brit. res.).
Mauritius (and Dependencies) . .	807	433δ	Port Louis	Colony	Sir Donald Mackenzie-Kennedy.
Nyasaland	37,374	2,188δ	Zomba	Protectorate	Sir E. C. Richards.
St. Helena and Ascension	81	5†	Jamestown	Colony	Major W. B. Gray.
Seychelles	156	34♀	Victoria	Colony	Sir W. M. Logan.
Somaliland Protectorate	67,936	700δ	Hargeisa (administrative centre)	Protectorate	Brigadier G. T. Fisher, Under Military Government.
Basutoland Protectorate	11,716	c.664*	Maseru	Protectorate)	Sir Evelyn Baring, High Commissioner.
Bechuanaland Protectorate	275,000	275†	Mafeking, in Cape Province	Protectorate)	
Northern Rhodesia	290,323	1,382‡	Lusaka	Colony	Sir E. J. Waddington.
Southern Rhodesia	150,333	1,576□	Salisbury	Self-governing colony	Maj. Gen. Sir John N. Kennedy.
Swaziland	6,704	160†	Mbabane	Protectorate	Premier: Sir G. M. Huggins.
Union of South Africa	472,494	11,259 ⁴	Pretoria (seat of government) Cape Town (seat of legislature)	Dominion	Sir Evelyn Baring, High Commissioner. Major G. B. van Zyl. Premier: Field Marshal J. C. Smuts.
South-West Africa	317,725	321§	Windhoek	Mandated territory	Col. P. I. Hoogenhout, Administrator.
Nigeria, including British Cameroons	372,674	22,334*	Lagos	Colony and protectorate	
Gambia	4,068	205†	Bathurst	Brit. Cameroons: mandated territory	Sir A. F. Richards.
Gold Coast, including British Togoland	91,843	3,963¶	Accra	Colony	Sir Hilary R. Blood.
Sierra Leone and Protectorate . .	27,925	2,000†	Freetown	Colony and protectorate	Sir Alan Burns.
Anglo-Egyptian Sudan	967,500	6,591¶	Khartoum	Condominium	Major Sir H. C. Stevenson.
Tanganyika Territory	342,700	5,499 δ	Dar-es-Salaam	Mandated territory	Maj. Gen. Sir H. J. Huddleston. Sir W. D. Battershill.
America					
Bahamas	4,404	73¶	Nassau	Colony	W. L. Murphy.
Barbados	166	201¶	Bridgetown	Colony	Sir H. Gratton Bushe.
Bermudas	19	32†	Hamilton	Colony	Sir Ralph Leatham.
British Guiana	80,500	364¶	Georgetown	Colony	Sir G. J. Lethem.
British Honduras	8,598	62¶	Belize	Colony	Sir J. A. Hunter.
Canada	3,466,556	11,812	Ottawa	Dominion	Field Marshal Lord Alexander. Premier: W. L. Mackenzie King. Sir A. W. Cardinall.
Falkland Islands and Dependencies .	7,681	3†	Port Stanley	Colony	Sir John Huggins.
Jamaica and Dependencies	4,722	1,198¶	Kingston	Colony	
Leeward Islands (Antigua, St. Kitts, Nevis, Montserrat and the Virgin Islands)	422	93¶	St. John (Antigua)	Colony	Sir L. B. Freeston.
Newfoundland and Labrador . . .	152,734	317□	St. John's	Colony, constitution suspended	Sir Gordon Macdonald.
Trinidad and Tobago	1,978	522¶	Port of Spain	Colony	Sir Bede Clifford.
Windward Islands (Grenada, Dominica, St. Vincent and St. Lucia) .	825	275¶	St. George's (Grenada)	Colony	Sir Arthur Grimble.
Oceania					
Commonwealth of Australia	2,974,581	7,446 ⁴	Canberra	Dominion	H. R. H. the duke of Gloucester. Premier: J. B. Chifley.
Fiji	7,083	255□	Suva	Colony	Sir A. W. Grantham.
New Zealand	103,415	1,746°	Wellington	Dominion	Lt. Gen. Sir B. Freyberg. Premier: Peter Fraser.
Papua	90,540	339‡	Port Moresby	Part of Commonwealth of Australia	H. L. Murray, Administrator.
Pacific Islands (Gilbert and Ellice, Solomon, Tongan and Pitcairn) . .	c.11,888	165*		Colonies and protectorate	Sir A. W. Grantham, High Commissioner.
New Hebrides	5,700	50†	Vila	Condominium	Sir A. W. Grantham, High Commissioner.
New Guinea, Territory of	93,000	675‡	Rabaul	Mandated territory	Col. J. K. Murray, Administrator.
Western Samoa	1,133	63¶	Apia	Mandated territory	Lt. Col. F. W. Voelcker, Administrator.
Nauru	8	3§		Mandated territory	Lt. Col. F. R. Chalmers, Administrator.

*Pop. est. 1938. †Pop. est. 1939. ‡Pop. est. 1940. §Pop. est. 1941. ¶Census 1941. °Pop. est. 1942. ♀Pop. est. 1943. δPop. est. 1944. □Pop. est. 1945. °Census 1945. ⁴Pop. est. 1946. †Census 1946.

British Guiana. A British crown colony in northeastern South America. Area: 89,480 sq.mi.; pop. (1931 census): 310,933; pop. est. (1943): 364,694. Racial groups in the population include 159,249 East Indians, 135,364 Negroes, 9,419 aborigines, 8,361 Portuguese, and 3,557 Chinese (1943 est.). The capital and principal city is Georgetown (1943 pop. est., 73,171, of whom only about 1,400 were white). The only other important town is New Amsterdam (pop., 10,525). Executive power is vested in a governor and commander in chief, assisted by an executive council and a legislative council. Governors and commanders in chief in 1946: Sir Gordon James Lethem, until Nov. 7; Sir Charles Woolley, following that date.

History.—The Bermuda aviation conference, held at Hamilton early in 1946, approved the use of a British Guiana aero-

plane base, along with three other United States wartime-constructed bases, for civil aviation. The United States, which following 1940 had developed its aviation facilities in British Guiana on an important scale, took steps early in 1946 to negotiate an enlargement of its lease in British Guiana, especially for use for bomber training. Delegates from British Guiana attended the second Caribbean conference, held in the U.S. Virgin Islands in Feb.–March, 1946. Although problems of overpopulation in Barbados, Puerto Rico, and other Caribbean possessions were considered by the conference, the meeting focused attention on the underpopulation of British Guiana and recommended a study of it. Gov. Lethem subsequently expressed great hopes of developing the hinterland and took steps to initiate preparation of a ten-year plan for colonial development,

emphasizing the problems of the interior. The legislature late in 1946 passed a slum-clearance bill.

Education and Religion.—The government operates about 250 schools with more than 60,000 pupils enrolled. The total government grant for education in 1943 was £140,584. The government in 1946, as part of an educational expansion program, made an appropriation of £26,050 for teachers' housing. Literacy is estimated at 70%. The government in 1946 tabled a motion approving participation by the colony in the proposed West Indian university to be organized in Jamaica. The principal churches in British Guiana are the Anglican and Roman Catholic.

Finance.—The monetary unit is the British Guiana dollar, tied to the pound sterling at 4s. 2d. and valued at about 84 cents U.S. The colony was much interested in the possibility, frequently discussed in 1946, of establishing a dollar currency unit common to the eastern group of British West Indian colonies and including British Guiana; no definitive steps had been taken toward that goal by the end of 1946, however. Total 1945 revenues (estimated) were \$11,181,939 and expenditures \$12,142,332; the actual 1945 deficit was about \$2,700,000. The 1946 budget involved expenditures of \$13,539,414 and anticipated revenues of \$10,647,299, leaving a prospective deficit of \$2,892,215. The colonial treasury accumulated a wartime emergency surplus which, it was hoped, might cover the 1945, 1946 and 1947 deficits. The legislative council early in 1946 approved allocations of \$500,000 for development and welfare projects. The British government, under its Colonial Development and Welfare act of 1940, and supplementary laws, allocated \$12,000,000 during 1946 for projects in British Guiana, to be expended in instalments. Long-range plans covering a period of 20 years contemplated an expenditure of \$108,000,000 for a wide variety of projects. The popular reaction, however, was that such a sum would be insufficient for that long a period and it was unofficially proposed that a supplementary loan of \$50,000,000 should be raised privately for development of the colony.

Trade and Communication.—Chief exports are sugar, bauxite, rice, gold, rum and balata; the principal imports are machinery, wheat and flour, textiles and clothing. Sugar exports for the first quarter of 1946 were 47,284 long tons (same period in 1945: 44,481 tons) valued at \$3,750,747 (1945: \$3,120,476). Rice exports for the first quarter of 1946 were 6,601 long tons (same period in 1945: 7,800 tons). Diamond exports in the first quarter of 1946 were 5,087 carats (same period in 1945: 3,949 carats) valued at \$277,008 (1945: \$105,228). Exports of bauxite in 1945 were 739,000 long tons (1944: 873,968 tons) valued at \$3,660,637 (1944: \$5,411,976). Crude rubber exports in 1945 were 250,256 lb. (1944: 288,570 lb.), all of which went to the United States. Balata exports in 1945 were 646,580 lb. (1944: 984,274 lb.), most of which went to the United Kingdom. Sugar exports in 1945 were 132,576 long tons valued at \$9,677,647. Diamond exports in 1945 were 17,251 carats (1944: 13,911 carats) valued at \$513,677 (1944: \$327,310). Molasses exports in 1945 were 1,415,827 gal. (1944: 1,664,421 gal.) valued at \$142,264 (1944: \$130,408). A committee of the rice marketing board toured the West Indies in 1940 seeking additional markets for British Guiana's production.

Railway and highway mileage are respectively about 110 and 500, the latter figure not including about 200 mi. of secondary forest roads. A road-building program extending over several years at an estimated cost of \$17,000,000 was under consideration in 1946.

Agriculture.—Production of sugar in 1945 totalled 158,445 long tons (1944: 138,472 tons); the acreage was 58,000 (1944: 59,000). The government in 1946 created a permanent organization for the purchase, distribution, and export of rice. Forestry

experts undertook an extensive survey of timber resources, estimating them at 41,000,000,000 cu.ft. of merchantable timber, including 7,000,000,000 ft. of greenheart, 28,000,000,000 ft. of other hardwoods, and 6,000,000,000 ft. of lightwoods; the potential annual production was estimated at 240,000,000 cu.ft. and possible royalties at \$7,264,000. A Belgian concern was granted a concession to cut 120,000 ft. of lumber monthly.

Manufacturing and Mining.—Industrial experts made a favourable report on the possibilities of a glass industry, proposing the annual manufacture of 18,000,000 bottles and a capital investment of \$600,000; samples of glass sands were sent to England for experimental manufacture. Authorities also studied the possibility of establishing a wallaba wood pulp and plywood industry; its export potential was estimated at \$1,400,000 annually.

Oil exploration was abandoned during 1946. Geologists estimated the colony to contain 250,000,000,000 tons of high-grade silica reserves and vast deposits of kaolin.

BIBLIOGRAPHY.—*West Indies Year Book, 1945*; *Crown Colonist* (London, monthly); *South American Handbook* (1946); *Foreign Commerce Weekly*; JoBesse M. Waldeck, *Jungle Journey* (1946). (R. H. FN.)

British Honduras. A British crown colony on the Caribbean side of Central America, bounded on the north, east, and south and west, respectively, by the Yucatan peninsula, the Caribbean sea and Guatemala. Area (including about 212 sq.mi. of cays): 8,598 sq.mi.; the area is technically in doubt because of the existence of a claim by Guatemala to a large part of southern British Honduras. Pop. (1944 est.): 63,390. The population is approximately 50% Negro and mestizo and 25% Indian; white population is estimated at less than 2,500. The capital and principal port is Belize (or Belice; pop., 1946 est., 18,188); other towns (with est. pop.) include Stann Creek (2,844), Corozal (2,197), El Cayo (1,500), and Benque Viejo (1,500). English is the main language but many speak Spanish and some Maya. Governors in 1946: Sir John Adams Hunter, to July 1; A. N. Wolffsohn (acting), July 1–Nov. 26; Edward Gerald Hawkesworth.

History.—The long-standing boundary dispute with Guatemala took a new turn in 1946. The Guatemalan foreign minister on Sept. 24, 1945, proposed the reopening of the question, after it had been held in abeyance during World War II, and the British foreign office replied in a note dated Jan. 14, 1946, proposing that the controversy be referred to the International Court of Justice as soon as it should be organized by the United Nations. Guatemala two days later consented to this suggestion. The origin of the dispute dates back to an allegedly unfulfilled treaty of 1859. The colony sent delegates to the second Caribbean conference, held in the U.S. Virgin Islands beginning Feb. 21, 1946. Discussion continued in the colony in 1946 of the possibility of federation with other British Caribbean colonies.

Education.—Primary education is provided by 112 schools, 78 of which are government-aided denominational schools; they had a 1943 enrolment of 11,798, with an average attendance of 81%. Government expenditures on education in 1943 totalled \$130,249. A colonial development and welfare grant £6,680 has been allocated to reconstruction of school buildings destroyed in the northern district of the colony by a hurricane in 1942. A new primary school curriculum, approved in 1945, began to be applied in 1946. A U.S. system of teacher training, especially for rural areas, was further extended in 1946.

Finance.—The monetary unit is the British Honduras dollar, theoretically equal to the U.S. dollar, but restricted in circulation to British Honduras and pegged in practice to the pound sterling. The colonial debt at the beginning of 1944 was \$2,291,161. Sinking funds totalled \$531,730 and total liabilities

were \$1,252,992; the treasury surplus at that time was \$113,972. The second British colonial development and welfare act (1945) made available for British Honduran projects approximately £600,000 to be spent over a ten-year period. The cost-of-living index in April 1946 was 167 as against 100 in 1939.

Trade and Communication.—Mahogany export, formerly the basis of British Honduran trade, had slumped greatly, and in 1946 the government was studying the possibility of exporting other hardwoods in larger quantities.

Highway mileage includes 131 mi. of asphalt and improved earth roads and 97 mi. of nonsurfaced roads. The 1946 budget included items of \$230,000 and \$104,500, respectively, for road construction and maintenance; the most ambitious construction project was the road from Belize to Corozal in the north.

Agriculture.—Despite the statement of Gov. Hunter early in 1946 that the colony's future was bound up with its timber resources, British agricultural experts who surveyed the problems of the colony emphasized the great need for a more diversified agriculture. Prospects appeared poor in 1946 but the government began a program to stimulate production of rice, corn, beans and fats. (See also GUATEMALA.)

BIBLIOGRAPHY.—*Crown Colonist* (London, monthly); *West Indies Year Book*, 1945; *Foreign Commerce Weekly* (Washington). (R. H. FN.)

British Isles: see GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

British Legion. At its annual conference held in London at Whitsuntide 1946 the British legion celebrated its silver jubilee, on which it was congratulated by the king. Major General Sir F. Maurice was elected president, Brigadier General Sir E. R. Fitzpatrick chairman of the national executive council and Colonel Lord Cromwell treasurer, in succession to Major General Sir Brunel Cohen who had held the position for 25 years. The legion decided to contribute to the solution of the housing problem by voting a further £100,000 for the existing Haig homes, specially adapted for the disabled, and by establishing 7 homes for convalescent and other ex-servicemen in various parts of the country. The first of these, Maurice house, Westgate-on-Sea, was opened in June; the second, Churchill house, Sevenoaks, was opened by Mrs. Winston Churchill on Oct. 12. This house was presented by Charles Hopkins to Mrs. Churchill as a tribute to her husband, and was entrusted by him to the British legion to be used for convalescent ex-servicemen. The remaining four houses were in preparation. Other noteworthy events in the year were the opening of treatment centres for men suffering from rheumatic complaints, paralysis or neurosis; the Poppy day collection (Nov. 11, 1945) for the first time exceeded £1,000,000 and a record number of prince of Wales pensions were issued. (F. B. M.)

British Malaya: see MALAYAN UNION AND SINGAPORE.

British Pacific Islands: see PACIFIC ISLANDS, BRITISH.

British Possessions in the Mediterranean: see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

British Somaliland: see BRITISH EAST AFRICA.

British South African Protectorates.

Under this heading are grouped the three British protectorates

British South African Protectorates

Territory and Area in sq.mi.	Principal Products (in short tons) (1945-46) wheat 32,010 maize (1943) 72,000 wool (1944 export) 4,243	Imports and Exports (in £) (1942) imp. 1,033,328 exp. 459,509	Road and Rail rds. 502 mi.	Revenue and Expenditure (in £) (1944-45) rev. 589,621 exp. 539,300	Education Elementary and Secondary (1944) European schools 7, scholars 85; government and mission schools 922, scholars 85,429
BASUTOLAND 11,716					
BECHUANALAND c. 275,000	gold (1943) 0.54 silver (1943) 0.05	(1941-42) imp. 520,600 exp. 410,600	rds. 2,048 mi. rly. 396 mi.	(1944-45) rev. 315,000 exp. 301,800	(1944) European schools 12; native schools 133; total scholars c. 6,000
SWAZILAND 6,705	gold (1940) 0.037 tin ore (metal content) (1940) 110 maize (1938) 6,490	In customs union with South Africa	rds. 654 mi.	(1943-1944) rev. 210,000 exp. 181,200	(1944) European schools 11, scholars 520; native schools 193, scholars 9,624

in South Africa, of which certain essential statistics are given in the table. See BRITISH EMPIRE for population, capital towns and status. High commissioner: Sir Evelyn Baring. For other territories of the British empire in South Africa see SOUTH AFRICA, THE UNION OF.

History.—The three South African territories of Bechuanaland, Basutoland and Swaziland entered into an important stage in their development as British protectorates. The effect of the sum of £2,500,000 set aside in 1945 by the London colonial office for their internal advancement was in 1946 beginning to make itself felt, particularly with regard to the fight against soil erosion. This coincided with the return of almost 35,000 demobilized men who voluntarily fought with the United Nations in North Africa and beyond. They had acquired a new outlook and knowledge of the higher living standard abroad, of the importance of sufficient food and a well-balanced diet and of cars, engines, mechanical instruments, etc.; their experience was expected to benefit their own tribes who had in the past suffered from the lack of an artisan class.

The future of the railway running through Bechuanaland came under discussion. In June 1945 Sir Harold Howitt was asked by the dominion secretary in London to investigate "whether it would be in the interests of Northern Rhodesia and the Bechuanaland protectorate" if this railroad were acquired by Bechuanaland and the two Rhodesias. While he thought a decision ought to be deferred until 1950 he was of the opinion that such a transfer into public ownership was bound to come. Viewing the nationalization program of the British Labour government, such transfer, if it came, would deeply affect the economic progress of the native population; it would also draw attention to the fact that neither Basutoland nor Swaziland had any proper railroad connection. Basutoland, following the example set by Bechuanaland under Sir Arden Clarke, took a step towards fuller self-government by introducing native treasuries (as from April 1, 1946) which, under a national native treasury at Matsieng, were responsible for tax collection. This involved the introduction of salaries for all chiefs, beginning with the paramount chief Mantsebo Seeiso at £3,600 per annum, and the salutary reduction in the number of native courts from 1,340 to 117. Externally the main attention, as always, was directed towards the aims of the Union of South Africa. On April 29, 1946, Chief Tshekedi, whose people hold about one-half of Bechuanaland, led a protest by all the chiefs of the territory against the proposed transfer of the mandated territory of south-west Africa to the Union. They asked that Britain itself take over the mandate, thus to safeguard their natural outlet to the Atlantic; failing this they demanded a transfer of the mandate to the United Nations. (F. W. PK.)

British West Africa. Under this heading are grouped the British colonial territories on the west coast of Africa, for which certain essential statistics are given in the table. See BRITISH EMPIRE for population, capital towns, status and governors.

Central, regional and local planning for political, economic and social development, research and surveys of resources were general in 1946. West Africa was receiving assistance from the colonial development and welfare fund, extended for 10 years from 1945 with a grant of £120,000,000. Regional co-operation was carried on through the West African council which took the place of the resident minister's office; collaboration with adjoining French territories increased. The commission on higher education in West Africa issued a majority report recommending three university colleges and a minority report recommending a unitary university in Nigeria, with territorial colleges doing intermediate work, teacher training and adult education in each territory. The secretary of state supported the minority, but there was strong local opinion in favour of the majority report. A report on recruitment and training for the colonial service recommended equal pay for equal work for colonial and European officers, and outlined extensive courses of training to be given in the universities of Oxford, Cambridge and London. A report on training for European and African nurses included training for community as well as for hospital nursing services. More than 300 West Africans marched in the victory parade in London in June. The arrangement for sending some Africans to Sandhurst to qualify for commissions was to be continued, and rehabilitation centres for former service men were opened in the territories. Trade unions and co-operative societies were developing. Government control of the marketing of cocoa crops continued.

Nigeria.—A new constitution came into effect on Jan. 1, 1947, setting up houses of assembly for north, east and west, regional budgets and representation in the central legislative council of 20 official and 29 unofficial members. A section of African opinion considered the constitution too conservative. A 10-year plan was approved by the legislative council involving expenditure of £55,000,000, for which £23,000,000 was allotted from the colonial development fund. The rest was to be raised by the Nigerian government in part through local loans, the first of which was subscribed two and a half times over the amount asked for, half the individual subscribers being Africans. The plan included extension of health and education services, improvement of economic conditions for the people and development of the agricultural and mineral wealth of the country. A department of commerce and industries was set up for local and export trade. The first of 12 factories for expressing palm oil was in operation. The report of the commission of inquiry on the strike of government technical workers in 1945 provided an analysis of the economic questions underlying the demand for a rise in cost of living allowances and supported certain claims of the workers. A field worker was collecting data on nutrition.

Gold Coast.—In July 1946 the legislative council with an unofficial African majority met under the new constitution. A survey of Ashanti by a group including an anthropologist provided data on land tenure, native authorities and their relation to the central government. The 10-year development plan involved expenditure of £10,000,000. Town planning surveys were

British West Africa

Territory and Area (sq. mi.)	Principal Products (short tons)	Imports and Exports (1941)	Road, Rail and Shipping (1939)	Revenue and Expenditure	Education: Elementary and Secondary (1938)
NIGERIA (including British Cameroons) 372,674	(exports 1945) ground nuts 337,000 rubber 11,037 tin 12,000 cotton 15,900 bales (1945)	imp. £6,499,000 exp. £13,765,000	rds. 20,990 mi. rlys. 1,901 mi. shpg. cleared 1,790,019 net tons	(est. 1946-47) rev. £13,395,000 exp. £13,090,300	elem. and middle schools 565; scholars 25,067
GOLD COAST (including Ashanti, Northern Territories and British Togoland) 91,843	ground nuts(exports) 45,600 rubber 1,758 gold (1944) 17.82 cocoa (1942) 231,770 (exports 1939)	imp. £10,662,150 exp. £15,272,220	rds. 2,390 mi. rlys. 490 mi. shpg. cleared 1,842,948 net tons	(est. 1946-47) rev. £5,639,120 exp. £6,124,170	elem. schools 927; scholars 83,824; sec. and higher educ. scholars 2,078
ST. HELENA (47) and Ascension Islands (34)	flax fibre 934 tow 573 (exports 1945)	imp. £77,600 exp. £31,300	rds. 62 mi.	Rev. £39,900 exp. £25,700	(1939) scholars 810
GAMBIA 4,068	ground nuts 45,600 (1945)	imp. £930,000 exp. £662,000	rds. 869 mi. shpg. cleared (1940) 445,244 net tons	(est. 1944) rev. £369,500 exp. £365,500	(1940) elem. schools 7; scholars 1,725; sec. schools 4; scholars 200
SIERRA LEONE 27,925	diamonds (av. 1940- 45) 818,074 carats rubber 1,232 chromium 28 iron ore (value, 1940) £492,600	imp. £3,809,200 exp. £1,590,000	rds. 836 mi. rly. 311 mi. shpg. entered (1938) 2,725,573 net tons	(est. 1944) rev. £1,654,900 exp. £1,672,400	elem. schools 253; scholars 30,851

made by an expert serving all four territories, and an industrial development board was set up. In the Northern Territories forest conservation received attention and the timber industry was developing. Data on nutrition were collected; research on "swollen shoot" which menaced the cocoa crops brought some results. An inaugural meeting of the trades union congress was held with 15 unions represented. An officer was appointed for mass education. Some native authorities began to sponsor health services; successful measures were taken to control an outbreak of cerebrospinal meningitis; but the spread of tuberculosis caused concern.

Sierra Leone.—Twelve district councils for the protectorate and a protectorate assembly were established, all with advisory powers. In the colony the Municipalities bill was postponed, as only 170 voters registered. The 10-year plan proposed expenditure of £5,250,000, £2,600,000 to be met from the Colonial Development fund and £1,374,000 from local resources and a loan. Expenditure included agricultural and forestry development. Sawmills were set up and men trained for the timber trade. A deepwater quay was planned at Freetown. Medical and education services were being extended.

Gambia.—The Bathurst town council was constituted with 15 elected members. Nutritional research was carried on. Government agricultural and veterinary services were unified with those of Sierra Leone, to be followed by fishing, printing and possibly police services. The first Gambian administrative officer was serving his probation.

British Togoland and the British Cameroons.—Drafts for placing these territories under the trusteeship council were submitted to the United Nations; they included provision for their continued administration with the Gold Coast and Nigeria respectively, safeguards of the economic interests of the inhabitants and provision for defense. (M. Wg.)

British West Indies: see BAHAMAS; BARBADOS; JAMAICA; LEEWARD ISLANDS; TRINIDAD; WINDWARD ISLANDS.

Broadcasting: see RADIO; TELEVISION.

Bromine. After a decline to 32,940 short tons in 1942, bromine production in the United States made a spectacular rise to 47,043 tons in 1943 and to 51,056 tons in 1944. Since more than 90% of the output is used in the production of anti-knock fluid for motor fuel, the increase could be directly attributed to the heavy demand for motor fuels in the war program. The end of the war reduced demand, and the 1945 output dropped to 39,855 tons. Formerly produced en-

tiely as a by-product from well brines used in the production of salt and magnesium chloride, the bulk of the bromine output now comes from sea water which contains only a small fraction of 1% of the element.
(G. A. Ro.)

Brookings Institution: see SOCIETIES AND ASSOCIATIONS.

Broomcorn. The 1946 United States broomcorn crop was estimated by the U.S. department of agriculture at 43,900 tons which was 29% larger than the crop of 1945 and only .8% short of the 1935-44 average of 44,290 tons. The yield was 295 lb. per acre compared with 280 lb. in 1945 and an average of 298 lb. The acreage for harvest was 267,000 ac. compared with 250,000 ac. in 1945 and an average of 300,000 ac. Colorado took first place with 14,600 tons, over Oklahoma with 13,500 tons. Texas produced 5,900 tons; Illinois 3,000; Kansas 2,000 and New Mexico 1,800. These six states produce almost all of the commercial crop though small amounts are grown in other states. The largest increase was in Illinois which increased plantings 76%. Most of the crop was harvested in good condition by Oct. 1.

(J. C. Ms.)

Brozovich or Broz, Josip (Tito) (1892-), Yugoslav soldier and statesman, was born near Zagreb in Croatia. He served in the Austro-Hungarian armies in World War I and in 1915 went over to the Russians. Returning to Croatia, he became a labour



MARSHAL TITO of Yugoslavia (right) playing a game of chess with Fiorello H. La Guardia, director general of U.N.R.R.A., aboard the former's private train on July 29, 1946, while La Guardia was making an inspection tour of Yugoslavia

leader and communist and assumed the pseudonym Tito. After the Germans overran Yugoslavia in 1941, Tito organized a guerrilla army that soon took the ascendancy over the rival Chetnik forces led by Gen. Draja Mihailovitch, and won Allied recognition. On March 7, 1945, Tito formed a government with himself as premier and in the closing days of the war, his forces occupied Trieste but later withdrew under Allied protest. Tito formally proclaimed (Nov. 29) establishment of a republic. His rule was recognized by Britain and the U.S. Dec. 22, 1945. Throughout 1946, Tito renewed his claims to Trieste. After Yugoslavs shot down two U.S. aircraft over Yugoslavia, the U.S. warned Tito's government (Aug. 21) that unless Yugoslavia made amends for the two incidents, it would take the case up before the U.N. Security council. Tito yielded to the U.S. demands and subsequently paid a \$150,000 indemnity for the lives of five U.S. fliers killed in one of the planes that was shot down. Tito later maintained that the infringement of

Yugoslav territory by U.S. fliers was deliberate. Tito was also involved in a controversy with the Vatican which assailed the conviction of Archbishop Stepinatz of Zagreb on charges of wartime collaboration with the Ustachi. Tito declared, Oct. 31, that he had notified the Vatican to remove Stepinatz before his arrest and charged that his government was deliberately misrepresented by U.S. and British propaganda as a persecutor of the Catholic Church.

Bruce, William Cabell (1860-1946), U.S. senator and author, was born on March 12 at Staunton Hill, Charlotte co., Va. After graduating from the University of Maryland Law school, College Park, Md., in 1882, he set up practice in Baltimore, Md. He later became active in state politics and was elected to the state senate (1894-96). He was head of the law department of the city of Baltimore (1903-08) and general counsel of the Maryland Public Service commission (1910-22 and 1929-35). He was elected on the Democratic ticket to the U.S. senate (1923-29) and there distinguished himself for his independence from party policy. He was an advocate of federal anti-lynching legislation and a vigorous opponent of the Ku Klux Klan. Bruce was one of the leading foes of prohibition, although at first he favoured a system of state control of liquor under federal authority. He was defeated for re-election in 1928 in the Hoover landslide. He was the author of *Benjamin Franklin, Self-Revealed* (1918) for which he received the Pulitzer prize. He also wrote *John Randolph of Roanoke* (1923), *Seven Great Baltimore Lawyers* (1931), *Recollections* (1931), *Imaginary Conversations with Franklin* (1933) and *The Inn of Existence* (1941). He died in Baltimore on May 9.

Brunei: see BORNEO.

Bryn Mawr College. A resident college for women at Bryn Mawr, Pa. In 1946 Bryn Mawr added to its academic program the following courses: general anthropology, ethnology, physical and economic geography, advanced northern Renaissance, history of Russia, Russian literature in translation and intermediate Russian language. The department of history of art introduced a new experimental laboratory in connection with its first year course. The class was held for two hours each week and basic problems of design, form, colour harmony, etc. were studied in a practical manner. Under the Mary Flexner lectureship, Alfred H. Barr, Jr., director of research in painting and sculpture at the Museum of Modern Art in New York city, was in residence at the college for six weeks and gave a series of six illustrated public lectures on "Dogma and Practice in Modern Art." (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (K. E. M.)

Bubonic Plague: see PLAGUE, BUBONIC AND PNEUMONIC.

Buckwheat. The United States buckwheat crop was estimated by the U.S. department of agriculture at 7,105,000 bu. in 1946 compared with 6,644,000 bu. in 1945 and the 10-year average, 1935-44, of 7,138,000 bu. This was nearly 2,000,000 bu. less than the large crop of 1944, of 9,166,000 bu. The acreage for harvest was estimated at 402,000 ac. compared

U.S. Production of Buckwheat in Leading States, 1946 and 1945
(In bushels)

State	1946	1945	State	1946	1945
Pennsylvania . .	2,394,000	2,016,000	Michigan . . .	243,000	350,000
New York . . .	2,147,000	1,519,000	Tennessee . .	165,000	144,000
Minnesota . . .	588,000	630,000	West Virginia .	133,000	172,000
Ohio	340,000	306,000	Maine	120,000	93,000
Wisconsin . . .	266,000	294,000	Maryland . . .	118,000	141,000

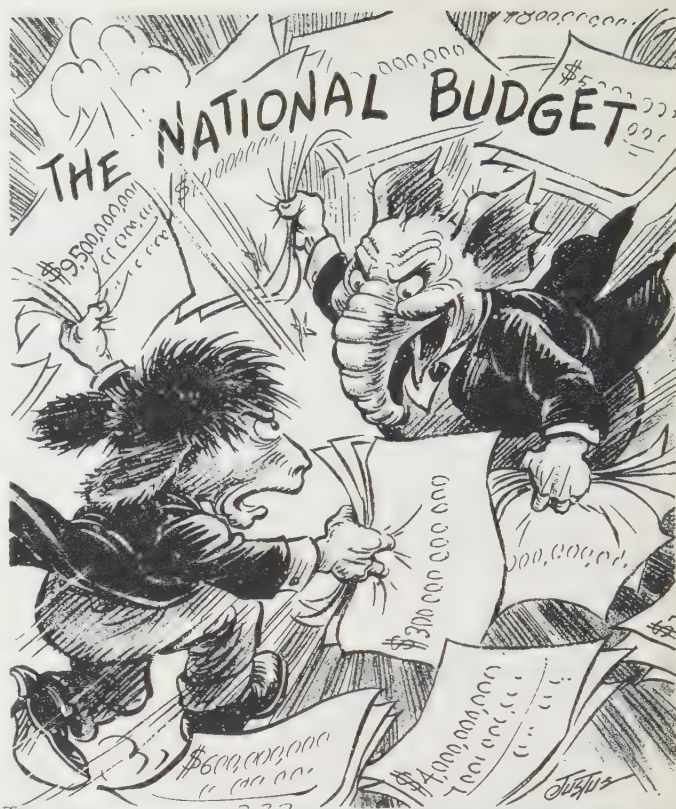
with 413,000 ac. in 1945 and an average of 424,000 ac. The reduction in acreage was due to the spring weather being favourable for the planting of other crops for which buckwheat was often a substitute. The average yield was 18.2 bu. per acre in 1946 compared with 16.2 bu. in 1945 and 10.8 bu. for the 10-year average. Pennsylvania and Maryland harvested high yields of 21 bu. per acre, Vermont 19.5 bu., New York 19.5 bu.

(J. C. Ms.)

Budget, National. The president's budget for the fiscal year 1948 was submitted to congress by President Truman on Jan. 10, 1947. Since the president had fully discussed his economic views and program in the *Economic Report to Congress* as required under the Employment act of 1946, the budget message was limited to the justification of the government expenditures and receipts requested by the president.

The budget recommended a level of expenditures for fiscal 1948 of \$37,527,917,000 and revenues of \$37,730,365,000. As expenditures for the preceding fiscal year were estimated at \$42,522,947,000 and revenues at \$40,229,926,000, the budget represented a continuation of the movement of government operations to a peacetime basis. However, since the recommended level of expenditures was so far above the prewar level, the major emphasis in the budget message was given to a full explanation of the government's requirements.

While the total government expenditures were expected to decline by approximately \$5,000,000,000, there was considerable variation in the anticipated outlays for the various governmental functions. The bulk of the curtailment was expected in expenditures for national defense, the recommended figure for 1948 of \$11,587,114,000 contrasting with the previous year's expenditures of \$15,149,457,000. National defense remained by far the largest category in the budget. The president pointed out that expenditures had been reduced drastically from the wartime



"WHO SAYS STATISTICS ARE DULL?" asked Justus of *The Minneapolis Star* in 1946

peak and stated that the ultimate peacetime level of the nation's defense establishment could not be attained in the coming fiscal year. He mentioned the large responsibilities arising out of the war which still remained, including military occupation in

Table 1.—Summary of Budget Receipts and Expenditures, United States

Based on existing and proposed legislation

Description	Actual, 1946	Estimate, 1947	Estimate, 1948
Budget Receipts:			
General and special accounts:			
Direct taxes on individuals	\$19,008,026,332	\$18,637,000,000	\$19,120,000,000
Direct taxes on corporations	12,905,687,938	9,226,980,000	8,269,990,000
Excise taxes	6,695,859,906	7,283,020,000	16,118,010,000
Employment taxes	1,713,671,530	1,955,300,000	2,693,700,000
Customs	435,475,072	495,700,000	517,300,000
Miscellaneous receipts:			
Existing legislation	3,479,866,559	3,986,626,787	2,619,866,388
Proposed legislation			378,599,357
Total receipts, general and special accounts	44,238,590,337	41,584,626,787	39,717,465,945
Deduct net appropriation to federal old age and survivors insurance trust fund	1,200,791,529	1,354,700,000	1,987,100,000
Net budget receipts	43,037,798,808	40,229,926,787	37,730,365,945
Budget Expenditures:			
General and special accounts:			
National defense	45,065,933,859	15,149,457,635	11,587,114,769
Veterans' services and benefits	4,414,433,474	7,601,388,963	7,342,771,835
International affairs and finance	1,830,726,458	5,637,691,909	2,820,129,298
Social welfare, health and security	1,112,697,825	1,569,846,599	1,654,114,593
Housing and community facilities	157,799,827	525,566,578	225,400,508
Education and general research	87,939,522	71,493,844	88,069,598
Agriculture and agricultural resources	1,034,783,240	1,582,473,122	1,602,949,215
Natural resources not primarily agricultural	275,313,559	727,275,809	1,098,921,243
Transportation and communication	866,437,611	935,588,293	1,532,911,801
Finance, commerce, and industry	215,566,939	175,886,084	112,326,889
Labour	104,436,080	124,004,518	117,517,596
General government	988,925,286	1,482,779,087	1,426,534,322
Interest on the public debt	4,747,492,077	4,950,000,000	5,000,000,000
Refunds of receipts	3,119,396,585	2,154,647,147	2,064,803,500
Reserve for contingencies		10,000,000	25,000,000
Adjustment to daily treasury statement basis	+996,745,649		
Total expenditures, general and special accounts	65,018,627,991	42,698,099,588	36,698,565,167
Checking accounts of wholly owned government corporations and credit agencies with U.S. treasurer (net)†			
National defense	*53,441,000	*423,572,000	*330,927,000
International affairs and finance	*367,282,839	756,232,000	690,223,000
Social welfare, health and security	8,766		
Housing and community facilities	*337,452,935	18,492,000	313,654,000
Agriculture and agricultural resources	*283,287,559	*465,629,000	*222,215,000
Natural resources not primarily agricultural	*18,445,891	1,000,000	1,900,000
Transportation and communication	*42,815,000	*30,555,000	*2,600,000
Finance, commerce and industry	*185,354,000	*93,260,000	313,696,000
General government	*16,588,116	62,140,000	65,621,000
Net expenditures, wholly owned government corporations and credit agencies†	*1,304,658,574	*175,152,000	829,352,000
Total budget expenditures	63,713,969,417	42,522,947,588	37,527,917,167
Excess of budget receipts over expenditures			202,448,778
Excess of budget expenditures over receipts	20,676,170,609	2,293,020,801	...

*Excess of credits, deduct.

†Assumes that the reduction in tax rates which becomes effective six months after the termination of hostilities will take place on July 1, 1947.

‡Sales and redemptions of obligations of government corporations and credit agencies are shown under trust accounts.

Table II.—Government Receipts and Expenditures—Great Britain

Based on existing and proposed legislation
(£ millions)

Receipts			Expenditures		
	Actual Receipts 1945-46	Estimate for 1946-47		Exchequer Issues 1945-46	Estimate 1946-47
Income tax	1,361	1,111	Interest and management of national debt	456	490
Surtax	69	80	Payments to N. Ireland exchequer	12	20
Estate duties	120	140	Issue to national land fund	—	50
Stamps	25	29	Other consolidated fund services	8	8
National defense contributions	36			476	568
Excess profits tax	431	325			
Other inland revenue	1	1			
	2,043	1,686			
Customs	570	595	Supply services:		
Excise	541	592	Defense votes	*	1,667†
	1,111	1,187	Civil votes	560	1,617
Motor duties	43	45	Revenue departments	29	35
Total tax revenue	3,197	2,918	Votes of credit	4,410	—
			Total supply	4,999	3,319
Sale of surplus war stores, etc.	—	150	Total ordinary expenditures	5,475	3,887
Surplus receipts from certain trading services	—	50	Sinking funds	9‡	—
Wireless licences	5	5		5,484	3,887
Crown lands	1	1	Self-balancing revenue and expenditure	116	121
Sundry loans	11	15	E.P.T. postwar refunds (part deducted for tax)	1	—
Miscellaneous	70	22	*Met out of vote of credit.		
Total ordinary revenue	3,284	3,161	†Including ministry of supply.		
			‡In addition to payments of £6,942,000 made outside permanent debt charge.		

Europe and the far east as well as the necessity of training recruits for replacement. The recommended expenditures provided for an average military strength in 1948 of 1,641,000 officers and men, as compared with a military establishment in the preceding fiscal year of 2,108,000. Approximately 45% of the national defense expenditures were budgeted for pay, subsistence and travel of military personnel. In addition, it was necessary to allow for procurement, research, development, construction, operation and maintenance and citizen-reserve activities.

Outlays for veterans' services and benefits were expected to decline from \$7,601,388,000 in 1947 to \$7,342,771,000 in the coming fiscal year. As with national defense, this budget category was a major factor in the increase of the budget over its prewar level. In 1940 outlays for veterans' services and benefits had been \$551,000,000. The decline in outlays from 1947 to 1948 was largely accounted for by an expected decrease in the number of veterans receiving unemployment and self-employment allowances. In 1947 about 1,100,000 veterans on the average received unemployment benefits while more than 200,000 received self-employment allowances. In the coming fiscal year, it was expected that about 900,000 veterans would receive these allowances, the decline reflecting the high level of general business activity and employment which was anticipated.

On the other hand, the budget allowed for an increase in the number of veterans receiving education and training benefits, from an average of 2,000,000 in 1947 to 2,100,000 in 1948. The cost of this program was estimated at \$2,300,000,000. There was, furthermore, a sharp increase in the number of veterans receiving on-the-job training. Pension payments to disabled veterans and to dependents of veterans were expected to increase in 1948 as were outlays for the construction and operation of veterans' hospitals.

The largest decline among the categories of expenditures was that for the conduct of international affairs and finance. The great responsibilities of the nation in world affairs is indicated by the increase in outlays for this function from \$21,000,000 in 1940 to \$5,637,691,000 in 1947. The allowance in the budget for fiscal year 1948 showed a sharp decline to \$2,820,129,000. This decline in expenditures was accounted for largely by two factors. First was that the nation's contribution to the International Monetary Fund and to the International Bank for Reconstruction and Development had been completed in 1947. The second was the fact that the United Nations Relief and Rehabilitation administration program was coming to an end. Changes in other items were of much smaller magnitude. Expenditures by the war department for administration and relief in the occupied countries were expected to increase as were expenditures for the administration of the state department. On the other hand, a smaller scale of operations of the Export-Import bank was anticipated since the International bank had begun operations.

Governmental functions for social welfare, health and security were the only budget component to show a substantial decline from its prewar level. Outlays of almost \$4,000,000,000 in 1939 had fallen to \$1,569,846,000 in 1947, entirely because of the

virtual elimination of expenditures for work relief and direct relief.

In 1948 outlays were expected to increase slightly to \$1,654,114,000. The president recommended permanent legislation to increase federal grants for public assistance and broadening of the social security program. He recommended that a cabinet department of health, education and social security be created to carry out the functions of the Federal Security agency. He stressed the need for a health insurance program.

Budget expenditures for housing and community facilities were expected to remain approximately the same in 1948 as in 1947. While there was a decline in the outlays under the general accounts of the budget, this was substantially offset by increased operations of government corporations. The president stated that primary reliance would continue to be upon private housing construction. But he felt that government assistance was needed to promote the flow of a few key materials, to aid in recruitment and training of labour and to provide ample financing facilities for both builders and purchasers. The chief aid to private housing in the coming fiscal year was to be provided by the Reconstruction Finance corporation purchases of guaranteed mortgages of veterans. Expenditures on public housing programs were almost entirely restricted to liquidation of war housing activities as provision for emergency housing units for veterans would be completed in the fiscal year 1947. The president recommended that the \$100,000,000 limitation on Reconstruction Finance corporation loans to local agencies for construction of self-liquidating projects be increased to \$125,000,000. He also urged that the general housing bill, previously passed by the senate, be enacted and that a permanent housing agency to supervise the major housing activities of the government be established.

The expenditure estimates for education and general research were limited to present programs. The total of \$88,069,000 for 1948 did not include the education program for veterans which was included under veterans' services and benefits. The largest item was the expenditures of the office of education, most of which are distributed to the states to promote educational activities. Increased outlays were recommended for research programs of the government such as those undertaken by the bureau of the census, bureau of standards and the coast and geodetic survey. The president stressed the need for a central agency to correlate and encourage the research activities of the country and recommended that a national science foundation be established.

Expenditures for aids to agriculture were expected to be little changed from the previous year. There was, however, an increase in outlays for functions concerning other national resources from \$727,275,000 in 1947 to \$1,098,921,000 in 1948. The increase did not contemplate the beginning of large new projects but represented necessary expansions of existing programs. In part, the increase was accounted for by the inclusion of expenditures for the atomic emergency commission and the operation of the Manhattan District project. The expenditures on this project were previously in national defense but were being classified in national resources because of the shift in emphasis to atomic research for industry and medicine. Furthermore, the research program in atomic energy was to be expanded. Construction programs on river valley developments were to be increased, as well as the mineral resources program of the bureau of mines and the geodetic survey.

Increased outlays were anticipated for aids to transportation and communication, with total expenditures in 1948 estimated at \$1,532,911,000. The rapid expansion of civilian aviation required an increase in expenditures by the Civil Aeronautics administration and the federal aid program for highways was expected to reach the levels provided for by the Highway act of 1944.

A large increase in the deficit of the post office was expected because of the rising trend of operating cost. The president recommended revision of postal rates sufficient to wipe out the deficit.

With the elimination of most of the war regulatory agencies, it was expected that outlays for functions relating to finance, commerce and industry would decline from the 1947 level of \$175,886,000 to \$112,326,000. The activities of the Office of Temporary Controls were to be discontinued as rapidly as possible, and the Solid Fuels administration and the Office of Foreign Funds Control were to cease operations. On the other hand, increased costs were expected for such regulatory agencies as the Federal Trade commission, Federal Power commission, the tariff commission, and the antitrust division of the justice department. The president recommended that funds be provided for censuses of manufactures and business and that the business service activities of the commerce department be increased. For the functions relating to labour and general government operations, the estimates were little changed from the preceding year. The small reduction in the cost of operating the public employment offices was virtually offset by increased expenses of the National Labor Relations board and the provision of labour information and statistics.

As the large wartime increase in the public debt was concluded at the end of 1945, there was little change in the budget estimate of interest cost. The estimated expenditure in 1947 of \$4,950,000,000 was expected to increase to \$5,000,000,000 in 1948. The president explained the increase as being due to the larger interest payments on the special issues held by trust funds and the increased accruals on savings bonds. He stated that the annual interest charge of \$5,000,000,000 was less than 3% of the present national income and well within the capacity to pay if a higher national income were maintained. The government's policy of holding interest rates at a low level was to be continued both for economic reasons and to relieve the burden on the taxpayer.

On the revenue side of the budget, a decline in fiscal 1948 to \$37,730,365,000 was anticipated from the level of the previous year of \$40,229,926,000. This decline was attributable to two categories of tax revenues. The elimination of the excess profits tax at the end of 1945 was expected to bring a further decline in direct taxes on corporations of approximately \$1,000,000,000. The elimination of the wartime excise tax rates, which were

due to expire on July 1, 1947, would also reduce government revenues by about \$1,000,000,000. The remaining loss in revenues was due largely to a reduction in sales of surplus property.

In view of the favourable level of business activity, employment and national income, the president recommended that tax revenues be maintained at levels not only high enough to meet current expenditures but to leave a surplus for some retirement of the public debt. He therefore advised strongly against immediate tax reduction. On the contrary, he recommended that the wartime excise tax rates be continued throughout the fiscal year 1948. If this were done, it was estimated that government revenues would be increased to \$38,900,000,000. This would result in a budget surplus of \$1,800,000,000. If the wartime excises were allowed to lapse, the budget surplus would amount to \$202,448,000. As the issue of tax reduction had been raised very prominently in the congressional elections in the fall of 1946, it was evident that this aspect of the president's budget recommendations would be extensively debated by the congress. Congressional leaders expressed themselves as favouring a budget surplus to be applied against the national debt but were hopeful that government expenditures could be reduced below the budget estimates, and hence that some tax reduction could be accomplished. (See also DEBT, NATIONAL; INCOME AND PRODUCT, U.S.; TAXATION; UNITED STATES.)

Great Britain.—The budget of Great Britain for the fiscal year 1946-47 showed a substantial curtailment from the requirements of war time. Expenditures for the military services were expected to fall to £1,667,000,000 from their level of £4,410,000,000 in the previous year. On the other hand, the peacetime operations of the government were expected to increase substantially. On balance, total government expenditures of £3,887,000,000 were anticipated, as against £5,475,000,000 in the fiscal year 1945-46.

The tax revenues of the government were estimated at £2,918,000,000 compared to £3,197,000,000 in the preceding year. The decline resulted from a reduction in income tax rates and reduced receipts from the excess profits tax. While other revenues were expected to increase the total flow of government receipts to £3,161,000,000, a deficit in excess of £700,000,000 was anticipated.

(M. Gr.)

Buell, Raymond Leslie (1896-1946), U.S. editor, writer and educator, was born July 13 in Chicago, Ill. He was educated at Occidental college (Los Angeles), the University of Grenoble (France) and Princeton university. After his return from service with the A.E.F. during World War I, he became assistant professor of history and economics at Occidental college. He subsequently taught at Harvard, Columbia, the University of California, Yale and Princeton and lastly held the post of special lecturer in international politics at the Fletcher School of Law and Diplomacy, located on the campus of Tufts college, Medford, Mass. In 1927, he joined the Foreign Policy association as research director, was named president in 1933, but resigned in 1939 to become round table editor for *Fortune* magazine and adviser on foreign affairs to *Time*, incorporated. A recognized authority on international relations, Buell urged a global policy for the U.S. in the days before World War II. He frequently criticized the government's stand on foreign policy, especially its neutrality policy in Spain, and charged that the Neutrality act virtually made the U.S. "an ally of Japan." He was the author of *Contemporary French Politics* (1920), *The Washington Conference* (1922), *International Relations* (1925), *The Native Problem in Africa*, 2 vols. (1928), *Poland: Key to Europe* (1939) and *Isolated America* (1940). He died in Montreal, Feb. 20.

Building and Construction Industry. The shortage of construction materials in the U.S. continued to impede building in 1946. The demand was greater than the normal supply and in the first half of the year, in most instances, the supply was far below normal for these reasons: (1) war requirements had demanded different specifications and factories had to reconvert to peacetime stocks; (2) they chose to manufacture those supplies which carried the greatest profits and they did not make those items which were less profitable for they could keep their plants busy with the more profitable articles. Nails were in this category and they were not produced until heroic efforts were made; (3) the Office of Price Administration (OPA), trying to avoid inflation, at first refused to make price adjustments which the trade thought necessary. Many price adjustments, when made, were considered too small; (4) strikes kept basic industries like steel idle.

The production pace increased steadily but it did not keep up with demand. OPA efforts to keep a lid on prices met with extensive black-market operations. It was estimated that 75% of building supplies found their way to the black market. In some areas, just prior to the removal of price control on building materials on Nov. 10, 1946, as much as 95% of some materials were in the black market.

Because of the shortage and the dire need of housing for veterans building materials were channelled through priorities away from public, commercial and industrial construction to housing for veterans.

By Oct. 14, 1946, there were 66 building materials on the priority list.

To step up production of materials and construction of houses, congress passed the Veterans Emergency Housing act on May 22, 1946, providing among other things \$400,000,000 for premium payments for scarce materials and market guarantees for new materials and factory-built houses. Premium payment programs to increase the output of brick, structural tile, plywood and gypsum-board paper liner were started in June; for north-

ern and southern hardwood flooring, convactor radiators and cast-iron soil pipes in July; for pig-iron in September; for sand-lime brick and for housing nails in October.

To expedite lumber production the national housing expeditor made \$13,500,000 available to the forest service and to the office of Indian affairs for the construction of access roads to out-of-the-way government timberlands. The funds were expected to build 2,689 mi. of roads and 23 bridges and to increase the lumber output by 452,000,000 bd.ft. in 1946 and an additional 1,615,000,000 in 1947.

Guaranteed market contracts were given for production of "industrialized houses" in October to the Homeola corporation, Chicago, for 19,400 plywood houses with 768 sq.ft. of floor space, costing approximately \$5,400 for one model and \$6,400 for another (including the cost of erection, lot and equipment), and to William H. Harman corporation, Philadelphia, for 10,000 steel houses for 2-bedroom homes selling for around \$6,000 complete with land and equipment and 3-bedroom homes selling for around \$7,500 and to American Fabricators, Louisville, Ky., for 7,500 houses.

In December the General Panel Corp., Los Angeles, was awarded a guarantee for 8,500 factory-built plywood houses to be produced by the end of 1947.

In November Housing Expeditor Wilson Wyatt clashed with the Reconstruction Finance Corp. (RFC) over the financing of new firms desiring to build industrialized houses under a guaranteed contract. The clash, augmented by further differences, led to Wyatt's resignation on Dec. 4, 1946.

As materials became more plentiful, labour shortages impeded building in many parts of the country. National Housing agency reported shortages in at least 80 communities, in spite of the fact that 1,250,000 construction employees were added to the work force in the 12 months following the end of World War II, bringing Aug. 1946 employment to 2,321,000. Site employment on home building rose from 176,000 to 692,000 between Aug. 1945 and Aug. 1946.

Table I.—Production of Selected Critical Building Materials in 1946*

Material	Unit of measurement	Total	First quarter			Total	Second quarter			Total†	Third quarter		
			January	February	March		April	May	June		July	August†	September†
Forest Products													
Lumber	Mil. bd. ft.	6,553.0	1,895.8	2,081.2	2,576.0	9,117.8	2,890.0*	3,073.6	3,154.2	n.a.	3,167.1	3,450.6	n.a.
Hardwood flooring‡	"	76.9	25.9	24.6	26.4	77.7	26.2	27.4	24.1	91.6	27.5	30.3	33.8
Softwood plywood	"	313.7	106.9	97.8	109.0	370.1§	120.2	128.5	121.4§	355.8§	99.7§	127.0§	129.1
Metal Products													
Bathtubs	Thous. units	181.0	n.a.	n.a.	n.a.	263.8	94.0	83.3	86.5	292.4	81.9	103.8	106.7
Lavatories	"	365.0	n.a.	n.a.	n.a.	416.2	144.4	145.6	126.2	447.1	134.0	159.4	153.7
Sinks (includes sink and tray comb.)	"	385.0	n.a.	n.a.	n.a.	536.5	185.6	177.9	173.0	540.3	163.1	199.4§	177.8
Water-closet bowls	"	500.0	n.a.	n.a.	n.a.	508.0	162.7	178.4	166.9	500.8	149.1	180.8	170.9
Water-closet tanks	"	447.8	n.a.	n.a.	n.a.	464.4	144.6	162.4	157.4	459.7	139.6	165.3	154.8
Cast-iron soil pipe and fittings	Thous. tons	81.1	27.5	25.6	28.0	86.6	28.8	31.4	26.4	104.2	29.9	35.8	38.5
Radiation, total	Thous. sq. ft.	10,523.0	3,877.4	3,199.2	3,446.4	13,789.6	4,135.0	5,001.0	4,653.6	17,675.0§	5,070.1§	6,318.6	6,286.3
Cast iron	"	6,446.6	2,133.0	1,952.4	2,361.2	9,113.8	2,576.1	3,372.3	3,165.4	10,681.7§	3,206.8§	3,847.4	3,627.5
Convactor	"	4,076.4	1,744.4	1,246.8	1,085.2	4,675.8	1,558.9	1,628.7	1,488.2	6,993.3	1,863.3	2,471.2	2,658.8
Warm-air furnaces	Thous. units	125.7	39.8	38.2	47.7	140.5	42.9	49.6	48.0	183.1§	50.7§	62.6§	69.8
Wire nails	Thous. tons	101.3	25.1	28.7	47.5	162.7	55.8	53.4	53.5	175.4	51.8	61.0	62.6
Domestic cooking stoves	Thous. units	702.9	264.7	199.1	239.1	799.1	278.8	256.0	264.3	n.a.	257.0	325.1	n.a.
Domestic space heaters	"	454.1	161.4	137.8	154.9	466.8	160.5	152.0	154.3	n.a.	170.1	230.1	n.a.
Merchant pig iron	Thous. gr. tons	1,008	345	273	390	923	350	239	334	1,265	422	419	424
Galvanized steel sheet	Thous. tons	275.6	83.5	66.9	125.2	367.2	130.3	121.1	115.8	n.a.	128.7	133.4	n.a.
Butt-weld steel pipe	"	224.6	76.9	30.8	116.9	349.3	141.0	111.9	96.4	405.8	118.3	147.3	140.2
Clay products and miscellaneous materials													
Brick, common and face, unglazed	Mil. bricks	887.5§	271.6	279.3	336.6§	1,130.0	368.6	378.0	383.4	1,461.2	486.2	504.0	471.0
Structural clay tile, unglazed	Thous. tons	221.7	70.1	67.1	84.5	295.1	88.6	102.0	104.5	361.7	118.8	126.9	116.0
Portland cement	Thous. bbl.	30,190	9,635	9,250	11,305	39,230	12,650	12,091	14,489	48,083	15,420	16,213	16,450
Clay sewer pipe	Thous. tons	195.0	84.0	54.9	56.1	246.3	64.4	90.4	91.5	332.7	108.6	109.1	115.0
Building blocks‡	Mil. blocks	153.0	n.a.	n.a.	n.a.	194.0	n.a.	n.a.	n.a.	240.0	n.a.	n.a.	n.a.
Gypsum board and lath	Mil. sq. ft.	663.0	216.0	207.0	240.0	742.0	254.0	240.0	248.0	862.3	279.0	303.8	279.5
Other building board	Mil. sq. ft.	673.0	217.0	216.0	240.0	717.0	244.0	235.0	238.0	569.0	169.0	200.0	200.0
Asphalt roofing material§	Thous. squares	16,711.0	5,760.0	5,122.0	5,829.0	18,986.0	6,326.0	6,370.0	6,290.0	20,296.0	6,417.0	6,879.0	7,000.0

*Production data for lumber and hardwood flooring are from U.S. forest service through CPA; data for softwood plywood, warm-air furnaces, domestic cooking stoves, domestic space heaters, asphalt roofing materials, brick, structural tile and clay sewer pipe are from the U.S. bureau of census; data for cast-iron soil pipe, radiation, wire nails, plumbing fixtures, building blocks, gypsum board and lath, other building board, merchant pig iron, galvanized steel sheet and butt-weld steel pipe are from the Civilian Production Administration; data for Portland cement are from the U.S. bureau of mines. Data for wire nails, galvanized steel sheet, butt-welded steel pipe and asphalt roofing represent shipments, rather than production.

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†Data are preliminary estimates, subject to revision.

‡Data revised upward in accordance with more complete industry coverage; includes CPA estimates for nonreporting producers.

§Revised on basis of more refined data.

||Revised to include production of approximately 80 plants which started operations during the first half of 1946 but which are not included in figures for Jan.-April 1946. May production comparable with earlier data was brick 356.3, and structural tile 93.8. Data for first four months of 1946 are being revised to include the additional plants.

n.a.—Not available.

Table II.—Materials reserved indefinitely for rated orders

(Schedule B to PR 33 as amended Oct. 14, 1946)

These materials of residential type were required by Schedule B to be physically set aside and reserved indefinitely by distributors to honour HH and other rated orders. These reserves could be released by the regional housing expeditors.

Materials	Unit of measurement	Percentage set aside
Bathtubs	By unit	95%
Building board	By sq. ft.	75%
Cast iron soil pipe and fittings (under 5 inches)	By producer's billing price	90%
Clay sewer pipe (4, 5 and 6 inches only) .	By producer's billing price	75%
Gypsum board and lath	By sq. ft.	85%
Doors and frames (metal)	By units	75%
Fittings and trim for bathtubs, kitchen sinks, water closets, lavatories	By sets	"Match up" amounts
Furnaces, floor and wall	By units	95%
Furnaces, warm air	By units	75%
Kitchen sinks and undersink cabinets . . .	By units	75%
Lavatories	By units	90%
Prefabricated housing, sections and panels (not produced under Direction 8 to PR 33)*	By units	100%
Radiation (convector and cast iron) . . .	By sq. ft. of heating surface or producer's billing price for convectors without enclosures	75%
Tubing, copper (types K, L, M, sizes 3/8" to 1" inclusive)	By weight	75%
Tubing (copper) fittings (solder pressure for sizes above)	By producer's billing price	75%
Water closets, tanks and bowls	By units	90%
Water heaters	By units	60%
Window sash and frames (metal)	By units	75%

*That produced under Direction 8 was reserved 100% for HH holders. NHA, New Action to Speed Housing, Oct. 14, 1946.

Construction expenditures for the first 10 months of 1946 totalled \$9,700,000,000, compared with \$4,600,000,000 in the same months of 1945. This figure reflects an expansion in private construction, offsetting the decline in public construction resulting from reductions in military and war plant work and the curtailment of peacetime public works. These high dollar figures were, in part, reflections of high construction costs. Allowances made for price changes placed the physical volume of new construction in 1946 (excluding maintenance and repair) somewhere between that for 1939 and that for 1940 and only 60% of the level of 1942.

Construction expansion ceased after August; construction activity declined slightly in October. Nonresidential building maintained the August high mark but private residential building and repair continued to edge down from the August peak. This may be attributed to the fact that industrial and commercial building previously authorized was getting under way, and the beginning of winter discouraged starting new residential building. But high construction costs, material delays, fear of a buyers' strike and a depression which would suddenly drop prices and leave the builder holding the bag and uncertainties of changing governmental regulations (pending changes in the housing expediter's office) were considered influential factors. (See also BUSINESS REVIEW; HOUSING; UNITED STATES.) (D. R.N.)

Great Britain.—Public preoccupation with the housing problem in 1946 resulted in this section of the work of the building industry being conducted in the full glare of



PREFABRICATED ALUMINUM BUNGALOW section being placed in position in Manchester, Eng., during 1946. This four-room, small-family house came in four sections and could be assembled in 12 hours

publicity, although a large part of the labour force was employed on other work. The experience in the field of housing was, in

Table III.—Estimated Employment and Pay Rolls on Construction in U.S.

Type of Project	Employment (in thousands)			Pay rolls (in thousands)		
	August 1946*	July 1946†	August 1945†	August 1946*	July 1946†	August 1945†
Total construction‡	2,321.4	2,182.2	1,064.9	(\$)	(\$)	(\$)
At the construction site.	2,039.0	1,912.9	948.3	(\$)	(\$)	(\$)
Federal projects§.	191.7¶	160.2¶	211.6¶	\$39,248¶	\$31,381¶	\$41,789¶
Airports	3.4	3.8	10.6	681	755	1,995
Buildings	92.5	71.6	153.1	18,567	12,906	30,456
Residential	71.2	50.5	9.3	14,873	9,407	2,129
Nonresidential¶.	21.3¶	21.1¶	143.8¶	3,694¶	3,499¶	28,327¶
Electrification	5.6	4.8	.9	846	789	148
Reclamation	9.2	8.7	6.5	2,159	1,867	1,471
River, harbour and flood control.	23.6	20.3	15.1	4,947	4,308	2,945
Streets and highways	51.1	46.2	11.5	10,986	9,919	2,255
Water and sewer systems	1.3	1.2	3.2	264	252	553
Miscellaneous	5.0	3.6	10.7	798	585	1,966
Nonfederal projects.	1,847.3	1,752.7	736.7	(\$)	(\$)	(\$)
Buildings	1,299.5	1,258.0	413.2	320,977	308,210	100,408
Residential	621.2	593.0	166.5			
Nonresidential	678.3	665.0	246.7			
Farm dwellings and service buildings	197.0	170.7	142.0			
Public utilities	155.5	148.8	124.3			
Streets and highways	97.3	86.5	34.7			
State	32.0	27.5	17.2			
County and municipal	65.3	59.0	17.5			
Miscellaneous	98.0	88.7	22.5			
Other¶.	282.4	269.3	116.6			
Maintenance of State roads¶.	118.0	113.0	92.8			

*Preliminary.

†Revised.

‡Data are for all construction workers (contract and force account) actually engaged on new construction, additions, alterations and on repair work of the type usually covered by building permits. (Force-account employees are workers hired directly by the owner and utilized as a separate work force to perform construction work of the type usually chargeable to capital account.) The construction figure included in the bureau's nonagricultural employment series covers only employees of construction contractors and on federal force account and excludes force-account workers of state and local governments, public utilities and private firms.

§Data not available.

¶Includes the following force-account employees hired directly by the federal government and their pay rolls: Aug. 1945, 17,927, \$3,344,967; July 1946, 19,244, \$3,571,294; Aug. 1946, 20,199, \$3,884,140.

¶Includes employment on construction of plants to produce atomic bombs, which, for security reasons, was not previously included in these estimates but was shown in the classification "other," as follows: Aug. 1945, 25,000; July 1946, 2,500; Aug. 1946, 2,500.

¶Excludes pay-roll data for construction of plants to produce atomic bombs.

¶Employees and pay rolls for Defense Plant corporation projects are included, but those for projects financed from RFC loans are excluded. The latter are considered nonfederal projects.

¶Includes central office force of construction contractors, shop employees of special trades contractors, such as bench sheet-metal workers, etc.

¶Data for other types of maintenance not available. Monthly Labor Review vol. 63-No. 4, Oct. 1946.

many respects, typical of that in all fields.

The repair of bomb damage, already in full swing in 1945, gave site work a flying start over all the other occupations concerned with building. It was in this field also that the expansion of the labour force first became effective. In consequence, building operations outran supplies of materials and fittings: by April 1946 site operations were seriously delayed by shortages of all kinds. This slowing down of progress, at a time when it was felt that the drive should have been gathering momentum, caused great disappointment.

In response to public demand and official encouragement, large numbers of houses were started, although it was shown that the ratio of men employed to houses under construction was much too low to permit efficient operation of the schemes. Completion of houses, even in the temporary house program, was very slow and in September it was necessary for the minister of health to direct that, in order to complete as many houses as possible by the end of the year, labour should be concentrated on houses which had already reached a certain stage of completion.

There was much complaint of the low standard of output of the industry and it was generally felt by the end of the year that a reintroduction of a "payment by results" arrangement would

Table IV.—Estimated Construction Expenditures in Continental United States, in Selected Periods*

Type of Construction	Expenditures (in millions)									
	September	1st 9 months	1946 3d quarter	2d quarter	1st quarter	September	1st 9 months	1945† 3d quarter	2d quarter	1st quarter
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Total construction	\$1,243	\$18,526	\$3,657	\$2,918	\$1,951	\$516	\$3,994	\$1,564	\$1,368	\$1,062
New construction §	1,060	7,185	3,136	2,457	1,592	406	3,253	1,255	1,125	873
Private construction	807	5,750	2,409	2,013	1,328	256	1,620	725	528	367
Residential building (nonfarm)	340	2,353	1,014	849	490	71	375	194	111	70
Nonresidential	338	2,513	1,005	864	644	98	601	265	198	138
Industrial	187	1,252	519	401	332	63	401	174	133	94
Commercial	99	879	327	330	222	17	95	46	30	19
All other	52	382	159	133	90	18	105	45	35	25
Farm construction	50	280	160	90	30	24	162	85	57	20
Residential	30	164	93	54	17	15	98	51	35	12
Nonresidential	20	116	67	36	13	9	64	34	22	8
Public utilities	79	604	230	210	164	63	482	181	162	139
Public construction	253	1,435	727	444	264	150	1,633	530	597	506
Residential	45	152	105	37	10	3	64	17	26	21
Nonresidential (except military and naval facilities)	32	235	95	71	69	40	685	175	264	246
Industrial facilities|| . . . . .	6	60	19	18	23	21	559	123	221	215
All other	26	175	76	53	46	19	126	52	43	31
Military and naval facilities	15	134	47	43	44	42	468	155	173	40
Highway	100	536	299	172	65	36	214	99	71	44
Other public	61	378	181	121	76	29	202	84	63	55
Federal¶	29	187	87	61	39	13	98	38	32	28
State and local¶	32	191	94	60	37	16	104	46	31	27
Minor building repairs§	183	1,341	521	461	359	110	741	309	243	189
Nonfarm	128	983	371	343	269	77	516	219	165	132
Residential	55	410	156	149	105	31	209	93	66	50
Nonresidential	73	573	215	194	164	46	307	126	99	82
Farm	55	358	150	118	90	33	225	90	78	57

*Estimated construction expenditures represent the monetary value of the volume of work accomplished during a given period of time in the United States. These figures should be differentiated from data on value of construction work started or contracts awarded, reported in the sections on urban building construction and federal construction.

†Revised.

‡Preliminary.

§Estimates of new construction were prepared jointly by the bureau of labor statistics and the bureau of foreign and domestic commerce, and include expenditures for new construction, major additions and alterations.

||Expenditures for floating dry docks and facilities for the production of atomic bombs are excluded.

¶Mainly river, harbour, flood control, reclamation and power projects.

¶Includes water supply, sewage disposal and miscellaneous public-service enterprises.

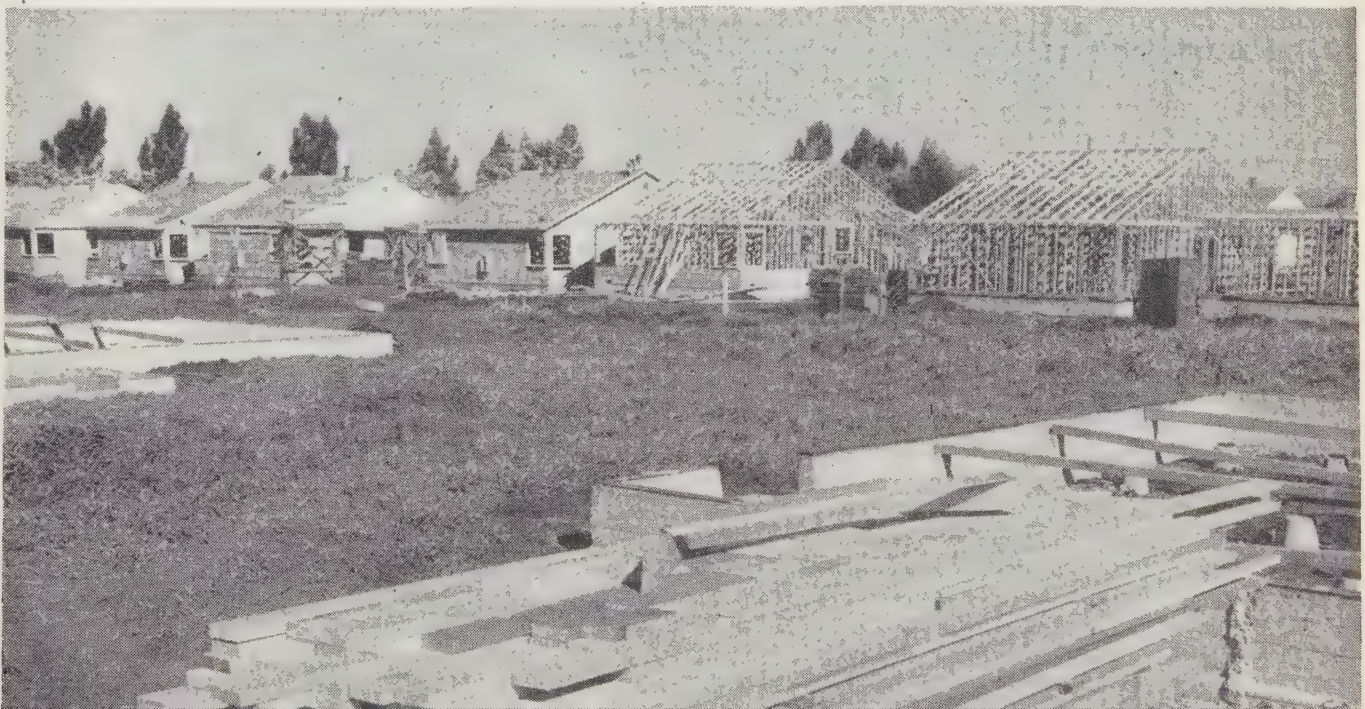
δCovers privately financed structural repairs of the type for which building permits are generally required.

Source: Construction, Oct. 1946, U.S. Dept. of Labor, Bureau of Labor Statistics.

be necessary. A joint production council for the industry was set up to advise on various aspects of this problem. Progress was also delayed by the absorption of a considerable amount of labour by small repair and maintenance work, for which there was a large demand after seven years of neglect. Jobs costing more than £10 (\$40) required a licence; it was suggested that means were being found to circumvent this restriction and there was much talk of a "black market" in building, although relatively few prosecutions were reported.

The ministry of works continued to advise in connection with the development of constructional technique, particularly for

HOUSES IN VARIOUS STAGES OF CONSTRUCTION near San Francisco, Calif., in early 1946. Mass-produced by a process called "site fabrication," all the parts for the houses were fashioned by a sawmill set up on or near the site



houses, and several prefabrication systems for permanent houses, having successfully passed through the prototype stage, were allowed to go into production during the year. (D. A. G. R.)

Bulgaria. A people's republic in the Balkan peninsula. In 1940 its area was 39,814 sq.mi. with a population of about 6,370,000. Of the territories acquired after then, only the southern Dobruja, ceded on Sept. 7, 1940, from Rumania, an area of c. 2,900 sq.mi., with a population of 350,000 was to remain Bulgarian. Capital: Sofia. Chief cities: Sofia (est. 1942) 401,000, Philippopolis (Plovdiv) 99,883, Varna 69,944, Russé (Ruschuk) 49,447, Burgas 36,230, Plevna (Pleven) 31,520. Religion: mainly Greek Orthodox; about 1,000,000 Moslems; before 1941 there were about 50,000 Jews. Prime minister (1946): George Dimitrov.

History.—The Fatherland Front coalition government which had come to power in Sept. 1944 under the leadership of the communists and with the full backing of the U.S.S.R., continued in power throughout the greater part of 1946. After Sept. 1944 the real power was in the hands of the Bulgarian National committee and the local National committees, the president of which was the veteran Communist leader and former secretary-general of the Communist International, George Dimitrov, and the secretary-general of which was a woman Communist, Zola Dragoicheva, who directed the events in the country in such a way that by the end of 1946 the Communist party could officially take over the government of the country and reduce the democratic opposition to complete impotence. This ruthless process was accomplished in spite of all the promises given at the Big Three conferences that democratic liberties should be safeguarded in Bulgaria and free elections held.

The Moscow conference of the Big Three at the end of 1945 had decided that the U.S.S.R. should advise Bulgaria to include in its government representatives of at least two democratic groups. The most important democratic forces in Bulgaria were the Agrarians under Nikolai Petkov and the Socialists under Kristo Pastukhov; the most popular democratic leaders were the veteran liberal Nikolai Mushanov and the Agrarian Georg Dimitrov (not to be confused with the communist leader of the same name). The opposition demanded guarantees for the liberties of Bulgarian citizens, freedom of the army from all party influences, and the holding of new elections. The leaders of the government, among whom the minister of the interior, Anton Yugov, who was a leading communist and in control of the police, was the most influential, went on Jan. 7 to Moscow to consult with the U.S.S.R. about the demands of the opposition. Soviet vice-commissar Andrei Vishinsky visited Sofia but the opposition leaders insisted on their demands for liberty in spite of Vishinsky's threats that "history will pass by such people and will follow its course."

On Feb. 22 the U.S. government urged upon Bulgaria a mutually acceptable basis for the inclusion in the cabinet of two truly representative members of the opposition. This demand was sharply rebuked by the soviet government. On March 10 the U.S. secretary of state expressed his surprise that the U.S.S.R. had taken exception to his expectation that the opposition leaders should enter the government on terms satisfactory to the opposition as well as to the government. He regarded this expectation as "the very essence" of the Moscow pact, and a "fundamental and simple proposition."

But the efforts of the U.S. were of no avail. On March 31 Bulgaria formed a slightly changed cabinet, without including any members of the democratic opposition, because "the soviet union considered the terms presented by the opposition for participation in the government . . . unacceptable." The new government followed an even more outspokenly extremist



SIMEON II, former king of Bulgaria, with Queen Mother Giovanna in Istanbul, Turkey, on the way to exile in Egypt, Sept. 17, 1946

course. On April 19 it introduced a bill providing for the suppression of newspapers deemed guilty of the systematic publication of material prejudicial "to the interests of the state or its relations with foreign powers."

When the opposition leaders submitted their grievances to the Allied Control commission in Sofia, the government violently attacked this "seeking foreign intervention in the internal affairs of the country," organized spontaneous mass meetings throughout the land and filled them as well as its press with gravest warnings to the opposition. Late in the spring public trials against the most popular democratic leaders, the Agrarian Dimitrov and the Socialist Pastukhov, were instituted. A general purge of Bulgarian army officers was carried through. General Damian Veltchev resigned as minister of war.

On Sept. 8 a plebiscite was held in which the Bulgarian people decided to abolish the monarchy and to introduce a "people's republic." The young king Simeon II and his mother went into exile. The prerogatives of the crown were assumed provisionally by the praesidium of the national assembly whose chairman was the Communist, Vasil Kolarov. New elections were fixed for Oct. 27. The measures proposed by the U.S. to assure free elections on that date were blocked by the U.S.S.R. The opposition parties charged that free elections were impossible under present restrictions. On Oct. 26 the Communist leader George Dimitrov warned that any opposition to the government coalition would be traitorous. "It is worth remembering the fate of Draja Mikhailovich," he said.

At the elections the government parties of the Fatherland Front received 2,983,803 votes and 364 seats, the opposition

1,231,637 votes and 101 seats. The Communists emerged as the strongest single party with 2,265,105 votes and 277 seats, thus gaining the majority in the assembly. The Zveno party to which the prime minister belonged and which had helped to put the Communists into power, was decisively defeated. As a result, prime minister Kimon Georgiev who had been head of the Fatherland Front government from Sept. 1944 resigned, and George Dimitrov, the veteran leader of the Communist party, was entrusted with the task of forming a new Bulgarian government and became prime minister.

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Bureau of Standards, National: see STANDARDS, NATIONAL BUREAU OF.

Burma. A British dependency lying on the eastern side of the Bay of Bengal, between India, China and Siam; occupied by Japan in 1942 and liberated in 1945. Area: 261,749 sq.mi.; pop. (1941): 16,823,798. Chief cities (1941): Rangoon (cap., 500,800); Mandalay (163,527); Moulmein (70,000). Languages: Burmese and English; religion: Buddhist (85%). Governor: Maj. Gen. Sir Hubert Rance (appointed Aug. 1946); counsellors: the Hon. Sir R. M. MacDougall; the Hon. U. Aung San (appointed Sept. 1946).

History.—In accordance with the policy announced in a White Paper of 1945 an advisory executive council of 11 members and an advisory legislative council of 34 members were formed to aid the governor in Nov. and Dec. 1945.

Great political activity followed the return of the civil administration. U. Aung San, major general and minister of war under the Japanese-sponsored government, led the patriotic Burmese forces in 1945 against the Japanese and became head of the Anti-Fascist People's Freedom league which claimed to represent all political parties. The A.F.P.F.L. refused to enter the executive and legislative councils on the governor's conditions and conducted an active political campaign. This, after a series of strikes involving the subordinate police and other government services, ended in Sept. 1946 with the formation of a new executive council in which the A.F.P.F.L. had six members, U. Aung San becoming also counsellor for defense and external affairs. Other parties represented were the Myochit (leader U. Saw) and the Karens. Dr. Ba Maw's party (Sinyetha) refused to enter the council. The new council was given much wider powers. The political situation, however, appeared unstable. The legislative council was dissolved in Nov. 1946. At the end of the year the British government was inviting Burmese leaders to come to London for discussions.

A general election was to be held in April 1947 and a constituent assembly would probably be formed soon after to determine a future constitution for Burma.

During the Japanese occupation rice-growing areas had been halved, timber extraction vastly reduced and oil-winning and mining almost stopped, while Burma was starved of consumer goods. The whole economy had therefore been disrupted. Although much was achieved, rehabilitation was slow, hampered by lack of heavy material, consumer goods and transport, and in parts by extreme lawlessness. Towards rehabilitation Great Britain was to give Burma an interest-free loan of £87,500,000.

(J. CE.)

Education.—In 1940, total number of institutions 27,015, scholars 851,922; primary schools 5,679, scholars 384,060; middle 1,018, scholars 139,190; high 399, scholars 94,353; special 1,172, scholars 19,190; unrecognized institutions 18,745, scholars 212,663; university (Rangoon) 2,365 students; art college (Mandalay) 101.

Finance.—Revenue (est. 1941-42) £12,847,500; expenditure

(est. 1941-42) £13,710,000; public debt: £38,510,560; exchange rate: rupee (Rs.1)=1s. 6d. (30.155 cents U.S.); one crore=10,000,000 rupees; one lakh=100,000 rupees.

Trade and Communication.—Overseas trade in merchandise (April 1940—March 1941): imports £22,162,500; exports, including re-exports, £41,535,000. Communication (1940): roads for motor traffic, all weather, 6,811 mi.; seasonal 5,661 mi.; railways 2,060 mi.; inland waterways (approx.) 1,300 mi.

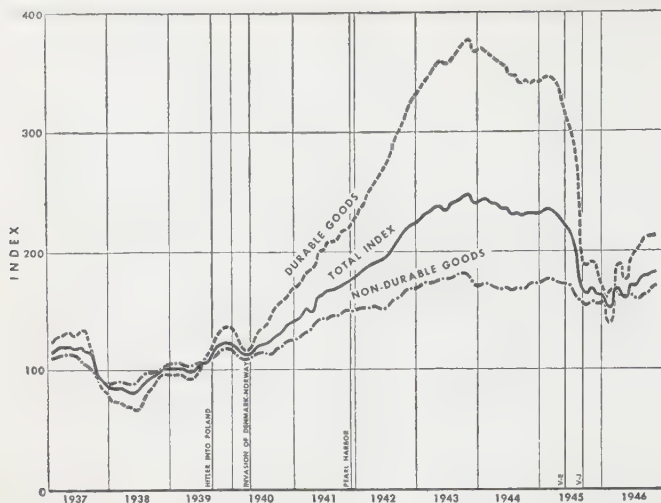
Agriculture and Mineral Production.—Production (1940-41) (in short tons): rice 6,720,000; ground nuts 179,200; sesamum seed 80,640; cotton 14,560; tobacco 53,435; teak 491,486. Minerals (1939) petroleum 331,069,920 U.S. gal.; (in short tons) tin concentrates 6,093; tungsten concentrates 4,863; tin tungsten concentrates 6,264; refined lead 85,120; antimonial lead 1,322; zinc concentrates 66,640; copper matte 8,887; nickel speiss 3,244; silver 6,175,000 troy oz.; gold 1,206 troy oz.

Buses: see AUTOMOBILE INDUSTRY; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION.

Business Review. Business during 1946 was characterized in the United States by postwar readjustments and labour unrest. By the end of 1945 a great part of the physical reconversion from production of wartime goods to the production of peacetime goods had been effected. However, the economic system did not automatically return to the prewar balance. Adjustments were taking place but had by no means been completed by the end of the year. Organized labour struggled to maintain for its members a high weekly take-home pay comparable to that received during World War II.

Manufacturers had difficulty in the procurement of raw materials and finished parts. Many such items were in adequate supply, but frequently one or two critical parts hampered seriously the production of a major product. In many cases during the early part of the year price ceilings and other government controls kept price from being the natural equalizer. In spite of these difficulties, however, industrial production rose to a new high for peacetime, and the Federal Reserve board Index thereof, adjusted for seasonal variation, stood at 182 in November, about 50% above the average for the several years preceding the entry of the United States into the war late in 1941. National income also increased substantially during the year from an annual rate of \$153,000,000,000 in the first quarter to \$168,000,000,000 in the third quarter as compared with annual rates of \$83,000,000,000 in 1929, \$71,000,000,000 in 1939 and \$161,000,000,000 in 1944. The business prophets who forecast a postwar depression for 1946 were proved wrong. Those who predicted prosperity greater than ever before were also proved wrong. The rising price level had made those dollars of national income represent fewer real goods and services than would have been the case had prices held constant. The many postwar readjustments, seen so lightly by some, so ominously by others, were met with much the same skill as were the wartime difficulties.

Labour Unrest.—With the end of the war in Sept. 1945, there was much shifting of labour into different plants, different industries and different jobs within a plant, and a reduction in take-home pay because of the reduction of overtime. This did not immediately lead to widespread difficulties because labour feared possible large-scale unemployment. But when it developed that the large backlog of civilian demand for war-short products would prove more important than the losses of reconversion, labour sought increased wages. The demands were based in part on the failure of the government to stabilize prices of the commodities which workers buy and in part on the presumption



INDUSTRIAL PRODUCTION of U.S. durable and nondurable goods, 1937-46, adjusted for seasonable variation (1935-39=100) (Source: Board of Governors of the Federal Reserve System)

of industry's ability to pay, as indicated by large corporate profits. When the year 1946 began the members of the United Automobile Workers were striking against General Motors corporation. This strike had been in progress from Nov. 21, 1945. In January a strike of the electrical workers began at General Electric, General Motors and Westinghouse. Later in the month an industry-wide steel strike was called. The steel strike was settled in the middle of February, but the other two were not settled until March. A strike was called in February against the manufacturers of agricultural equipment including International Harvester, J. I. Case and Allis Chalmers. Workers at the Allis Chalmers plant near Milwaukee were still on strike at the end of the year 1946. With the expiration of the bituminous coal contracts on March 31, the miners stopped work. A two-week truce was called on May 13, and after the expiration of that period coal production again halted for a few days until the government assumed control of the coal mines and made contracts with the United Mine Workers. On May 23 railway engineers and trainmen called a nation-wide strike which, in conjunction with the coal strike, placed the nation in critical condition. This strike was broken by governmental action after 48 hours. This series of strikes in the first half of 1946 gave rise to increasing demands from the public for restrictions on the power of labour. Drastic anti-labour legislation was proposed in congress but failed to become law.

A strike of some unions of maritime workers was called Sept. 5. As additional unions respected picket lines or struck directly, the shipping on east, west and Gulf coasts came to a standstill. When the Wage Stabilization board amended its regulations to permit the higher wage agreed upon by operators and unions, Pacific coast employees went back to work but Atlantic and Gulf coast workers stayed out until Sept. 20. As shipping was approaching normal on Sept. 30, the contracts expired between operators and masters, mates, pilots and engineers. This virtually stopped all shipping until Oct. 26 when work resumed on the Gulf and east coasts. Pacific coast shipping did not start until a few days later.

A strike of truck operators in New York city from Sept. 1 to 17 severely affected life in that city by stopping all truck movements, even those of food, medicines and other essentials. About 700 retail stores were forced to close before work was resumed. When electric power workers in Pittsburgh struck for several weeks in September and October life in that city was also severely altered.

On Nov. 20 John L. Lewis declared void the contracts be-

tween the United Mine Workers and the government, which was still operating the coal mines, and in accord with the bituminous miners' tradition of "no contract, no work," the bituminous mines closed down. The previous coal strike in the spring had come at a time when demand for coal was declining seasonally and when stocks were high. The full weight of the earlier strike was not felt by the general public for several weeks, not until coal-burning train schedules and coal-generated electric energy production was substantially restricted. In this autumn strike, however, restrictions were placed immediately upon coal consumption. The federal government declared that the union had no right to cancel the contracts and the union was enjoined from so doing. The contracts stayed cancelled and production remained at a standstill. Lewis and the United Mine Workers were brought to trial for contempt of court. It was rumoured that the union offered to compromise before a decision was reached, but if any such offer was made, it was rejected. Lewis and the U.M.W. were held in contempt and fined \$10,000 and \$3,500,000 respectively. The case was appealed to the United States supreme court, and, upon the return of the miners to work Dec. 7, action by the supreme court was deferred until Jan. 1947.

This series of strikes seriously affected the economy. The strikes against the individual companies hurt them considerably and, in that these strikes retarded the availability of much-wanted goods, they retarded production of companies dependent upon the striking companies, and the strikes thereby gave added impetus to the price inflation which was under way. To the extent that the workers received added income, price inflation received an added boost. The industry-wide strikes did more than that. They threatened the whole economic system because of the nation's dependence on coal for heat, steel, electric power and transportation. These facts led to an acute awareness and fear of the power of an irresponsible labour union and long-term labour control legislation was being considered for enactment in the new congress, Republican for the first time after 1933, which was to convene in Jan. 1947. Suggestions for



"STILL RACING HIS SHADOW." Shoemaker of the *Chicago Daily News* illustrated labour's problem in 1946

such labour legislation were along the lines of: (1) repeal of the Wagner act, (2) prohibition of industry-wide strikes especially in the case of public service industries, (3) the enumeration of a list of unfair labour practices similar to the list of unfair employer practices, (4) the enunciation of a national labour policy and (5) a method of dealing with the "portal-to-portal" wage suits which had begun to assume importance as the year ended.

Price Control.—During the year 1946 most of the price controls administered through the Office of Price Administration were removed. In the first half of the year the over-all policy was to decontrol prices when the supply was such that an immediate price rise would not follow. Controls were removed in a few other cases if the item was unimportant in the cost of living or if the item was a critical part of some larger item the production of which was held up because of a short supply of this one part. As June 30 approached, the date of the expiration of the price control legislation, there was considerable uncertainty as to congressional and presidential action. Just a few days before expiration of the existing law, a new law was passed. This was vetoed by President Truman as being undesirable, and he requested that the old law be temporarily extended. Such extension was not granted and all price controls expired. Many prices rose; a few dropped. By the middle of July a substitute bill was passed, recontrolling many prices and setting up a decontrol timetable. Some products were exempted until late in August at which time controls could be restored if the Price Decontrol board, established by the new law, felt it advisable. Meat was one of the few products in this latter category which was recontrolled. During the period immediately prior to June 30, meat was very scarce in the markets. Suddenly it was plentiful as the farmers, packers and grocers rushed it to market to get the benefit of the high prices that meat-starved, money-in-the-pocket customers were willing to pay. With recontrol in August meat supplies again dried up. The situation became so bad and the pressures so great that in October President Truman removed all controls from meat and many other products and set a new and speedier timetable for decontrol of remaining items. On Nov. 9 a sweeping presidential order removed almost all of these remaining items from control, only sugar, rice and residential rents staying under. The off-again, on-again price control policies of the government caused unusual swings in the volume of business, not only in the directly affected segments of the economy but also in many other sections, which felt not just the indirect effects of the prices in question but also the possibility of further governmental action directly affecting them. With the announcement of the decontrol of many prices in October and most of the remaining ones in November, businessmen felt considerably more free of governmental control and more balanced relationships began to emerge among prices and among the goods available. (See also PRICE ADMINISTRATION, OFFICE OF; PRICES.)

Industrial Production.—During the year industrial production was maintained at a higher level than ever before for a peacetime year. The seasonally adjusted total index as prepared by the Federal Reserve board stood at 160 in January, dropped to 152 in February as a result of the many important strikes and advanced, with important interruptions, to 182 by November. Both production of durable and nondurable goods contributed to this high total. The durable goods manufacturing index stood at 186 in January, dropped to 138 in February and by November had reached 214. Nondurable goods production did not show the marked advance but remained between 157 and 171 throughout the first 11 months of the year. Not all industries contributed to these high levels of industrial production. Iron and steel, nonferrous metals and products, stone, clay and glass products contributed approximately their share

to the level of durable goods production. Lumber production, though it climbed from 95 in January to 134 in November, was very low compared with other items. Automobile production was low but became fairly high during the year. Transportation equipment as a whole (including auto) was quite high throughout the year. (See also IRON AND STEEL.)

During the last half of 1945 manufacturers' inventories in the durable goods industries had been falling. About the first of the year 1946 they began to rise and rose almost 20% between January and September. In nondurable goods industries the situation was quite different. Inventories had been rising rapidly from the middle of 1945 and about the first of 1946 they levelled off. Then in June they again started a rapid rise. In the durable goods industries inventories in September were 206% as great as in 1939 and in nondurable goods the comparable percentage was 176. Part of the cause of the apparently high level of inventories was the new price level, which was considerably higher than that prevailing before World War II. Part also was associated with the large volume of business being done. Even after taking into account these two factors, however, inventories were still unusually high. Inventories were not balanced among industries, among companies or even among individual articles in the storerooms of individual manufacturers.

The construction and the automobile industries made disappointing records during the year. The acute shortages in housing and automobiles made the postwar outlook of these two industries very promising at the end of the war. The automobile manufacturers completed the physical process of reconversion rapidly, but the labour situation, both with respect to strikes and low individual productivity, and the materials situation hampered production severely. By the end of 1946, automobile dealers still had long waiting lists of potential customers for new cars. The problems of the construction industry were similar. Although there were no nationwide strikes of importance in the building trades the productivity of individual labourers was low. Certain materials, including lumber, were extremely difficult to obtain. Houses that ordinarily would require but three or four months to build, frequently were under construction for more than a year. On top of the difficulties and delays, the cost of new housing was at a new level, 70% above that existing in 1939. (See also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING.)

Government Finance.—Government finance during the year was characterized by tax and debt and expenditure reductions. The only major tax reduction came through the elimination of the excess profits tax on corporations. It not only relieved them of a substantial financial burden but also made for more normal operation of business as opposed to that existing during the war when businessmen were accustomed to figuring that 80% of every added expense was paid for by the government through tax reductions. In Nov. and Dec. 1945 the last of the wartime bond drives was aimed at a goal which was based on predicted 1946 expenditures considerably higher than actually proved to be the case. In addition the loan was heavily oversubscribed. This combined to give the treasury large cash balances. Each time during the year when certificates of indebtedness matured, they were refunded only in part and the balance of the maturing issue was paid off with this surplus cash. During the course of the year this reduced the government debt about \$23,000,000,000 to approximately \$260,000,000,000. (See also BANKING; DEBT, NATIONAL; LAW; TAXATION.)

Securities.—During the early part of the year common stocks sold at prices not seen after the highs of 1937. Prices rose, with an important interruption in February, to a high on May 29. The Dow-Jones Industrial average stood at 212.50 on that day.

During the summer prices dropped slowly. Then in September prices broke sharply and in October the Dow-Jones Industrial average was in the 170s. It moved into the 160s during the following months and recovered to the October level by the end of the year. Bond prices followed a similar pattern though the magnitude of the swings was not so great. The action of the market directly influenced the amount of new financing that took place during the year. The amount of nongovernment securities issued was more than \$500,000,000 monthly during the first eight months of the year. Though a sizeable proportion of new, nongovernment securities issued was for the purpose of financing new buildings and equipment, considerably more than half of the money raised was used to refund outstanding security issues into securities bearing interest rates and other terms more favourable to the company. With the decline in the levels of security prices in September, many corporations found it necessary to postpone or abandon refinancing plans. During the remainder of the year new financing remained at a much lower level.

Consumer Credit.—During the war the board of governors of the federal reserve system announced Regulation W which placed severe limitations on the use of consumer instalment credit in an effort to cut down consumer demand for scarce durable goods and thereby to ease the pressure toward higher prices. Even though considerable pressures toward higher prices still existed and many durable goods continued to be scarce, the situation had cleared itself substantially and on Dec. 1 most of the restrictions under Regulation W were lifted. The maximum time limitation on charge accounts and single payment loans was removed. Instalment sales of and loans on all but 12 types of durable goods (still in short supply) were also freed from controls. Even on the items still under control, the maximum time allowed on payments was extended from 12 to 15 months, thereby making possible smaller monthly payments. During the war the total amount of consumer credit outstanding had fallen from an all-time peak of \$10,000,000,000 near the end of 1941 to a low of \$5,000,000,000 in early 1944. (The depression low in 1933 was a little less than \$4,000,000,000.) The rise from the low of 1944 to the end of the war was slow and erratic. With the end of the war the rise became rapid and during 1946 gathered momentum until it stood slightly above \$8,000,000,000 in September.

Money.—The total supply of money (both deposits and currency) in the United States was \$175,000,000,000 in Dec. 1945. It increased to a little more than \$177,000,000,000 in February and then dropped continuously until it stood at \$169,500,000,000 in September. This had been brought about almost entirely by a reduction in the government deposits in banks and was closely associated with the debt retirement program. This reduction in deposits also affected the investments of banks. Government security holdings decreased considerably with most of the decrease taking place in shorter maturities. Total bank loans stayed at approximately the same level throughout the year, but commercial loans and real estate loans increased while other types declined. During the year the banks continued the policy of keeping excess reserves at a very low level. This procedure was made possible by the announced policy of the federal reserve banks to stand ready to buy or discount certain short term government securities.

Company Earnings.—The financial experience of private business corporations during 1946 varied greatly from industry to industry and even from company to company within an industry. Those companies which were fortunate enough to be free from labour and material difficulties were able to make very profitable showings. Those hampered by shortages and strikes in many cases had very poor results. The National City

Bank of New York reported that net income of 350 leading corporations in various industries increased for the first 9 months of 1946 as compared with 1945. The rate of return on net worth increased in all industries except electrical equipment and automobiles and equipment. In those two the rate was substantially decreased. Certain large corporations including General Motors and General Electric showed a profit only because of large tax credits available because of a serious drop in earnings. (See also STOCKS AND BONDS.)

Railroad Transportation.—Freight-car loadings for the first nine months of 1946, after adjustment for seasonal variation, averaged 8% lower than the peak war year, 1944. The car-loadings for 1946 might have been considerably higher had it not been for the two very low months of April and May when rail shipments were severely curtailed as a result of the coal strike. In July the railroads were allowed a small temporary rate increase. Early in December a permanent rate increase effective Jan. 1, 1947, was announced which averaged a little more than 17%. (See also RAILROADS.)

Foreign Trade.—The foreign trade of the United States rose month by month for the first seven months of 1946. The figures for September and October were affected severely by the maritime strikes that closed the ports for part of these two months. About one-sixth of the total was "noncommercial," i.e., shipments for which payment was not required, such as gifts and shipments by the United Nations Relief and Rehabilitation administration. This percentage was an average for United States shipments to all parts of the world; for many sections it was far higher. Approximately one-third of the shipments to Europe for the second quarter of the year were noncommercial in nature. Within this one group of nations the percentage of noncommercial shipments varied greatly. The wartime neutral nations and the liberated nations were treated almost entirely upon a commercial basis. Italy was a large recipient of the non-commercial shipments but also took part in commercial trade to some extent. To the eastern European countries there were almost no exports other than those of noncommercial nature. Trade with many of the Latin American countries was substantially above the level existing before the war.

Canada.—In Canada the physical volume of business continued at a high level throughout the year 1946. The over-all index of business averaged about 185 for the first eight months of the year as compared with 100 for the years 1935-39. An appraisal of business activity in Canada must be tempered by the fact that the index, after adjustment for seasonal variation, declined from 195 in January to 178 in August. Both the industrial production and distribution components of the index contributed to the decline. Distribution was off 7% whereas industrial production was off slightly more. Not all components of the industrial production index were off. Mining and electric power were up; manufacturing was down 10%. The most significant drop was in the construction industry which was down nearly 30%. During the first eight months of the year the Canadian price level had risen about 5%. (See also CANADA, DOMINION OF; COPPER; STRATEGIC MINERAL SUPPLIES.)

Great Britain.—In Great Britain the program of nationalization of industry continued during 1946. Plans for nationalization of the coal mines and the Bank of England already had been completed. Plans were proceeding for applying the same action to the transportation industry and the electric energy producing companies. One of the greatest problems during the year was that of manpower. The number of available workers was about 10% below that necessary to achieve the announced long-range programs. However, progress was being made in redistribution of labour from war industries to peacetime employment, and, in the coal mines at least, there was an in-

crease in the efficiency of the workers. The volume of exports was rising gradually and that of imports falling, indicating progress toward the goal of again becoming self-sufficient and building up the depleted supplies of foreign exchange. (See also AVIATION, CIVIL; AVIATION, MILITARY; GREAT BRITAIN; INCOME AND PRODUCT, U.S.; INTERNATIONAL TRADE; RUBBER; SHIPBUILDING; WAGES AND HOURS.) (F. E. C.; J. H. Ms.)

Butter. The decline in butter production in the United States was checked in late 1946 but not in time to prevent the total output dropping below that of 1945. Total butter production was estimated at 1,500,000,000 lb., the lowest in 40 years, compared with 1,706,000,000 lb. in 1945 and the prewar average of 2,170,000,000 lb. in 1935-39. Creamery butter production alone amounted to about 1,100,000,000 lb. compared with 1,362,000,000 lb. in 1945. After July the decline in butter production slowed down and in September the output was larger than that of a year earlier for the first time. Advancing prices and lower consumption of milk and cream increased the butter output.

Milk production reached a new high level in 1945 and 1946 but the decline in the number of cows in 1946 slightly reduced the total output of milk although production per cow made a new high record.

The price of butterfat to farmers was steady at around 50 cents per pound until the lapse of the Office of Price Administration in July when it jumped to 70 cents, then to 75.6 cents in September and to 90 cents in October. After that the price declined to 87 cents in December. This great increase in the price of butterfat was reflected instantly in the farm price of butter which rose from the level of around 47 cents per pound in 1945 to 63 cents in July and to 73.3 cents in December. Retail prices to consumers increased even more when controls were removed and in locations of scarcity fantastic prices were reported for a short period. After a few weeks, however, consumer demand slackened and butter prices became stabilized at around 85 cents per pound in retail markets during the fall months.

Civilian consumption of butter declined from the prewar average of 16.7 lb. per capita, 1935-39, to 11.7 lb. in 1943, 11.9 lb. in 1944, 10.9 lb. in 1945 and 10.5 lb. in 1946. Lower butter production continued through 1945 and only slight relief was afforded when government stocks were turned back to civilian use after the end of hostilities. With the end of rationing and continued reduction of production civilian consumption was expected to continue low through 1947. (See also CHEESE; DAIRYING; MARGARINE; MILK.) (J. C. Ms.)

Byrnes, James F. (1879-), U.S. jurist and government official, was born May 2 in Charleston, S.C., of Irish parentage. At the age of 14 he left school to become office boy of a law firm. In 1910, he was elected to the house of representatives on the Democratic ticket and was re-elected six times, serving from 1911 to 1925. In 1930 he was elected to the U.S. senate and was re-elected in 1936.

He was appointed associate justice of the supreme court in June 1941, but resigned 16 months later to become head of the newly-created Office of Economic Stabilization. On May 28, 1943, he was made director of another new agency, the Office of War Mobilization, but resigned (April 2) as the war drew toward its close. He returned to the government on June 30 as secretary of state for President Truman and accompanied the president to the Potsdam conference (July-Aug. 1945). He later attended the first meeting of the council of foreign ministers in London (Sept.-Oct. 1945) which ended in a stalemate,



THE POLITICAL INCLINATIONS of the members of the U.S. state department in 1946 were of slight concern to Secretary of State James F. Byrnes, according to C. K. Berryman of the *Washington Evening Star*

and the more successful conference of the British, U.S. and soviet foreign ministers held in Moscow in Dec. 1945. Byrnes then pursued throughout 1946 what was generally called a "firm policy" at various meetings of the council of foreign ministers, at the Paris peace conference and at the U.N. Security council sessions in London and New York. While President Truman had previously endorsed Byrnes' foreign policy, his approval of a speech by Henry Wallace in New York in Sept. 1946, appeared to be a reversal of his position. Truman repaired the damage by ousting Wallace and reiterating that he stood by Byrnes. Byrnes resigned for reasons of health, Jan. 7, 1947, and was succeeded by Gen. George C. Marshall as secretary of state. In a "farewell" address made in Cleveland, Jan. 11, Byrnes said he was more confident than ever that the U.S. could "achieve a just peace" by persisting with firmness.

Cabinet Members. The following members of President Truman's cabinet held office on Jan. 1, 1947.

Post	Name	State
Secretary of State	James F. Byrnes	South Carolina
Secretary of the Treasury	John W. Snyder	Missouri
Secretary of War	Robert P. Patterson	New York
Attorney General	Thomas C. Clark	Texas
Postmaster General	Robert E. Hannegan	Missouri
Secretary of the Navy	James V. Forrestal	New York
Secretary of the Interior	Julius A. Krug	Tennessee
Secretary of Agriculture	Clinton P. Anderson	New Mexico
Secretary of Commerce	W. Averell Harriman	New York
Secretary of Labor	Lewis B. Schwellenbach	Washington

Great Britain.—On Dec. 31, 1946, the British Labour cabinet was composed as follows:

Post	Name
Prime Minister	Clement Attlee
Lord President of the Council	Herbert Morrison
Secretary of State for Foreign Affairs	Ernest Bevin
Lord Privy Seal	Arthur Greenwood
Chancellor of the Exchequer	Hugh Dalton
President of the Board of Trade	Sir Stafford Cripps, K.C.
Minister without portfolio	Arthur V. Alexander
Lord Chancellor	Baron Jowitt
Secretary of State for the Home Department	James Chuter Ede
Secretary of State for Dominion Affairs	Viscount Addison
Secretary of State for India and for Burma	Baron Pethick-Lawrence
Secretary of State for Scotland	Joseph Westwood
Secretary of State for the Colonies	Arthur Creech Jones
Minister of Labour and National Service	George A. Isaacs
Minister of Fuel and Power	Emanuel Shinwell
Minister of Education	Ellen Wilkinson
Minister of Health	Aneurin Bevan
Minister of Agriculture and Fisheries	Thomas Williams

The following were ministers not in the cabinet:

<i>Post</i>	<i>Name</i>
First Lord of the Admiralty	Viscount Hall
Secretary of State for War	Frederick J. Bellenger
Secretary of State for Air	Philip Noel-Baker
Minister of Supply	John Wilmot
Minister of Transport	Alfred Barnes
Minister of Food	John Strachey
Minister of Works	George Tomlinson
Minister of Town and Country Planning	Lewis Silkin
Minister of National Insurance	James Griffiths
Minister of Civil Aviation	Baron Nathan
Postmaster General	Earl of Listowel
Minister of State	Hector McNeil
Minister of Pensions	Wilfred Paling
Chancellor of the Duchy of Lancaster	John B. Hynd

(See also GOVERNMENT DEPARTMENTS AND BUREAUS.)

Cacao: see COCOA.

Caccia Dominioni, Camillo, CARDINAL (1877-1946), Italian prelate, was born at Milan and educated at the seminary in that city. Ordained a priest in 1899, he became papal master of the chamber and in 1935 was elevated to the Sacred College by Pope Pius XI. A member of the ecclesiastical authority of Rome, Mgr. Dominioni in 1929 assumed charge of the papal household when a pope left the Vatican walls for the first time after 1870. On Feb. 12, 1931, he officiated on the radio broadcast which celebrated the status of Pope Pius XI as the ruler of the independent state, Vatican City. He died at Vatican City on Nov. 12.

Cadmium. Production of cadmium in the United States increased from 3,182 short tons in 1940 to 4,390 tons in 1944 and 4,192 tons in 1945, including 3,966 tons of metal and 226 tons in compounds. Secondary recovery dropped from 190 tons in 1941 to 53 tons in 1944 and 36 tons in 1945. Shipments exceeded output by a few tons. Consumption was 4,433 tons in 1944 and 1,877 tons in the first half of 1945. Metal imports amount to only a few tons a year, but cadmium content of flue dust imported from Mexico rose from 845 tons in 1944 to 1,096 tons in 1945. However, the latter item was offset by exports of approximately equivalent amounts in dross, flue dust, residues and scrap, and exports in metal, alloys and compounds exceeded imports. In spite of heavy demands, stocks had been built up to 1,703 tons at the end of 1943, declining to 1,513 tons in 1944, and 840 tons in 1945.

Outputs of other leading producers in 1944, so far as available, were as follows, in short tons, with 1945 figures in parentheses: Australia 280 (284), Canada 263 (319), Mexico 774 (1,161). (G. A. Ro.)

Cadogan, Sir Alexander George Montagu

(1884-), British diplomatist and statesman, was born on Nov. 25, youngest son of the fifth earl of Cadogan. Educated at Eton and Oxford university, he entered Britain's diplomatic service and was made a foreign office counsellor in 1928. Sir Alexander was knighted in 1934. He was envoy extraordinary and minister plenipotentiary to China (1933-35) and in 1935, when the Chinese legation was raised to the status of an embassy, he became the British ambassador to China.

Cadogan returned to London in 1936 to become deputy undersecretary of state for foreign affairs and two years later, he succeeded Sir Robert Vansittart as permanent undersecretary.

In 1944 Sir Alexander headed the British delegation to the Dumbarton Oaks conference and he attended the United Nations conferences in San Francisco, Calif., in 1945. The British government, Jan. 31, 1946, announced that Cadogan had been chosen permanent British representative on the U.N. security

council.

In the New York sessions of the security council, Sir Alexander declared Aug. 24, 1946, that abuse of the veto tended to discredit the U.N. He also denounced the Ukraine's complaint to the security council against Greece and the United Kingdom as "unbridled propaganda."

Calendar of Events, 1946: see pages 1-16.

California. The most southerly Pacific coast state of the United States, acquired statehood Sept. 9, 1850. It is popularly known as the "Golden state." The area is 158,693 sq.mi., of which 1,890 sq.mi. is water. Pop. 8,822,688 (U.S. bureau of census est. for 1945) or 27.7% more than the 1940 census. Chief cities (with increase over 1940 in parentheses) were: Los Angeles, 1,805,687 (20.0%); San Francisco 827,400 (30.3%); Oakland, 400,935 (32.7%); San Diego, 361,942 (78.0%); Long Beach, 241,609 (46.8%); Berkeley, 100,024 (16.9%); Pasadena, 99,003 (20.9%); Glendale, 96,495 (16.8%); Richmond, 93,738 (252.1%). The capital, Sacramento, had a pop. of 105,958 (1940 census).

History.—The year 1946 saw the re-election of Republican Earl Warren as governor in a victory that indicated the state's return to its traditional Republican affiliation. At the start of the campaign, both Gov. Warren and his Democratic opponent, state Atty. Gen. Robert W. Kenny, declared themselves bipartisan liberals, and each took advantage of California's cross-filing law to cross-file in the opposite party. Gov. Warren had the support of the American Federation of Labor, while Robert W. Kenny had the backing of the Congress of Industrial Organizations' Political Action committee. In the June primaries the governor won about 90% of the Republican vote and approximately 55% of the Democratic vote, being the first executive in the history of the state to win both the Republican and Democratic nominations. Will Rogers, Jr., was chosen over Rep. Ellis Patterson to be the Democratic nominee for the U.S. senate. As a result of the governor's victory in the primary, interest in the pre-election race centred on the contest between Will Rogers, Jr., and the incumbent Sen. William F. Knowland. The November elections found the Republican candidates victorious, Sen. Knowland defeating Will Rogers, Jr., by around 900,000 votes.

A number of state propositions came up for consideration at the election. Californians voted to float a bond issue for \$100,000,000 to help veterans get homes and farms but turned down a proposal to make business loans to veterans. A state-wide minimum of \$2,400 per year for teachers' salaries was approved. A law to legalize dog racing and betting thereon was voted down as was a Fair Employment Practices commission which would have tried employers suspected of discriminating against employees because of race, religion, colour, or ancestry.

During the year California struggled with the problems that reconversion and a large increase in population had brought. Disputes between labour and management and jurisdictional disagreements between various labour factions slowed the return to peacetime activities. A mass strike of 100,000 A.F.L. labourers tied up business in Oakland for three days, while a jurisdictional labour dispute at seven of the major Hollywood movie studios brought violence between pickets and nonstrikers. As part of a nation-wide movement, west coast shipping was tied up twice during the year while operators and union officials sought to break wage-increase stalemates. Sharing prominence with labour troubles was the postwar housing situation. In July Gov. Warren called a special session of the legislature to enact rent control legislation, and hearings were under way when word came that congress was taking the necessary action.

Officials estimated that there was need for 625,000 new homes in the state.

Education.—State apportionments for elementary, high school and junior college school districts amounted to \$95,956,331.29 for 1945-46. Average daily attendance for 1945-46 was estimated to have been 884,102 for kindergartens and elementary schools; 328,847 for high schools; and 31,585 for junior colleges. The combined enrolment for the eight schools of the University of California was 40,800 for the fall semester of 1946-47, of which 22,355 were veterans and 21,909 were enrolled at the Berkeley campus.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Sept. 1945 the average monthly assistance grant for the 158,121 recipients of social security in the state amounted to \$47.34. At the same time, 5,336 needy or partially self-supporting blind persons were receiving aid, the maximum grant for both programs having been increased from \$50 to \$60 by the 1945 legislature. Also as the result of legislative action a department of mental hygiene was set up to operate seven mental hospitals, two institutions for the mentally deficient and an acute neuropsychiatric unit for the treatment and teaching of the 37,076 patients under its jurisdiction. In addition to the three correctional schools already established, five work camps were set up for the training and treatment of the state's juvenile delinquents. The 1945 legislature inaugurated a new program designed to aid in the rehabilitation of the inmates of the four state penal institutions by establishing a vocational institution, a medium-security type institution and a department of corrections medical faculty. In a reorganization effective May 21, 1946, a new department of veterans' affairs took over the supervision of matters pertaining to veterans.

Banking and Finance.—In 1945 there were 279 state banks with deposits of \$2,564,001,000, and with resources amounting to \$3,236,602,000, or \$540,979,000 more than the previous all-time high of 1944.

Budget appropriations for the 1945-47 biennium was set at \$893,933,000 and on July 1, 1946, reserves totalled \$181,876,554.70.

A record high in tax collections for the fiscal year 1945-46 brought in \$612,320,257 (1944-45, \$560,272,395). The retail sales and use tax returned \$178,812,541 (1944-45, \$150,314,238); unemployment insurance tax \$143,925,686 (1944-45, \$164,162,201); gasoline tax \$59,201,583 (1944-45, \$43,947,936); bank and corporation tax \$55,415,943 (1944-45, \$57,647,503); personal income tax \$44,946,361 (1944-45, \$47,133,088); alcohol beverage revenue \$30,121,049 (1944-45, \$25,785,527); horse racing revenue \$22,758,059 (1944-45, \$7,142,622).

The assessed value of property subject to local taxation for the fiscal year 1945-46 was \$9,119,756,060. This was the first time in the history of the state that the valuation had exceeded \$9,000,000,000.

Communication.—In Sept. 1946 motor vehicle registration of all classes reached 3,294,201, exceeding by 130,807 the previous high point recorded for 1941. There were 2,701,489 automobiles; 275,105 trucks; 31,786 motorcycles; and 285,821 trailers. Late in 1946 a committee of state senators and assemblymen presented Gov. Warren a \$2,819,853,000 program of highway, street and bridge construction which would be completed by June 30, 1959. The report indicated that of the 13,886 mi. of state highway system about 5,000 mi. were less than 20 ft. wide. The governor announced his support of the committee's proposed increase in the state gasoline tax as one means of raising additional revenue needed to carry out the program. In 1944 the estimated average number of telephones was 2,223,506, a 3.39% increase over 1943. California, in 1940, had 16,856 mi. of railway, 2,768 mi. of that being electrified.

Agriculture.—Although less than 10% of its population lived on farms in 1944 and 1945, California led the nation in cash farm income with a total of \$1,744,445,000 in 1944 and \$1,825,000,000 (est.) in 1945. Field, fruit and truck crops gave it first rank with 14% of the nation's total. Its orchards and vineyards produced nearly half of the commercial fruit output of the U.S. as measured by cash farm returns, and its truck farms produced about one-fourth of the vegetables. The 1940 census listed 132,658 farms totalling 30,524,000 ac. while a special census in 1945 recorded 141,577 farms with a combined acreage of 35,062,627. The Central Valley Reclamation project, being constructed by the U.S. bureau of reclamation at a cost of \$360,000,000, would bring supplemental water supplies for irrigation to the Sacramento and San Joaquin valleys.

Manufacturing.—The steady decline from the high employment level of 1943 continued in 1946 but estimates indicated a 600,000 to 625,000 total factory employment or 57% to 60% above 1939 totals. The employed civilian labour force in California in Jan. 1946 equalled 3,135,000 (1945, 3,351,000); trade, 658,000 (1945, 610,000); service-finance, 616,000 (1945, 585,000); manufacturing, 589,000 (1945, 859,000); government, 457,000 (1945, 503,000); agriculture, 312,000 (1945, 340,000); utilities, 284,000 (1945, 275,000); construction, 160,000 (1945, 125,000); mining, 39,000 (1945, 34,000).

During 1946 the national trend toward decentralization of industry was evidenced by an unprecedented number of national manufacturing concerns which established branch plants in California or purchased sites for later expansion. The total value of products in 1945 was estimated

to be \$8,601,195,000 (1944, \$10,141,496,000 or 6.49% of U.S.). The four leading major groups of industry in 1945 were: food and beverage products, \$2,056,095,000 (1944, \$2,019,858,000); transportation (aircraft and shipbuilding), \$2,023,917,000 (1944, \$3,188,396,000); petroleum products industries, \$843,714,000 (1944, \$804,351,000); iron, steel and products, \$522,290,000 (1944, \$665,651,000).

Mineral Production.—Mineral production in 1945 was valued at \$488,244,000, or 4% above the 1944 level and higher than any previous year. Generally, fuels, structural materials and industrial materials increased in output while metals (except gold) and salines declined.

Value of Principal Minerals Produced in California, 1945 and 1944

Product	Value (1945)	Value (1944)
Petroleum	\$347,832,000	\$330,659,802
Natural gas	36,484,000	31,797,418
Gold	6,023,000	4,108,055
Quicksilver	2,918,000	3,178,969
Zinc	2,055,000	1,875,996
Copper	1,878,000	3,453,957
Lead	1,113,000	912,670
Cement	25,696,000	21,249,520
Miscellaneous stone	23,500,000	25,138,003
Brick and tile	3,450,000	3,930,662

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California, University of. A state-supported, coeducational institution with headquarters at Berkeley where the university was founded March 23, 1868, and with seven other campuses, at Los Angeles, San Francisco, Davis, Santa Barbara, Riverside, Mt. Hamilton and LaJolla. The year 1946 saw the completion of the shift in the university's facilities to meet post-war educational problems of an enrolment of 40,800 students on the 8 campuses. Construction began on the first of more than 60 buildings for which approximately \$60,000,000 had been authorized by the state legislature. Of this amount \$4,400,000 to be matched by an equal sum from other sources, was earmarked for dormitories, construction of which would mark a new university policy toward student housing. To meet housing demands created by an enrolment of more than 20,000 veterans, the university took over wartime housing facilities near 3 of its campuses and procured, as far as possible, surplus units for married veterans. Expanded curricula in both oriental and Slavic languages were provided on the Berkeley campus and were in prospect for the Los Angeles campus. At Berkeley a new teaching institute of economics began its work in the fall semester. The college of agriculture greatly enlarged both its research and field programs and provided additional means of disseminating agricultural information more widely. In the atomic research program, 1946 saw the successful operation of the new 184-in. cyclotron which produced projectiles of 200,000,000 electron volts, about 10 times the power of any previous machine. Construction also began on 2 new atom-smasher types: a 300,000,000 volt synchrotron and a pilot model of what might become a 1,000,000,000 volt linear accelerator. A new nuclear physics research program was started on the Los Angeles campus, and the pioneer 37-in. cyclotron was readied for removal to that campus. Designs for a 120-in. telescope, to be the second largest in the world, were well advanced by astronomers at Lick observatory on the Mt. Hamilton campus. A marine physical laboratory was established at San Diego in collaboration with the U.S. navy. Operation of the university's Los Alamos (N.M.) scientific laboratory, where the atomic bomb was designed and made, and of the U.S. navy electronics laboratory at San Diego was continued. The adult education program of university extension was broadened, particularly in regard to institutes and refresher and short courses, with both class and correspondence enrolments at new highs. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(R. G. S.)

Cambodia: see FRENCH COLONIAL EMPIRE.

Cambridge University. The academic year 1945-46 opened with 3,110 men and 610 women undergraduates; graduates, research students and staff numbered 1,526 men and 223 women at Newnham and Girton. Arts men were for the first time allowed to defer their national service; and in the future 90% of all places in colleges were to be filled by former service applicants. Honorary degrees were conferred on the chief leaders in the war in both the services (including General Dwight D. Eisenhower) and the government (including the prime minister, Winston Churchill) and on Allied ambassadors. Dr. H. J. Chaytor, master of St. Catharine's, retired by age and Dr. G. A. Chase (master of Selwyn) became bishop of Ripon. Three professors resigned, Sir A. D. McNair (comparative law) to become a judge of the International Court of Justice, Professor J. D. Cockcroft (natural philosophy) to become director of atomic energy in the ministry of supply and Professor E. K. Rideal (colloid science), who went to the Royal Institution. Dexter Perkins became the first professor of U.S. history.

Scholarships in Chinese and a large collection of rare Chinese literature were given by China. The Rockefeller foundation and commercial firms gave funds for research and the treasury grant increased threefold, mainly for science. A department of experimental medicine was created, and a new wing was added to the Cavendish laboratory for atomic physics.

BIBLIOGRAPHY.—*Cambridge University Reporter*, vol. 76, and *Cambridge Review*, vol. 57 (both weekly during term). (C. Fo.)

Cameroons: see BRITISH WEST AFRICA; FRENCH COLONIAL EMPIRE; MANDATES.

Camp Fire Girls. In 1946 Camp Fire Girls, Inc. had a membership of more than 360,000 girls in the United States, representing all races and creeds. In addition to the United States, Camp Fire groups had also been established in England, Canada, El Salvador, Alaska, South Africa and the Republic of the Philippines. The youth agency serves three age levels: Blue Birds, the junior division, are from 7 to 9; Camp Fire Girls, the intermediary group, range from 10 to 15, and the Horizon Clubbers, the senior group, are from 15 through senior high school age.

Each year Camp Fire chooses a national project to highlight a vital phase of its over-all program. "At Home in the World" was the special theme for 1946. Through participation in the project, which they adapted to their own particular communities, Camp Fire Girls gained a greater understanding and appreciation of their world neighbours. The project, which was carried out during the entire year, focused attention on the importance of the home as the core from which happiness and unity must spring—first among individuals, then among nations.

Adapting the project to the challenges of peacetime, Camp Fire Girls planned and carried out many activities designed to promote global good will and to give them a closer relationship with their world neighbours. Through plays, folk dances, pageants, folk songs and fairs, Camp Fire Girls stressed the cultural contributions made to world civilization by various countries and, by means of books, increased their knowledge of the history, customs and habits of their friends throughout the globe.

In line with their world friendship project, Camp Fire Girls worked closely with various relief agencies, including U.N.N.R.A., and sent tons of canned foods and clothing to families in war-devastated countries. Vitally concerned with famine conditions abroad, members of the youth agency supported President Harry S. Truman's Famine Emergency committee and, as one of their food relief projects, sponsored a program known as "Bread for the Starving." Through this, the girls

pledged to do their share in observing one wheatless day each week, saving waste fats, avoiding waste of food, cultivating victory gardens so that more canned foods might be sent to Europe, co-operating with community canning centres and contributing at least one can of food to an overseas relief agency. To give the project greater force, Camp Fire Girls also enlisted the co-operation of their families and neighbours. Candy, books, scrapbooks and toys were other gifts that Camp Fire Girls sent to children in war-torn lands.

Other highlights in the youth agency's program for 1946 included the revision of the *Book of the Camp Fire Girls*. Based on a two-year nation-wide program study, it reflected the results of a poll conducted among Camp Fire Girls on their favourite leisuretime activities. The newly revised book, which was distributed to Camp Fire Girls and group leaders, contained 1,343 program suggestions which were based on the 7 Camp Fire crafts, namely, home, outdoors, creative arts, frontiers (science), business, sports and games and citizenship. In addition, the book also considered the factors important in the girls' personality development, as advanced by outstanding group leaders, Camp Fire executives, national staff members and program consultants.

In Nov. 1946 the organization held its first postwar national conference in Cleveland, O. Approximately 1,300 youth leaders attended the conference, which had for its theme "The New Frontier—Human Relations." During the five-day session, delegates voted to back the charter of the United Nations, and to implement that policy in its program and activities for girls. Workshops for both professional staff and volunteer workers were held each day of the conference.

Mrs. James C. Parker of Grand Rapids, Mich., was named president of the National Council of Camp Fire Girls at the convention, succeeding Dr. Bernice Baxter of Oakland, Calif. Others elected were Earle W. Brailey, chairman of the organization's board of directors; Glenn O. Hoffhines, treasurer, and Mrs. Frank C. Love, secretary. Miss Martha F. Allen was national director of the organization, which has its national headquarters at 88 Lexington avenue, New York 16, N.Y. (M. S. BN.)

Canada, Dominion of. A dominion of the British Commonwealth of Nations (Statute of Westminster, 1931, 22 Geo. V. c.4) covering all portions of North America north of the United States except Newfoundland, Labrador and Alaska. Canada is a federal union of nine provinces united under the terms of the British North America act (a statute of the imperial parliament, 1867). The original provinces were Nova Scotia, New Brunswick, Quebec, Ontario; to those were added Manitoba, 1870; British Columbia, 1871; Prince Edward Island, 1873; Alberta and Saskatchewan, 1905. Outside the provincial boundaries are the Yukon and the Northwest Territories, which are under the jurisdiction of the national government. The area is 3,694,863 sq.mi., of which 228,307 sq.mi. are water; pop. 11,506,655 (census of 1941); 12,119,000 (dominion bureau of statistics est. on June 1, 1945). The capital is Ottawa (pop. 1941 154,951). Montreal is the largest city (pop. 1941 903,007). Provincial capitals and their population (1941 census) in order of the provinces listed above are: Halifax (70,488); Fredericton (10,062); Quebec (150,757); Toronto (667,457); Winnipeg (221,960); Victoria (44,068); Charlottetown (14,821); Edmonton (93,817); Regina (58,245). Other leading cities (1941 census) are: Vancouver (275,353); Hamilton (166,337); Windsor (105,311); Calgary (88,904); London (78,264); Saint John (51,741); Saskatoon (43,027); Three Rivers (42,007); Sherbrooke (35,965); Fort William (30,585); Kingston (30,126). Canada's 17th governor general, Viscount Harold Alexander of Tunis, took office on April 12,

1946, succeeding the Earl of Athlone.

Introduction.—1946 was a year of transition, marked by many difficulties, but Canada achieved a measure of stability and prosperity greater than that experienced by many other countries.

Industrial reconversion from war to peace was practically completed; business volume, while shrunken from wartime peaks, was nevertheless higher than for any other peacetime period; commodity price increases were experienced, but the rise in living costs was relatively moderate; many government controls were relaxed, without violent reaction, and flexibility was restored to the nation's economy. Although bitter and widespread labour disputes did handicap production, agricultural and industrial incomes were high for peacetime, banks received greater deposits and foreign trade was the highest of any peacetime period in history.

On July 24 the Honourable Brooke Claxton, then minister of health, cited the following facts in a national radio broadcast. Production of peacetime goods reached a record level; more Canadians were employed than ever before in peacetime; savings of individual Canadians were highest on record, three times greater than in 1939; Canadian farm debts were enormously reduced throughout the year. During World War II national debt increased less in Canada than in the United Kingdom and the United States of America; the 1946 cuts in taxes from the wartime high were greater in Canada than in the United Kingdom, the United States of America, Australia or New Zealand; Canadian prices were more effectively controlled than in those countries.

Government.—Politically, Canada was relatively quiet throughout 1946. There was one two-member by-election in British Columbia in which coalition candidates defeated Co-

operative Commonwealth Federation candidates; one in Saskatchewan in which the C.C.F. held a seat; three in Quebec which were won by Premier Maurice Duplessis' Union Nationale; two in Prince Edward Island in which the Liberal government lost one and won one. There were four federal by-elections, all of which created great interest. The Social Crediters won the Quebec riding of Pontiac, previously held for many years by the Liberals, and it was the first Social Credit win outside of Alberta; the Progressive Conservatives held the riding of Parkdale, Ont., and took the riding of Portage la Prairie, Man., from the Liberals; after these three defeats, the Liberals won a victory in Richelieu-Verchères, Quebec.

These by-election losses reduced the Liberal majority in parliament (standing on Dec. 31 being: Liberals, 126; Progressive Conservatives, 67; Co-operative Commonwealth Federation, 28; Social Crediters, 14; others, 9; vacant, 1). Nevertheless, Prime Minister Mackenzie King continued on the one hand to guide the affairs of the nation firmly and on the other hand to watch cautiously the shifts of public opinion.

There was some talk throughout the year of a change in Liberal party leadership, based on King's statement during the 1945 election that he would never fight another election, but King bluntly said he would continue in the leadership for an indefinite period. On May 12, King's political record equalled that of the younger William Pitt (18 years, 11 months, 3 days), and on June 7, King passed the longest term of service of any British commonwealth prime minister—that of Sir John A. MacDonald, who served 19 years less three days.

In Dec. there were a number of cabinet changes as follows: J. L. Ilesley from finance to justice; Douglas Abbott from de-

SNOWMOBILES of "Exercise Musk Ox," Canadian army experiment to test arctic equipment, starting northward on Feb. 15, 1946, on their 81-day trek across the frozen wastes from Churchill, Man., to Edmonton, Alta.



fense (army, navy) to finance; Colin Gibson from defense (air) to state; Brooke Claxton from health to defense (army, navy, air); Paul Martin from state to health. Justice Minister Louis St. Laurent, who had been justice minister and external affairs minister from Sept., dropped the justice portfolio. Although there were eight vacancies in the senate, only one was filled when Paul H. Bouffard, Quebec, was appointed. The year-end senate standing was: Liberals, 66; Progressive Conservatives, 23; vacant, 7.

Parliament sat from March 23 to Aug. 31, and much important legislation was passed. Laws were drawn up relating to the development and control of atomic energy, housing promotion, reciprocal income tax between Canada and the United Kingdom, credits to foreign countries, foreign exchange, sale of wheat abroad, taxation of co-operatives, parliamentary redistribution (including the increase in the number of seats from 245 to 255). A new Canadian citizenship law was passed on May 14 and proclaimed on July 1, but the provisions did not go into effect until Jan. 1, 1947. Among other things, that important act established Canadian citizenship, gave Canadian women the right to decide their own nationality after marriage, maintained the status of British subjects. There were 12 new laws concerning veterans of World War II which created a system of government-backed bank loans for veterans wishing to establish themselves in business or the professions, gave universities the means of aiding veteran-students with loans, extended veterans' benefits to overseas fire fighters. The budget was brought down in June. Highlights included substantial personal income tax reductions, reduction of corporation and excess profit taxes, permission to farmers, fishermen and authors to pay income tax on the basis of their average income over a three-year period. The government decided to retain in operation indefinitely the following crown companies: the Polymer corporation, makers of synthetic rubber; Canadian Arsenals Limited, explosives; the Eldorado Mining and Refining company, uranium. On July 11 the joint senate-commons flag committee approved the red ensign design with the maple leaf in the fly for a national flag.

Other important government decisions included the discontinuation of national registration, establishment on July 5 of the Canadian dollar at parity with the U.S. dollar, amnesty as from Aug. 15 for the 14,000 army absentees and deserters unapprehended at that date. During the year various government loans were made to foreign countries: \$1,250,000,000 to the United Kingdom, \$242,500,000 to France, \$100,000,000 to the Netherlands, \$60,000,000 to China. The credits were for the purchase of Canadian goods. The first postwar Canadian savings bond issue was offered on Oct. 15, and within a fortnight had produced \$257,947,600. Since the new security met a substantial public demand, the government decided to let the bonds remain on sale indefinitely. On Jan. 21 the privy council upheld the validity of the Canada Temperance act; on Oct. 23 it denied Quebec ownership of bank deposits unclaimed after 30 years; on Dec. 2 it upheld Canada's right to deport Japanese.

Dominion-Provincial Relations.—In January the dominion-provincial conference resumed sessions to consider the federal government's ten-point program for a financial agreement to replace the 1942 taxation arrangement. Most important of the proposals was that dominion subsidies be increased to a minimum of \$12 per head on the basis of the 1941 census and be further increased in accordance with rises in population and value of gross national production, that the provinces withdraw completely from the personal, corporation and estate tax fields. On Jan. 6, Premier George Drew of Ontario opposed the dominion suggestions and made counterproposals. Premier Maurice Duplessis of Quebec also stood aloof. On Feb. 1 the con-

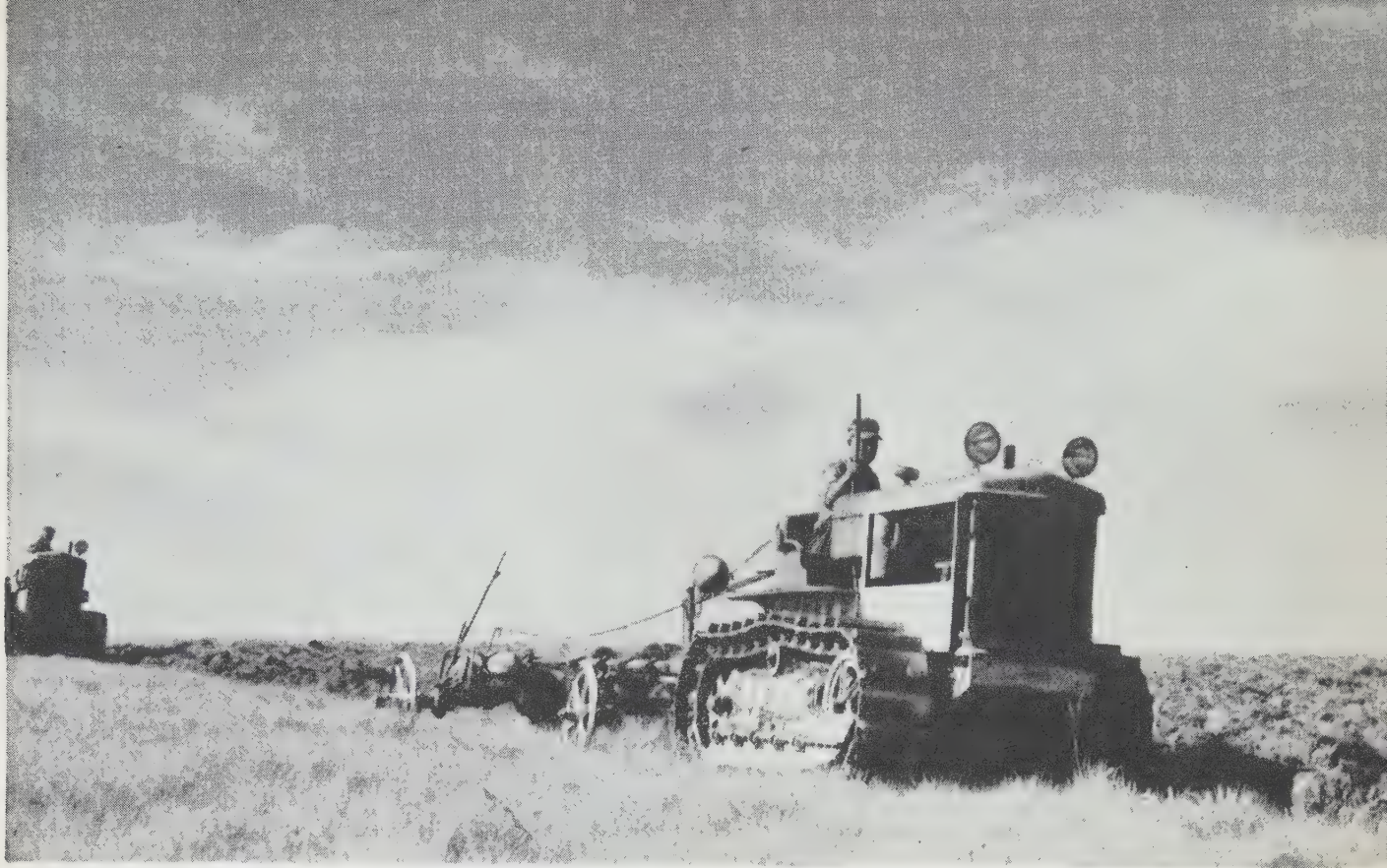
ference adjourned without agreement.

The conference reconvened on April 25 and the federal government made new proposals: that the minimum subsidies should be \$15 per head, with special grants to British Columbia and Prince Edward Island; that the dominion would withdraw from the gasoline, amusement and pari mutuel tax fields if the provinces agreed to a financial equivalent; that the proposals be given a three-year trial. The federal government stated that if the provinces retained succession duties and minor taxes, the dominion would have to withdraw its offer to pay 50% of the cost of old age pensions. Alternatively, Premier Drew offered to "rent" personal and corporation taxes if the federal government vacated the field of succession duties, gasoline, amusement and other taxes. Premier Duplessis also offered to "rent" income taxes and part of the provincial corporation tax, but refused to relinquish succession duties. Nova Scotia was willing to give up the three main tax fields if the basis of the federal subsidies were changed. Alberta, Prince Edward Island, British Columbia, Saskatchewan and Manitoba appeared to favour the new federal proposals. On May 3 the conference again adjourned without agreement.

Facing the determined resistance of Ontario and Quebec, the federal government decided that, rather than conclude an en bloc agreement with the provinces, it would make separate agreements. On Oct. 31 it was announced that New Brunswick had reached agreement on the substantial points of the new taxation arrangement. By Nov. 12 Manitoba and Saskatchewan had signed agreements. Two days later Nova Scotia rejected the federal proposals, thus standing beside Ontario and Quebec, and on Nov. 22 Alberta joined the latter group. Early in Dec. the federal government made new proposals, including an offer to vacate the important gasoline tax field, in the hope of drawing Nova Scotia into the agreement. On Dec. 12 the federal government came to agreement with British Columbia by offering an increased subsidy and by leaving that province a clear field in the gasoline, electricity and some other minor tax fields. Almost as soon as these details were made public, Manitoba, New Brunswick and Saskatchewan protested that the terms British Columbia had received were more favourable than those in their own pacts. And although Prince Edward Island announced on Dec. 23 that it had accepted "in principle" the federal government proposals, the year closed on dominion-provincial relations with a definite threat that the whole problem was going to be entirely reopened in 1947.

Labour.—During 1946, work stoppages cast a long shadow over the Canadian economic scene. Prolonged strikes were reflected in reduced production schedules and shutdowns in non-striking industries and in serious delays in building construction. In the first nine months of the year more time was lost directly because of strikes than in any comparable Canadian period from 1901, when strike records were first kept. The loss amounted to 4,069,434 man-days, compared with 353,886 man-days for the same period in 1945. Industries involved included steel, brass, copper, textiles, rubber, electrical apparatus, automobiles, logging, sawmill operation, Great Lakes shipping. In addition, some 50,000 farmers in Alberta and Saskatchewan conducted a four-week nondelivery strike. A unique aspect of the steel strike was the use of aeroplanes: the Steel Company of Canada in Hamilton made a landing strip on company property and used aeroplanes to service the 2,500 nonunion workers who remained on the job inside the picket lines; the United Steel Workers of America hired a plane to drop propaganda leaflets on the plant, guaranteeing safe conduct through picket lines to those workers who remained on the job.

In view of this strike picture, it was not surprising that on Aug. 17 the industrial relations committee of the house of



PLOWING VIRGIN LAND on the co-operative farming community at Matador, Sask., Canada, in 1946

commons made its report to parliament and included the following recommendations: a dominion-provincial conference to draft a new labour code; a more effective picketing law; some form of checkoff for certified unions; power for the labour minister to take strike votes under government supervision at the request of either party to a dispute and before or after a strike has started. This latter provision was attacked by the annual convention of the Canadian Congress of Labor on Sept. 23.

Employment.—The core of the reconversion problem, of course, was the impact on local areas. In large centres like Montreal, Toronto, Hamilton, with well-established and diverse industries, with large transportation facilities, readjustment problems were held at a minimum. But in places like Amherst, Arvida, Sorell, Fort Erie, Welland, Fort William, where wartime employment was inflated, conversion created problems. Alternative employment opportunities, when war plants shut down, were insufficient to absorb laid-off workers. The flow of these unemployed to areas where job opportunities existed was retarded by the reluctance of the workers to leave their homes, by lack of housing in employment areas, by unwillingness of workers to drop from high-income war jobs to low-income peace jobs. Moreover, as noted, shortages hampered reconversion and limited the number of available jobs. Despite these features, by Nov. 1946 unemployment had dropped to 134,000, which was less than 3% of the total labour force. That compared very favourably with the situation in Nov. 1945, when 267,000 war workers were unemployed and 600,000 war veterans were streaming home looking for jobs.

Economic Controls.—The government retained a firm hand on the major economic controls. Although on Jan. 31 price ceilings on some 300 items were suspended and on April 14 an additional list of suspensions was announced, the basic living elements remained unchanged, as the government fought the inflationary spiral. Rations remained on butter, sugar and meat, and the rent ceilings were retained. However, on Nov. 30 war-

time wage and salary controls were abolished, and on Dec. 31 controls on coal and other solid fuels ended. While the Canadian cost-of-living index stood at 100.8 on Aug. 1, 1939, it stood at 119.9 on Nov. 1, 1945, and 127.1 on Nov. 1, 1946.

External Affairs.—In his radio address on July 24, the Hon. Brooke Claxton had said that Canada's work in international co-operation had given it a reputation second to no other country. That statement was dramatically illustrated during the first part of the United Nations assembly meeting in London early in the year when Canada withdrew in Australia's favour during the elections to the security council. Prime Minister King and the Hon. Brooke Claxton were Canada's leading delegates at the Paris Peace conference where Canada played a unique role as leader of the middle-sized nations. Canada was represented on nine of the ten peace conference committees which considered in detail five draft peace treaties. In a significant speech to a plenary session of the conference, the Hon. Brooke Claxton said: "The peace and prosperity of peoples everywhere depend on the ability of the great powers to translate into agreement the cries of 2,000,000,000 people of every race and color and in every corner of the earth who desperately want an end to war and to the uncertainty which leads to war. They want a first instalment of that better world for which we hoped and worked and fought and which it is in our power to have."

Canada sent an impressive delegation to the second part of the United Nations assembly in New York in September. At that meeting Canada urged the United Nations speedily to equip the security council with power to enforce proper decisions to maintain world peace; called for world-wide armaments reduction, "so that the productive capacity of the world thus conserved may be used for improving the living conditions of all peoples"; opposed the end of the veto power, but demanded that it be exercised "with restraint and in the interest of the United Nations as a whole"; amended the proposed world arms reduction plans so that any program adopted by the security council must be approved by a special session of the 54-power

general assembly in addition to ratification by member states; carried another suggestion that any arms reduction program provide for the control of atomic energy, "to the extent necessary to ensure its use only for peaceful purposes"; won unanimous approval for its proposal to set up a committee to study means of speeding up procedure in the assembly. Canada had the chairmanship of the economic and social council refugee sub-committee, which prepared a report recommending against the forcible repatriation of refugees, other than known quislings or war criminals. Canada led the way in establishing an impartial fact-finding committee to collect for donor countries authentic information regarding relief food needs. Canada provided \$2,177,245 as its share of the United Nations budget.

Canada was also present at other international gatherings. These included the U.N.R.R.A. meeting in Switzerland, the World Food conference in Copenhagen, Denmark, the Caribbean area aviation conference. Labour minister Humphrey Mitchell was elected conference president at the International Labour organization's 29th session in Sept. in Montreal. In Dec. Canada was one of the 41 nations signing the Narcotics convention. Dr. Victor Doré, leader of the Canadian delegation to the United Nations Educational Scientific and Cultural organization, was elected to the executive board.

U.S.A. and Canadian Relations.—Three times during the year 1946 international leaders made reference to Canada-U.S.A. co-operation. President H. Truman of the United States said that "the world as a whole desperately needs to profit from the example of Canadian-American co-operation." The Hon. Ray Atherton, U.S. ambassador to Canada, described the co-operation as an example "of great importance to the whole world." At the Paris Peace conference, Canada urged the establishment of a tribunal similar to the Canadian-U.S. joint commission for the projected free state of Trieste.

At the end of July the national sites and historic monuments board unveiled a cairn to the memory of Franklin D. Roosevelt at Campobello Island, off the New Brunswick coast. A joint committee of the United States interior department and the Canadian mines and resources department examined a proposal to establish an international memorial park to President Roosevelt in the Thousand Islands near the Ivy Lea bridge over the St. Lawrence river. A treaty between the United States and Canada on the conservation and development of Great Lakes fisheries was signed in April.

During 1946, 18,280 Canadians were granted visas to enter and live in the United States. During the month of Oct. 629,700 U.S. automobiles entered Canada, highest monthly total for a decade.

World War II.—During 1946 there were still a number of major echoes of World War II. On Jan. 12 the U.S.-Canada War Production committee was dissolved. An antisubmarine mine was discovered on Oct. 2 floating near the entrance of Halifax harbour, menacing shipping, and was destroyed by a navy mine disposal crew. National defense headquarters reported that out of \$1,756,367,389, total cost of the British Commonwealth Air Training plan, Canada contributed \$1,589,954,609. Canadian service casualties in the six years of World War II were announced as 104,925, including 41,371 killed. While the army and navy had completed the search for their missing in action, the royal Canadian air force was still looking for 10,000 personnel "missing—believed killed." By early Nov. 40,889 European war brides of Canadian soldiers and 19,361 children had reached Canada.

By the end of 1946 more than 95% of the roughly 1,000,000 Canadians who served in the armed forces had found peacetime occupation. More than 35,000 veterans were attending 29 Canadian universities on their rehabilitation benefits. The rehabilita-



"GETTING IN HIS HAIR," a cartoon drawn in 1946 by Jerry Costello of the *Knickerbocker News* (Albany, N.Y.) during the investigation of espionage activities of foreign agents in Canada

tion costs of former service personnel reached its peak about mid-1946. The total was about \$749,000,000, of which \$659,000,000 went directly into gratuities, grants, and educational assistance. When the year closed only 1,800 Canadian troops and 7,000 dependents of Canadian servicemen remained in the United Kingdom and northern Europe.

On Dec. 22 the last of the 3,500 German prisoners of war sailed from Halifax. A new medal for service personnel was struck, called the war medal, and corresponded to the victory medal struck after World War I. Three additional Canadian winners of the Victoria cross were announced: John Robert Osborne, infantry man, for bravery at Hong Kong; Andrew Mynarski, Winnipeg airman who lost his life in an attempt to save his trapped rear gunner when his aeroplane caught fire over Germany; John Weir Foote, padre, for heroism at Dieppe. This brought to 16 the number of Canadians who won the Victoria cross in World War II, half of them posthumously.

Defense.—The government gave attention to defense matters. The royal Canadian navy's postwar strength was set at 10,000 permanent force with an active fleet of a carrier, two cruisers, eight destroyers, and smaller ships. A reserve force of 18,000 was established. The army was a permanent active force of 25,000 highly trained war-equipped men, plus a reserve force of 180,000 men. The permanent Canadian air force was set at 16,000 men, with auxiliaries in reserve. A defense research board was established as a civilian aid to the military forces in their effort to keep pace with modern scientific battle methods.

On Feb. 15 a special arctic expedition, called "Operation Musk Ox," left Churchill and travelled 3,100 mi. by snowmobile through the northern limits of Canada and reached Edmonton on May 6. In Oct. it was announced that Churchill would become an experimental test tube area for the development of

Canada's cold-weather military equipment. The presence of U.S. army observers in these activities underlined the conviction of U.S. and Canadian military officials that Canada's arctic region was the most vulnerable point of hemispheric defense. In Dec., when the three defense divisions were merged, a program of consolidation of Canada's military headquarters began.

Espionage Trials.—The biggest single 1946 news story was the discovery of wide-scale espionage. A royal commission was appointed to examine the matter, and, among other things, reported that the soviet union operated several spy rings in Canada, obtained extensive secret information, flew samples of stolen uranium to Moscow, imported extra soviet agents into Canada with the possibility of sabotage. No fewer than 14 Canadians "in positions of trust" were members of the soviet organization; 9 more were involved in organizing work. Charges were laid against 18, and by Dec. 31 the score was: 8 guilty and sent to prison, 1 guilty and fined, 5 freed, 4 awaiting trial.

Food and Agriculture.—More than one-fifth of the total food supplied to needy countries during 1946 was from Canada. Canada was almost alone among the supplier nations in living up to its commitments. The basis for Canada's success in this program was the steps taken by the government when, on March 17, it laid plans to meet the threat of world famine. These plans included a 10% reduction below 1945 of wheat released for human consumption in Canada, reduction by 50% of wheat released for distilleries, a campaign urging maximum production of foodstuffs. Moreover, Canada was fortunate in having a wheat harvest of 440,000,000 bu., second largest on record.

A \$1,000,000,000 wheat agreement between the United Kingdom and Canada was announced on July 25. Other agreements followed in quick succession, calling for the shipment of 1,750,000 cases of eggs per year, 120,000,000 lb. of beef per year, 2,250,000 boxes and 300,000 bbl. of apples.

Looking toward the time when world antifamine measures would include vast storehouses of food, the federal government opened an insect laboratory in Winnipeg to investigate methods for controlling insects which damage stored food.

Transportation.—Expansion of the Trans-Canada Air Lines linked Ottawa with New York, Chicago, Cleveland. The T.C.A. made its 1,000th transatlantic crossing. A flight from Prestwick, Scotland, to Vancouver, British Columbia, took 19 hours. The U.S. Civil Aeronautics board authorized a new northwest passage air route which placed Edmonton as a vital air base on an orient line. The government withdrew from its 1944 policy which planned to separate air lines affiliated with railways, and the Canadian Pacific railway was allowed to retain control for a year beyond the deadline of May 31. The department of national health and welfare established a new division of civil aviation medicine, responsible for directing the development and maintenance of standards for persons engaged in civil aviation. Montreal was chosen as headquarters for the Provisional International Civil Aviation organization.

On April 3 Canada formally took over 1,500 mi. of the Alaska highway from the United States of America. Included were seven air fields scattered between Edmonton and Whitehorse.

Canada's merchant marine picture was improved considerably following sales of many government-owned vessels to private operators. The Hudson bay route, centring on Churchill, was reopened after a six-year doldrum enforced by World War II. Canada Asiatic Lines received its charter on Nov. 15, giving further direct steamship service to the orient. Expansion of the Canadian Pacific steamships cargo and passenger fleet, and the centring of four other steamship lines on Saint John, gave that port its first post World War II boom, and started it back to its prominent position as a Canadian winter ocean port.

Industry.—There were a number of industrial expansions

which contributed notably to the increasing stature of the dominion. Canadian mining production hit an all-time high for peacetime activity, with a total value of \$503,900,000, which was only 10% below the wartime record of \$596,700,000 set in 1942. Greatest oil search in Alberta's history got under way when five oil companies combined operations to build a 70-mi. road into a 200,000-ac. swampland oil site in the Little Smoky river area north of Jasper, and sink test wells. Steps were taken to erect a tantalum refinery in Edmonton, to make Canada one of the chief sources of that nontoxic metal, invaluable in surgery, and, because of its resistance to high temperature, important for jet propulsions. A parallel development was arrangements to build a titanium dioxide plant at Cap de la Madeleine, Quebec, to make Canada self-sufficient in that valuable white pigment.

North.—Most important arctic aviation development was the 10,925-mi. nonstop flight of the U.S. Superfortress, "Pacusan Dreamboat," across the Arctic circle from Honolulu to Cairo; although high-frequency radio transmission was blacked out repeatedly, communication through low-frequency radio stations was successful.

Canadian scientists revealed that the north magnetic pole was 85 mi. north of Fort Ross, isolated Hudson's Bay company fur trade post on Somerset Island. The previous position determined by Roald Amundsen in 1904 was on the Boothia peninsula, which meant that the pole drifted 200 mi. north and east in 42 years.

Yellow Knife in the Northwest Territories outgrew its town site and was forced to move, which involved the construction of a \$1,000,000 modern sewage and water works system, most northern in Canada.

Science.—The government, in establishing an atomic energy control board, revealed that up to 1946 Canada had spent approximately \$27,000,000 on research and development in the field of atomic energy. The administrative control of Canada's atomic energy plant at Chalk River, Ont., was brought under the direction of the board, with the National Research council in charge of the physical operation of the project. Parliament voted \$60,000 to investigate radioactive ores wherever discovered in the dominion. A 25,000,000-volt atom-smashing cyclotron, capable of producing a beam of 100,000,000 volt protons, was completed at McGill university, Montreal.

During the year there were a number of significant developments in the field of applied science. In the mining field, a magnetometer, developed during World War II to locate submerged submarines, was towed over mineral areas by an aeroplane to locate ore bodies. A revolutionary steel-making process cut the melting time of ore and scrap metal to 20% of normal. A new chemical process was used to produce colour-hardened wood that was both fire-and moisture-resistant.

An Ottawa scientist constructed a camera to take 1,000,000 pictures per second. A Vancouver scientist invented an electronic piano that did not require tuning. Medical history was made when a Toronto surgeon created an artificial kidney which, attached to the outside of a patient's body and run by a small electric motor, filtered poisons and waste material out of the blood while the natural kidneys were being restored to health.

Radar experiments by the National Research council revealed that the sun's temperature is 1,500,000 degrees, which completely upset previous calculations that it was only 6,000 degrees. In 1946 Canada's National Research laboratory was the only place in the world where scientists, using ten cm. radio waves, were taking the sun's temperature and listening to "noises" coming from the sun's ever-raging fires.

Communications.—On Dec. 19 Canada celebrated the 100th anniversary of the inauguration of the first electric telegraph

service, which was between Toronto and Hamilton. The Canadian Broadcasting corporation began full-time frequency-modulation broadcasting in the Montreal and Toronto areas. The royal Canadian air force set up the first direct radio-teletype to operate between Canada and the United Kingdom. Canada's first successful frequency-modulation two-way radio communication system for transmitting railway traffic orders was used by the Canadian Pacific railway on its 166 mi. of lines inside the city of Toronto.

Culture.—The first Canadian degree ever granted in journalism was given by Carleton college, Ottawa, on Oct. 23. The first honorary degree ever conferred by radio was granted by the University of Montreal to Jean Robert Mazet, rector of Caen university, France, in a two-way international short-wave broadcast. Canada made its first organized bid for movie recognition when three companies were formed—Quebec Productions, Renaissance Films Incorporated, Dominion Productions Limited. First film to be shot was based on the legendary bush pilots of Canada's northlands. The government of Alberta was the first province to make a financial grant for organizational work in the cultural field. Canadian archivists, forced out of France in 1940 by the blitzkrieg, returned to Paris in 1946 to continue their work of collecting and copying documents and maps pertaining to the French era of Canadian history. (See also BUSINESS REVIEW.) (C. Cy.)

Canadian Literature.

Fiction.—Although 1945 was a record year in Canadian book publishing, it was outstripped by 1946 in both quantity and variety. More than ten first-novel writers appeared, most of them demanding major attention. Edward F. Meade's *Remember Me* was a gripping if bitter story of a Canadian soldier fighting throughout World War II. War correspondent Ralph Allen's *Home-Made Banners* described the ordinary Canadian soldier's reaction to World War II. *Wind Without Rain* by Selwyn Dewdney chose Canadian public school teaching as its theme; *Who Has Seen The Wind?* by W. O. Mitchell had its setting in a Canadian prairie town. A number of first novelists used Quebec settings: Joyce Marshall's *Presently Tomorrow* was an ironical study of sex and character, laid in the eastern townships; Eric Cecil Morris' *A Voice Is Calling* amusingly explored the fourth dimension in a French-Canadian village; Marion Greene's *Down River Lies the World* described early days in Montreal and what is now Hull; Constance Beresford-Howe's *The Unreasoning Heart* was a light story of a Montreal family's escapades. Lillian Beynon Thomas' *New Secret* dealt with problems arising out of the atomic bomb. Gladys C. Meek's *The Devil's Punchbowl* had a northern Canadian setting.

Established novelists also produced new work. Leading historical novel was Thomas H. Raddall's *Pride's Fancy*, about sailing ships plying between Nova Scotia and the West Indies. Other historical novels included Grace Tomkinson's *Welcome Wilderness*, first generation of United Empire Loyalists in New Brunswick; Caroline Seaford's *They Grew In Beauty*, Quebec in the Victorian era. Mazo de la Roche produced her tenth book in the Whiteoaks family saga, *Return to Jalna*. Alan Sullivan's *The Cariboo Road* dramatized the gold-rush period in British Columbia. Charles Clay's fourth novel, *Muskrat Man*, dealt with muskrat fur farming in northern Manitoba. Maude Hill Beaton's third novel, *A Ring in the Grass*, was about farming in the Maritimes.

Novelist Will R. Bird published a collection of short stories about Nova Scotia and Newfoundland, *Sunrise For Peter*. Another collection was Illingworth H. Kerr's *Gay Dogs and Dark Horses*, with settings in Saskatchewan. A posthumous collection of Stephen Leacock's humorous writings appeared, *The Leacock*

Roundabout.

Nonfiction.—The scope and variety of 1946 nonfiction underlined a new awareness by Canadian writers of literary values and needs. Many of the books dealt with specific Canadian problems. They included *Colony to Nation* by A. R. M. Lower, *The Road to Nationhood* by Wilfrid Eggleston, *This Nation Called Canada* by David B. Harkness, *Canadian Representation Abroad* by H. Gordon Skilling, *Economic Geography of Canada* by A. W. Currie, *Charters of Our Freedom* by Reginald G. Trotter, *Canadian Agricultural Policy* by Vernon C. Fowke, *Territorial Government in Canada* by Cecil Lingard, *Democratic Government and Politics* by J. A. Corry, *Political Economy in the Modern State* by Harold A. Innis. A number were regional in nature: *The Northland: Ontario* by O. T. G. Williamson, *Quebec Through The Years* by W. C. Woodley, *Kaleidoscopic Quebec* by Amy and Thornton Oakley, *The Lure of Montreal* by W. P. Percival, *Ottawa Old And New* by Lucien Brault.

There were a number of interesting books about the ever-fascinating Canadian North. In *Igloo for the Night*, Mrs. Tom Manning described two and a half years with her explorer-husband on Baffin Island. Hudson's Bay company trader Bruce D. Campbell reported his experiences in the eastern arctic in *Where the High Winds Blow*. A particularly distinguished northern book was Theodora C. Stanwell-Fletcher's *Driftwood Valley*, which recounted a two-year sojourn in an isolated valley in far northern British Columbia. Others were archaeologist Douglas Leechman's *Eskimo Summer*, explorations on the Button Islands; explorer Vilhjalmur Stefansson's *Not by Bread Alone*, Eskimo diet; engineer J. B. MacDougall's *Two Thousand Miles of Gold*, Canada's mineral exploitation.

A number of books based directly on World War II appeared. Most striking was *Haida* by Lt. Com. William Sclater, the thrilling story of Canada's great destroyer; most controversial was *Missing From the Record* by Col. Dick Malone, O.B.E., former chief of Canadian army public relations, which gave the so-called inside story of the Canadian high command in Europe and the far east. *Odyssey Through Hell* by Raymond Arthur Davies was a journalist's story of Jewish Europe under the nazis' heel. *The War: Sixth Year* by Edgar McInnis rounded out a series of annual volumes which gave a graphic and authentic running account of the war; *The R.C.A.F. Overseas: the Fifth Year* completed the official story of Canadian airmen.

There were some important biographies and autobiographies. Three chose the Canadian hero of insulin as subject: *Sir Frederick Banting* by Lloyd Stevenson, *Banting's Miracle* by Seale Harris, *He Conquered Death* by Margaret Mason Shaw. *G. A. Reid* by Muriel Miller was the official biography of that Canadian artist. *Canadian Novelists* by Clara Thomas rounded up impressive evidence of Canada's literary activities between 1920 and 1945. Harold A. Innis edited the *Diary of Alexander James McPhail*, leader in co-operative marketing in Canada. Leading literary autobiography of the year was novelist Frederick Philip Grove's *In Search of Myself*. *Growing Pains* by painter Emily Carr, published posthumously, was the last of four autobiographical books.

A number of nonfiction books held special interest. In *A River Never Sleeps* Roderick L. Haig-Brown described year-round fly fishing in British Columbia. Jack Hambleton's *Fisherman's Paradise* was a gold mine of information about fishing in Ontario. *Ojibway Melody* by Harry Symons wittily described vacation adventures near Georgian bay. A major anthology was *A Pocketful of Canada* edited by John D. Robins, instantly labelled "characteristically Canadian in mood and content." Other nonfiction books were: *The Complete Ski Manual* by Eddie Huber and Norman Rogers, *Let's Ski* by Marion Lineweaver, *Oldest McGill* by Edgar Andrew Collard, *Young Canada Goes*

to Work by J. H. Stewart, *Careers for Women* by Lillian D. Millar, *Painters of Quebec* by Marius Barbeau, *The Makers of History* by Anne Foster, *Make Selling Your Career* by Percy W. Ward, *Loyalist Narratives From Upper Canada* by James J. Talman.

Poetry.—Collections of poems included *Back-Door Neighbors* by Edna Jacques, *Stairway to the Stars* by Dorothy Dumbrille, *As Ten, As Twenty* by P. K. Page, *The White Centre* by Patrick Anderson, *East of the City* by Louis Dudek, *Landfall* by Commander F. B. Watt.

Juvenile.—The 1946 crop of Canadian juvenile books was not so impressive as in the two previous years. *In Starbuck Valley Winter* by Roderick L. Haig-Brown a boy lives by his wits in the British Columbia woods. *The Silver Strain* by Katherine Pinkerton had a northern Ontario fur farm for setting. *Madeleine Takes Command* by Ethel C. Brill retold the story of the heroine of Verchères, Quebec. *High Tide at Low Tide* by Grace A. Robbins was about harvesting Irish moss in Canada's Maritimes. L. L. Knott published a *Children's Book of the Great Lakes* and Mary E. Grannan a second collection of her delightful fantasies, *New Just Mary Stories*. *Gup* by Lesley McNaught Sirluck and *Where's Patsy?* by Marjorie Poppleton relied for their main interest on illustrations by their authors. Perennial Mary Graham Bonner's *Something Always Happens* described juvenile escapades in a small town. *The Earth Beneath Our Feet* by Alice Wilson presented geology for young readers in dramatic but authentic terms. A. W. Trueman told *The Story of the United Empire Loyalists*. (See also PRIZES OF 1946.) (C. Cy.)

Canadian-U.S. War Committees: see PERMANENT JOINT BOARD ON DEFENSE.

Canals and Inland Waterways. The principal canals and inland navigable waterways of the United States include the Great Lakes, the Mississippi river system, the Illinois waterway, the New York state barge canal system, the Cape Cod canal, the Chesapeake and Delaware canal, the Atlantic Intracoastal waterway extending from New Jersey to the Florida keys, the Gulf Intracoastal waterway extending from Florida to the vicinity of the Mexican border, the San Joaquin-Sacramento river system in California and the Columbia river system in the northwest.

The Great Lakes, which consist of Lakes Superior, Michigan, Huron, Erie and Ontario, have natural deep water except in the connecting channels which have been artificially deepened where necessary to accommodate deep-draught vessels. They have an outlet to the Atlantic ocean via the St. Lawrence river and via the Oswego and Erie branches of the New York state barge canal system and the Hudson river.

The Mississippi river waterway system embraces the river proper, the Red, Arkansas, Missouri, Illinois, Ohio, Tennessee, Monongahela, Allegheny and Kanawha rivers and others streams. The Mississippi river has a channel adequate for ocean-going vessels to Baton Rouge, La., and thence a channel for modern barge navigation to Minneapolis, Minn., and in its principal tributaries. In the 655-mi. reach of the Mississippi river above Alton, Ill., to Minneapolis a system of low-head dams with locks provides a 9-ft. channel depth for modern barge navigation. Below Alton the barge channel is maintained by open river works. The Ohio river and certain of its improved tributaries are also canalized to provide a 9-ft. channel for commercial navigation serving this highly industrialized region. The system of 6 locks and dams on the Ouachita and Black rivers provides depths of 6½ ft. at low water from the Red river to Camden, Ark., a distance of 351 mi. The Red river proper and the Arkansas river

have been improved for light-draught navigation throughout a total length of more than 1,000 mi. The Illinois river and waterway to Lake Michigan has a barge channel which connects the Great Lakes with the Mississippi river system. The Mississippi river waterway system, together with the Intracoastal system which it connects at Plaquemine and New Orleans, La., brings barge navigation within reach of important industrial and farming centres.

The Cape Cod canal, Massachusetts, extending from the head of Buzzards bay to Cape Cod bay and the Chesapeake and Delaware canal between the Delaware river and Chesapeake bay are sea level waterways, affording a protected and shorter route for coastwise ocean-going vessel traffic.

The Atlantic and the Gulf Intracoastal waterways provide a protected channel for barge and other light-draught navigation following coastal sounds, bays, rivers and artificial channels. This canal system, extending for more than 2,300 mi. along the Atlantic and Gulf coasts, affords a channel 12 ft. or more in depth throughout the Atlantic coast section from Trenton, N.J., to Jacksonville, Fla., and in the Gulf coast section from Carrabelle, Fla., to Corpus Christi, Tex.

The San Joaquin-Sacramento river system, with an outlet to the sea through San Francisco bay, has a deep-draught channel to Stockton, Calif., on the San Joaquin river and a moderate-draught channel to Sacramento, Calif., on the Sacramento river. The Columbia river affords a channel for ocean shipping to Portland, Ore., and Vancouver, Wash., and depths suitable for commercial vessel traffic to the head of the pool formed by the Bonneville dam, and thence depths for barge navigation upstream to and including the Snake river.

The principal items of new work performed on canals and inland waterways during the fiscal year ended June 30, 1946, included dredging in the Gulf Intracoastal waterway in Texas between Corpus Christi bay and North Bird island and between Port Isabel and Three Islands. On the Mississippi river between the Ohio and Missouri rivers, open river regulating works con-

HORSE-DRAWN BARGE taking young excursionists to see the sights along the old Chesapeake and Ohio canal near Washington, D.C., in the summer of 1946



sisting of 33 dikes and 3 revetments were completed and 6 dikes were under construction at the end of the fiscal year. On the Missouri river between Sioux City, Ia., and the mouth, 14 dikes and 31 revetments were completed, and 12,900 linear ft. of pile dikes and 13,157 linear ft. of revetment were strengthened or replaced; in addition 8 dikes and 23 revetments were under construction at the end of the fiscal year. A 1,200-ft. extension to the southwest pier in St. Marys river, Mich., was completed except for paving behind the concrete cap. Also, the reconstruction of Brady pier and construction of a mooring basin and boathouse were practically completed.

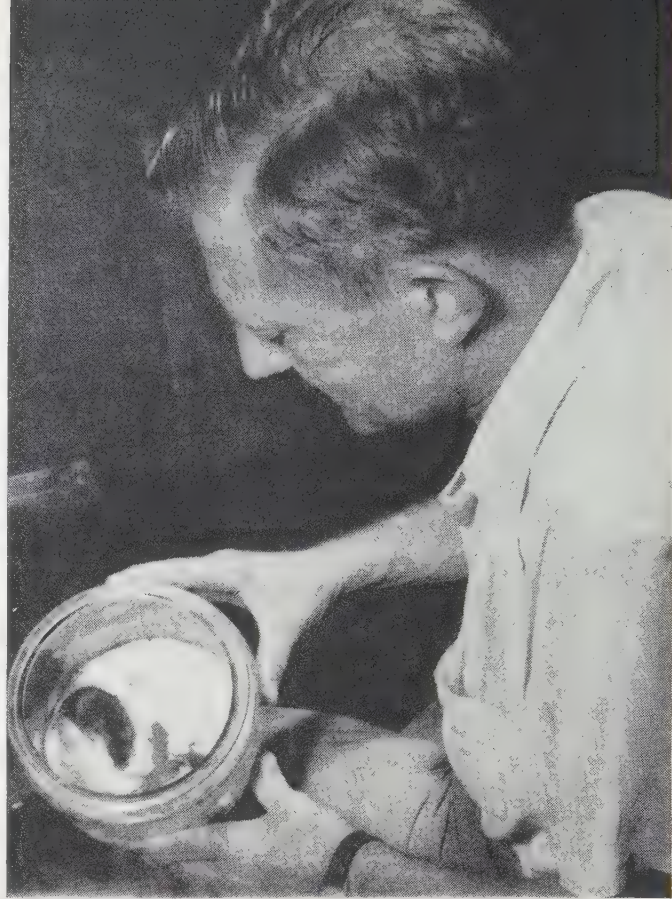
The total net water-borne commerce of the United States, eliminating all known duplications of traffic, aggregated 618,906,000 short tons in the calendar year 1945. A total of 123,901,790 short tons was carried on the Mississippi river and its tributaries, and 112,982,630 short tons were moved through the St. Marys Falls canal connecting Lake Superior and Lake Huron.

The River and Harbor act approved July 24, 1946, public law 525, 79th congress, and the act approved Nov. 7, 1945, public law 213, 79th congress, authorized 62 new river and harbour projects or modifications of existing projects having an estimated total cost of about \$525,000,000. These projects include the improvement of Portland harbour, Me.; Fall River harbour, Mass.; New Haven harbour and Bridgeport harbour, Conn.; the Schuylkill river, Pa.; Savannah harbour, Ga.; and Hollywood harbour, Fla. A waterway connecting the Tombigbee and Tennessee rivers, Ala. and Tenn.; improvement of Lake Charles deep-water channel, La.; and the Overton-Red river waterway from the Mississippi river to Shreveport, La.; and the Arkansas river and tributaries in the interest of navigation, flood control and power development were also authorized. Other projects include the Sabine-Neches waterway, Tex.; Cumberland river and tributaries, Ky. and Tenn.; Great Lakes connecting channels, Mich.; and Two Harbors, Minn. For the west coast, the congress authorized the improvement of San Diego river and Mission bay and the construction of the Sacramento deep-water channel, Calif.; Coos bay, Ore.; and the Columbia river between Vancouver, Wash., and The Dalles, Ore. (R. A. WR.)

Other Countries.—Little progress was made in 1946 other than the rapid reconstruction and clearing of inland waterways in Germany and other countries which had been severely damaged by the operations of war. The Rhine channels were largely cleared by the removal of ruined structures, most of the work being done by German labour under the direction of the Allied control commission. The Kembs barrage and locks below Basel suffered severe damage during the battle of Alsace in the winter of 1944-45. The repair of the barrage and canal by the French was substantially completed towards the end of 1946. Most of the damage by intensive bombing of the Dortmund-Ems canal was repaired by German labour under Allied direction. The ship canal from IJmuiden on the North sea to Amsterdam was restored by the Dutch to full navigational use. The removal of obstructions in the Rhine and Meuse and repair works on a considerable scale also made Amsterdam accessible by water from the Ruhr downwards. By 1946 barges of up to 4,000 tons could pass through the canal between the Rhine and Amsterdam.

Information was not available as to the repair and reconstruction of waterways in western Russia, and little was known of the postwar progress made by the U.S.S.R. with the vast scheme of waterway development begun as a part of the third five years' plan. The decisions of the peace conference in regard to the future of such international waterways as the Danube, Rhine and Oder had not been announced.

In Canada the St. Lawrence waterway project awaited the passing of the relative treaty by the U.S. senate. (See also AQUEDUCTS.) (N. G. G.)



DR. EGON LORENZ, scientist at the National Cancer institute in Washington, D.C., checking the first offspring of a mouse which survived the atomic bomb tests at Bikini lagoon in July 1946

Cancer. **Diagnosis.**—Is biopsy dangerous? The diagnosis of cancer in the more inaccessible organs is often extremely difficult and of late years puncture of the spleen, liver and other organs has been used to remove small particles of tissue which will in some instances permit diagnosis. This technique is somewhat dangerous as deaths have occurred from tearing of the organ tissue by the needle on some unexpected movement of the patient. Also the material removed is often so greatly traumatized that a positive diagnosis may be impossible. Puncture of tumours of the breast used to be practised to a considerable extent, but has been abandoned as often not leading to a correct diagnosis because malignant tissue may not necessarily be removed by the needle puncture, and secondly because distribution of the cancer may take place from trauma of the cannula. Microscopic study of chest fluids often reveals the presence of metastatic carcinoma of the lung or other organs, and is therefore useful in diagnosis. G. N. Papanicolaou and H. F. Traut recommended the diagnosis of carcinoma by studying stained smears from the vagina and cervix uteri. A large experience was available in 1946 and the amount of error in the technique was small, but implied the obtaining of suitable specimens, immediate fixation and careful study by a person experienced in the morphology of carcinoma of the organs under discussion, in other words, an expert. It is true that the majority of cases of carcinoma of the cervix can be diagnosed by inspection and of the uterus itself by examination of curettings, but the examination of vaginal smears can be made in a short time, as an office diagnostic method. However, in order to avoid error, it is well to have sections from the tumour before the patient undergoes the serious mutilation resulting from surgical operation. In other words, a positive vaginal smear is not an indication for a hysterectomy.

At regular intervals there appear in medical journals unsupported statements that the performance of a biopsy of a malignant tumour has been immediately followed by a wide distribu-

tion of the growth. Those with ample experience are perfectly well aware of the fact that tumours may lie dormant for a long period and then suddenly erupt into the vascular or lymphatic system with the appearance of a vast number of metastases. Especially is this true if the patient or a masseuse attempted "to rub the tumour away." The fact that such massage of an inoculated tumour in an animal will distribute vast numbers of cells throughout the circulation was early demonstrated by E. E. Tyzzer. Later Francis Carter Wood at the Crocker laboratory studied the question experimentally by inoculating a large number of rats with a highly malignant tumour, and after the tumours had reached a considerable size, dividing the animals into three groups. In one, partial excision of the tumour was made; in another, the tumour was completely removed, and the third group was left as controls to check the possibility of a spontaneous disappearance. After the growths were of good size the animals were killed and the organs examined microscopically. The results in the untreated controls showed metastases were present in 32%; in the group in which simple excision was made metastases were present in 22%, and in the group in which the tumours were completely excised, metastases were also present in 22%. In other words, there was no evidence that careful removal of a small bit of the tumour played any part in distributing the growth. In this research it was apparent that in human beings during a biopsy the incision of a tumour may be carried out in such a way that a considerable amount of tissue juice is allowed to spread throughout the wound and thus cause local distribution of cells. This procedure of course is wholly unjustifiable but is still occasionally done. In the same laboratory, Leila C. Knox repeated the experiments which Tyzzer had made which showed that massage was an efficient distributor of tumour cells, and confirmed in every way Tyzzer's results. It is interesting to note that a fibrosarcoma was not transplanted by massage.

The problem was re-opened by M. E. Maun and W. F. Dunning who surveyed the previous work and added to it. A simple biopsy did not affect the survival period of the rats used or increase the percentage of metastases to the lymph nodes, lungs and skeleton of the animals used, with two types of tumours, an adenocarcinoma and a squamous cell carcinoma. The survival period of rats with a fibrosarcoma was prolonged by removal of the tumour 9 days after inoculation, and of rats with an adenocarcinoma by removal of the tumour 90 days after inoculation. The authors concluded that reasonably cautious removal of a fragment of a tumour is not necessarily dangerous to the host. They believed they had shown that cutting into a tumour mass or severing the lymphatic channels does not shorten the individual's life, but acknowledged that the surgical removal of all removable tumour tissue in a seemingly hopeless patient may prolong life for several years. Practically the conclusion to be drawn from work of this type is that if possible, and a trained assistant is available, the tumour should be exposed and a biopsy made by means of rapid section, and the operation immediately completed. During the few minutes which the diagnostic procedure requires, the incision can be cauterized by chemicals or by heat.

Tissue Culture as a Biological Method.—For some seven years Dr. Wilton R. Earle, a member of the staff of the National Cancer institute in Washington, carried on a series of studies on the cultivation of connective tissue fibroblasts growing in artificial media. Cultures were grown in flasks and in some instances solid culture media were used consisting of chicken plasma diluted with saline, horse serum and chick embryo extract. The supernatant fluid was composed of 40% horse serum, 20% embryonic extract, and 40% saline. The cultures were washed and the medium changed every three days. The glassware was cleaned with a mixture of hot sulphuric and nitric acid. In the first series of studies it was noted

that after the addition of very minute quantities of 20-methyl cholan-threne there was a very great retardation of the rate of increase of the diameter of the area of the growing cell clumps and that the degree of retardation was correlated with the concentration of the carcinogen. At the end of about four months cultures were removed from the carcinogen. Microscopically there were a great many changes in morphology; the cells which had been treated were much shorter than the normal controls and no longer showed the slender terminal processes. The cells also were more closely packed. A few animals were injected with cell masses, but no malignant change could be demonstrated. On the other hand, some of the controls which had never been treated with carcinogen showed a similar retardation of growth. In other words, they were acting as though they had received a trace of a carcinogenic agent. Further cultures showed the same general alterations in morphology. Various strains of cells showed differences in morphology and the number of giant cells present and the amount of intracellular granulation. Similar differences were observed in the cells of a number of tumours produced after injection of treated clumps in which the morphology suggested an alteration into sarcoma. The anaerobic glycolytic rate of the tumour strains was high, corresponding to alterations in metabolism which had been studied by Otto Warburg. In some cultures to which methyl cholan-threne had not been added changes occurred which suggested that the normal cells had undergone spontaneous alteration into a malignant cancer. Inoculations of these cells produced tumours in the homologous strain of animals. Earle was inclined at first to think that this change in normal cultures to which carcinogen had not been added was due to contamination by the laboratory air or from the glassware. However, in a continuation of the work in which it seemed impossible that any carcinogen could reach the cultures these peculiar alterations were still occurring, showing that the normal cells growing in culture media may undergo a mutation which is sometimes of the type known as malignant, as proved by inoculation into a homologous strain of mice. This careful and arduous work certainly makes it probable that the appearance of cancer is due to a cell mutation of some type or other. This mutation may be spontaneous, or can be excited by chemicals and also by viruses in the case of the interesting milk agent which is found in mice and which will be spoken of in detail. This mutation theory is not new, but has not had definite confirmation. Earle's work and biological studies on the chemically induced mutations studied by L. C. Strong, E. L. Tatum and others showed that x-rays, ultraviolet and certain chemicals might produce in plants, micro-organisms and Drosophila mutations which are permanent.

Mammary Milk Factor.—There is a mammary milk factor in the production of cancer of the breast in mice. This problem was worked on for a number of years by Professor John J. Bittner, of the division of cancer biology, University of Minnesota Medical school, and the nature of the agent was being cleared up. If mice born from mothers of a cancerous strain are prevented from nursing their mothers, but are nursed by a strain in which cancer of the breast is infrequent, they will not develop cancer. This transfer by nursing does not require that the mother should have cancer, because the agent is transferred in the milk and is present in the organs. Even nursing for 24 hours will increase the frequency of cancer, although the mice are removed to a foster-mother who is not subject to the disease. The agent may be recovered from every tissue in the body which has been tested to date. It is not destroyed by filtration, treatment with glycerin or desiccation, but can be inactivated by pasteurization for 30 minutes. After injection of a cell-free filtrate of the agent into chick embryos a specific organism may be recovered from either filtered or unfiltered yolk. High dilution of the fluid containing agent makes no difference in the incidence of tumours. Centrifugalization at high speed removes the agent from the suspension in this fluid. All of these phenomena are characteristic of a virus, according to our present knowledge. One final test is that it has antigenic properties. The agent is not transferable to animals of other species, nor is there any evidence that the same agent plays any part in the pathology of human cancer. A certain number of statements were made by physicians and geneticists that a woman who comes from a cancer family should not nurse children. There is not the slightest basis for such a statement. (See also BIO-CHEMISTRY.)

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Candy. Sales of candy continued to show an increase in 1946, the first postwar year, despite shortages of sugar and other raw materials and the lack of new equipment. The year ended with a 2% gain over 1945 sales of 2,562,000,000 lbs. valued at \$620,000,000 at wholesale and \$1,400,000,000 at retail. The average value at wholesale per pound was above 26 cents, compared with 24.2 cents recorded in 1945.

The determining factor in candy production in 1945 was the sugar quota, which remained at 60% of base period use. The demand far exceeded the available supply.

One of the most significant events in candy in 1946 was the abandoning of the traditional five-cent price on nickel candies by dealers throughout the United States. This occurred in the

fall, shortly after the decontrol of candy prices by the OPA. As a result, as the year was drawing to a close the usual five-cent candies were selling at 6, 7 and 8 cents. There was also an increase in 10-cent bars to 12-cents.

For the third year in the history of the candy industry (1944 was the first) bar type candies represented half of the industry's tonnage. Of this, five-cent bars amounted to about 90%. As in previous years, chocolate covered bars constituted the largest item in this category, representing, in fact, a greater volume than the combined sales of all other bars, including moulded chocolate bars. The second largest selling item was packaged goods, representing about 20% of total sales, as expressed in dollar value. Bulk confectionery was the third largest class of goods sold, accounting for about 50% of sales.

The year 1946 also saw the return (in limited quantities) of Christmas and other holiday specialties, such as candy canes, hollow moulded goods and jelly beans.

While the army continued to buy candy, total quantities represented only a fraction of the 20% of the production purchased by the armed forces during World War II.

The industry's 1946 tonnage was produced by approximately 1,400 candy manufacturers in Chicago, Philadelphia, New York, Boston, Minneapolis, San Francisco and other sections of the country, employing 50,000, mostly women. Illinois, the largest candy manufacturing state, accounted for one-quarter of all the confectionery produced in 1945 as well as in 1946. Pennsylvania was second, with New York and Massachusetts runners-up. A notable increase was shown in production by California, as well as Texas.

To produce the 2,500,000,000 lbs. of candy estimated for 1946, the candy industry in the United States used ingredients costing \$300,000,000. Cane sugar was the largest single item in this group, accounting for about 800,000,000 lbs. Corn syrup was second with 700,000,000 lbs. going into the annual production of confectionery. Also used by the candy industry in the United States in 1946 were 230,000,000 lbs. of chocolate, 6,000,000 lbs. of eggs, 400,000,000 lbs. of milk, 30,000,000 lbs. of fats and oils and 10,000,000 lbs. of fruits annually.

While the United States continued in 1946 to be the greatest candy-producing country in the world, 1946 saw the re-entrance of other parts of the world in the confectionery field. The most successful of European countries to re-establish the candy field was the Netherlands and as the year drew to a close many of its products were finding their way to the United States, as well as to other parts of the world.

Denmark, France, Belgium and even Germany again were making candy in 1946. No figures, however, were available in 1946 to show the total quantities produced. Next to the United States, Great Britain continued to be the most important candy-producing and consuming country in the world. The per capita consumption of candy in Great Britain continued to be about 22 lbs.

Imports of candy into the United States showed an increase in 1946. Most of this came from Latin America, with Cuba, Argentina and Mexico shipping the largest quantities. Most of the candy coming from Cuba was of the hard type variety. When candy prices were decontrolled in the latter part of 1946 monthly imports of Cuban candy almost doubled. The latest figures available for an entire year were for 1945, when Cuba shipped 49,872,000 lbs. of candy. This compares with 1,050,000 lbs. of candy in 1942. Altogether, imports in 1945 amounted to 62,575,000 lbs., valued at \$10,000,000. While no figures were available in 1946, it was estimated that there was an increase of from 50% to 100% in 1946.

(H. D. G.)

Cane Sugar: see SUGAR.

Canning Industry. United States and territorial canned food production in 1946, including canned fruits, vegetables, milk and fish, totalled in excess of 600,000,000 standard cases compared with 516,000,000 standard cases in 1945. Record quantities of canned fruits, juices, vegetables and fruit and vegetable specialties were packed during the year. The 1946 pack of canned fish was about the same as in the previous year while there was a sharp reduction in canned milk production from the 1945 record level. In addition to these products considerable quantities of meat, poultry and other specialty products were packed by the canning industry.

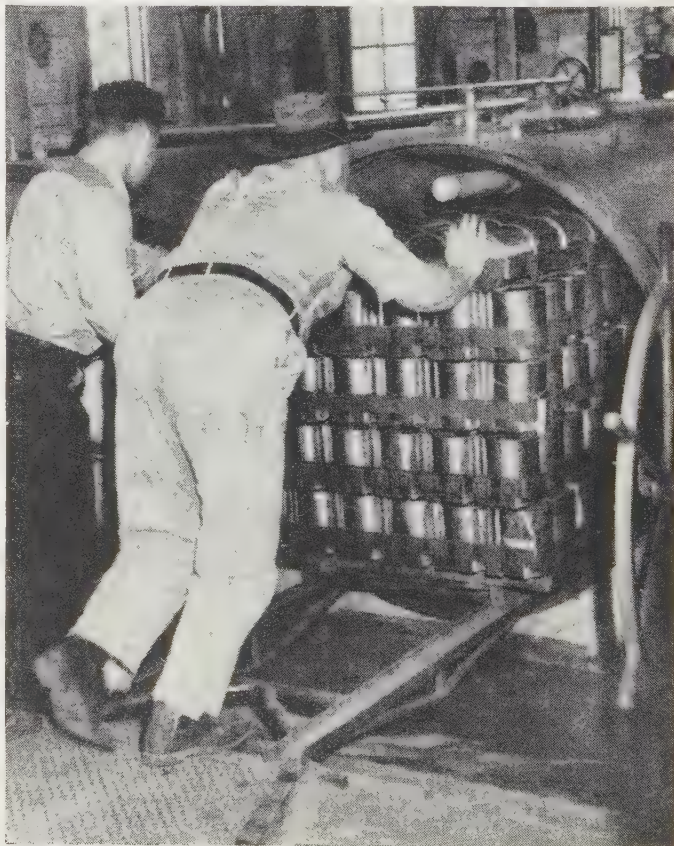
Preliminary statistics for the major commodities in 1946 compared with 1945, in terms of millions of standard cases are as follows:

	1945	1946		1945	1946
Fruits	49.5	80.0	Specialties, fruit and		
Fruit juices	79.5	90.0	vegetable	84.0	95.0
Vegetables	194.7	250.0	Fish	18.6	18.0
Milk	90.3	73.0			

Price ceilings were effective for a large part of the canned food pack during the greater part of 1946, although decontrol of prices on canned foods began late in 1945 when sauerkraut was exempted and canned citrus products were suspended from price control. Additional vegetable products were decontrolled early in 1946 and ceiling prices lifted on other canned fruits and vegetables. In early fall there was an acceleration of decontrol actions on canned products culminating in the final decontrol action on Oct. 24 when OPA removed ceiling prices on all other canned foods remaining under price control.

In January the Economic Stabilization administration approved a subsidy program for certain canned and frozen foods for the first six months of the year. Interim subsidy payments

1,000 CANS OF PEAS being pushed into the cooking vats at the Walla Walla Canning company's plant in the state of Washington during the pea harvest in July 1946



were made on a limited number of vegetables and vegetable products through June 30 when the eligible sale was made prior to July 1, 1946. Congress failed to provide the necessary funds for a continuation of subsidies beyond June 30 and the U.S. department of agriculture did not extend its subsidy payments on any canned products packed after that date.

The Civilian Production administration, on Dec. 24, issued an amendment to the tin container conservation order M-81. The new order contained no commodity or quota restrictions on the manufacture or use of metal cans but did, for the most part, retain the can size limitations and continued to restrict the amount of tin coating to be used in the tin plate for cans. These controls were maintained to conserve pig tin, which was still in short supply. The order permitted the use of cans for packing shortening, coffee, beer, pet foods and other products which were previously banned. The canning industry maintained a practical interest in the world position of tin, which was still precarious. A current report (*Chemical and Engineering News*, vol. 24, no. 24, Dec. 25, 1946, p. 3380) stated,

The visible world stockpile of tin, which was about 167,500 tons at the end of 1941, is now down to 90,000 tons or possibly a little more, equal to about six months total consumption at the low rate of 1939.

Further in the report it appeared that for 1946 in the six eastern tin areas (Malaya, Netherlands Indies, Siam, China, Burma, Indo-China) a production of 20,000 tons was estimated, as against 160,000 tons in 1941. Recovery of world production to the 1941 peak of 244,000 tons was not expected before 1950 or 1951.

FILMS.—*Production of Foods* (Encyclopædia Britannica Films Inc.) (E. J. C.)

Canterbury, Archbishop of: see FISHER, GEOFFREY FRANCIS.

Canton Island: see PACIFIC ISLANDS, U.S.

Cape Verde Islands: see PORTUGUESE COLONIAL EMPIRE.

Carbon Black. Unprecedented demand for the compound- ing of synthetic rubber caused sharp increases in the production of carbon black in the United States, most of which was concentrated in 1944 and 1945. Deliveries to rubber companies in 1945 took 402,193 short tons, an increase of 9% over 1944, and 95% of the domestic sales. The salient data of the industry during the years 1940-45 follow:

Data of Carbon Black Industry in the U.S., 1940-45
(Short tons)

	1940	1941	1942	1943	1944	1945
Production . . .	284,396	297,033	287,003	296,711	400,930	526,399
Year-end stocks . .	84,794	59,429	121,378	102,108	34,622	51,003
Total sales . . .	264,887	322,372	224,966	314,650	468,715	510,018
Export sales . . .	88,809	74,083	57,818	52,456	78,496	86,887
Domestic sales . .	176,078	248,290	167,148	262,194	390,219	423,131
Rubber . . .	155,090	219,751	147,974	236,737	369,015	402,193
Ink . . .	12,079	19,099	9,616	11,765	12,239	11,412
Paint . . .	3,403	2,920	1,808	1,972	2,658	3,711
Other uses . . .	5,506	11,520	7,750	11,720	6,308	5,816
Natural gas used* .	368,802	365,377	335,533	315,562	355,770	431,830
Average yield† . .	1.54	1.63	1.71	1.88	2.20	2.32
Average value‡ . .	2.90	3.26	3.41	3.41	3.67	4.02

*Millions of cubic feet. †Pounds per thousand cubic feet. ‡Cents per pound.

The sharp rise in demand for carbon black was due to the increased use of synthetic rubber, which requires more carbon black in its compounding than natural rubber does. In spite of increased output, supplies were so short in the early months of 1945 that the War Production Board reduced the permissible content of carbon black in rubber. The reduction of military requirements with the close of hostilities appreciably increased the supplies for civilian use.

The plant capacity of the 21 producers and 59 plants in operation in 1945 was 663,132 tons, against an output of 526,399 tons, a ratio of 79% for output to capacity, as compared with 85% for 22 producers and 54 plants in 1944.

The postwar prospects for the carbon black industry were largely dependent not only on the rate at which natural rubber could be made available, but also on the extent to which it was deemed advisable to keep the war-born synthetic rubber industry in active operation as a safeguard against possible future interruptions in the supply of natural rubber. Since natural rubber requires only about half as much carbon black as synthetic rubber, a return to natural rubber would be a severe blow to the carbon black industry; on the other hand, the failure to provide a market for at least a reasonable amount of natural rubber would have even more severe repercussions on the whole economic life of such areas as Malaya and the Netherlands Indies.

(G. A. Ro.)

Caribbean Commission: see WEST INDIES.

Carnegie Trusts: see SOCIETIES AND ASSOCIATIONS.

Caroline Islands: see MANDATES.

Cartier de Marchienne, Emile de BARON (1871-1946), Belgian diplomat, was born on Nov. 30, and entered the foreign service at the age of 21. He held diplomatic posts in Belgrade, Constantinople, Rio de Janeiro, Tokyo and Peking (Peiping) and was later transferred to Washington, D.C., as minister, 1917. When the Belgian legation was raised to the status of an embassy in 1919, he became his country's first ambassador to the United States. He was one of Belgium's delegates to the Washington Disarmament conference (1921-22), and was also a member of the Belgian War Debt commission. He was named Belgian ambassador at London in 1927 and was dean of the diplomatic corps at the Court of St. James at the time of his death in London on May 10.

Castillo Najera, Francisco (1886-), Mexican diplomat, was born on Nov. 25 in Durango, Mexico. He studied at the State college of Durango and took up medicine at the University of Mexico's medical school, receiving his degree of doctor of medicine in 1903. He later continued his medical studies in Berlin and Paris.

Dr. Castillo Najera, who was director of the Medical school in 1920, was a member of the International commission investigating yellow fever (1921-25). In 1922, he entered the diplomatic service as minister plenipotentiary to China and later held similar posts in Belgium, Holland and France. He was also Mexico's delegate to the League of Nations and a member of the league council.

Appointed ambassador to the United States in 1935, he held this post until Sept. 2, 1945, when he was recalled to Mexico City to succeed Ezequiel Padilla as foreign minister in the Avila Camacho government; he retained this portfolio in the succeeding Alemán government.

Dr. Castillo Najera was appointed as Mexico's representative on the United Nations security council and attended the council sessions that opened March 25, 1946, in Hunter college, New York city. He supported Dr. Oscar Lange's proposal that the United Nations member states break off diplomatic relations with Spain, and upon his retirement as council chairman, July 10, 1946, assailed the council's failure to take action on the Spanish question and criticized soviet use of the veto.

Catastrophes: see DISASTERS.

Catholic Church: see ROMAN CATHOLIC CHURCH.

Catholic Community Service, National: see SOCIETIES AND ASSOCIATIONS.

Catholic Library Association: see SOCIETIES AND ASSOCIATIONS.

Catholic Organizations for Youth. The national co-ordinating bureau for Catholic youth organizations and activities in the United States is the youth department of the National Catholic Welfare conference, with headquarters at 1312 Massachusetts Ave., Washington 5, D.C. The youth department was established in 1940 by the Catholic bishops of the United States to serve as a co-ordinating agency on a national level for Catholic youth groups and programs.

There were 121 diocesan divisions of the Catholic Church in the United States in 1946. One hundred and eight of these dioceses established diocesan programs for youth under the direction of a diocesan director. Within these dioceses, parish churches numbering over 20,000 conducted on a local basis one or more programs or organizations for children and young people.

Under the supervision of the youth department, National Catholic Welfare conference, there was set up a National Catholic Youth council which unified all approved Catholic youth groups. This youth council was composed of a diocesan section for community church groups, and a college and university section for student activities.

The college and university section of the National Catholic Youth council comprised the two national student federations approved by the national hierarchy. The National Federation of Catholic College students formed the basis of unity among the student bodies of 108 Catholic colleges in the United States. The Newman Club federation was composed of 657 Catholic student clubs in non-Catholic colleges and universities.

A number of national Catholic youth-serving programs sponsored activities for Catholic young people on a local, regional and national basis. Constituent units of such programs were found in local parishes, Knights of Columbus councils, and under the auspices of other Catholic adult groups. The following national programs were found in operation in many areas throughout the U.S.: The Queen's Work (Sodality of Our Lady), 3115 S. Grand Blvd., St. Louis, Mo.; The Catholic Student Mission Crusade, Shattuc Ave., Cincinnati, O.; the Junior Catholic Daughters, 39 Manchester Terrace, Mount Kisco, N.Y.; The Columbian Squires, 45 Wall St., New Haven, Conn.; The Catholic Central Verein, 3835 Westminster Place, St. Louis, Mo.; The Catholic Committee on Boy Scouts, 2 Park Ave., New York, N.Y.; the Junior Cross Holy Name Society, 141 E. 65th St., New York, N.Y.

A complete listing of diocesan and national Catholic youth-serving organizations was to be found in the *Catholic Youth Directory*, published by the youth department of the National Catholic Welfare conference. (C. E. BM.)

Catholic Rural Life Conference, National.

Founded in 1923 by Bishop Edwin V. O'Hara and a group of priests, this national organization is dedicated to the economic, social and spiritual interests of the U.S. farmer. The constitution adopted in 1944 pledged the conference to promote the well-being of the rural population by applying the principles of Catholic ethics to rural and agricultural problems and to strengthen and expound the Catholic faith in rural districts.

The 24th convention and first postwar meeting was held at Green Bay, Wis., on Oct. 11-15, under the chairmanship of Bishop William T. Mulloy of Covington, Ky., who became acting president upon the resignation of Bishop William A. Griffin of Trenton, N.J., as president in the spring of 1946. Eighteen bishops participated in the conference, along with priests and lay persons from some 70 dioceses of the United States and Canada.

The relief and resettlement of European refugees was a major

concern of the conference. Current trends detrimental to the family farm and stabilization of farm prices were other topics of discussion. The diocesan directors, in a special session, laid plans for the development and extension of rural retreats. At a meeting of the board of directors resolutions were adopted favouring: (1) admission into the U.S. of several hundred thousand refugees through raising of immigration barriers or pooling of quotas, some of the settlers to be given a home on the land; (2) fuller participation by the U.S. in international trade, with U.S. farmers co-operating to improve world food conditions; (3) additional governmental protection of the family type farm.

At the December meeting of the board of directors steps were taken to implement the first resolution by active participation in a refugee resettlement program in conjunction with War Relief Services—N.C.W.C. The reorganization and expansion of the central office was also decided upon.

The Most Rev. William T. Mulloy, bishop of Covington, Ky., was elected president at the Green Bay convention, and Rt. Rev. L. G. Ligutti was reappointed executive secretary. *Land and Home*, a quarterly, continued as the official publication. Permanent headquarters in 1946 were at 3801 Grand avenue, Des Moines 12, Ia. (J. LAF.)

Catholic University of America. During 1946 the Catholic University of America, Washington, D.C., expanded its faculties, curriculum and physical properties for an enrolment of 3,700 students—the largest registration in its history—of whom 1,450 were ex-service men and women. The faculties totalled 425 members, compared with a normal teaching personnel of 350. A notable addition was Dr. Lise Meitner, the Viennese physicist, who conducted graduate classes in nuclear physics in the first semester. A department of geography was added to the graduate school of arts and sciences. The school of nursing education was transferred to a new \$240,000 building. Forty members of the faculty, who had been on leave serving as chaplains and other officers with combat troops and in scientific and industrial plants during World War II, resumed their classes. The university and 25 members of the staff received army and navy awards for war research work. Very Rev. Robert J. White, dean of the law school, while serving as a navy chaplain, interviewed 500 naval prisoners and recommended changes in the naval disciplinary code. Pope Pius XII elevated Rt. Rev. Msgr. Francesco G. Lardone, director of studies for the university's ecclesiastical schools, to the rank of prothonotary apostolic. The Commission on American Citizenship, under the direction of the university, completed a new curriculum of three volumes for Catholic elementary schools. Gifts, bequests, royalties and special grants for graduate studies, including the annual diocesan collections for the university, totalled \$875,980. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (P. J. M.)

Catholic Welfare Conference, National.

The conference was organized by the bishops of the United States in Sept. 1919, to unify, co-ordinate and organize the Catholic people of the United States in works of education, social welfare, immigrant aid and other social and religious activities. The conference is conducted by an administrative board of ten archbishops and bishops, who supervise its operation and report annually to the Holy see. The conference does not exercise jurisdiction in the canonical sense, nor is it a synod or council.

The annual meeting of the conference was held at Washington D.C., Nov. 12-15, 1946, attended by 115 members of the

hierarchy. Members elected or re-elected to the administrative board were: chairman, Archbishop John T. McNicholas of Cincinnati, O.; vice-chairman, Archbishop John G. Murray of St. Paul, Minn.; treasurer, Bishop John M. Gannon of Erie, Pa.; secretary, Bishop Michael J. Ready of Columbus, O.; Archbishop Joseph F. Rummel of New Orleans, La.; Archbishop John J. Mitty of San Francisco, Calif.; Archbishop James H. Ryan of Omaha, Neb.; Archbishop Richard J. Cushing of Boston, Mass.; Archbishop Robert E. Lucey of San Antonio, Tex., and Bishop Karl J. Alter of Toledo, O. The general meeting of the conference in 1946 modified the by-laws so as to permit participation of the U.S. cardinals in administrative board meetings and to allow them to serve on special committees even if not members of the board.

The annual reports of the National Catholic Welfare conference (N.C.W.C.) departments, submitted at the bishops' meeting, summarized the conference's activities for the year 1946. The press service was used in 35 countries during 1946; the Spanish edition, *Noticias Católicas*, was subscribed to by additional Latin-American papers. The education department aided in the formation of the Catholic Commission on Intellectual and Cultural Affairs, a professional organization operating on a national and international basis, and participated in the U.S. educational mission to Japan. The Council of Catholic Men reported that its broadcast, "The Catholic Hour," was carried on 106 stations and that its audience mail had increased to 123,000 pieces from 101,411 in 1945. "The Hour of Faith," carried on another network, also continued to grow. The Council of Catholic Women had 598 affiliated diocesan and other organizations.

During 1946 the social action department participated in several international meetings, notably the second Inter-American Catholic seminar on social studies held at Havana, Cuba, Jan. 2-9. The youth department maintained relations with diocesan youth directors in 90% of the dioceses throughout the country and conducted five regional conferences, in Boston, Kansas City, Biloxi, Detroit and San Francisco, for local directors. The Confraternity of Christian Doctrine was listed as an official activity in 21 archdioceses and 91 dioceses during 1946.

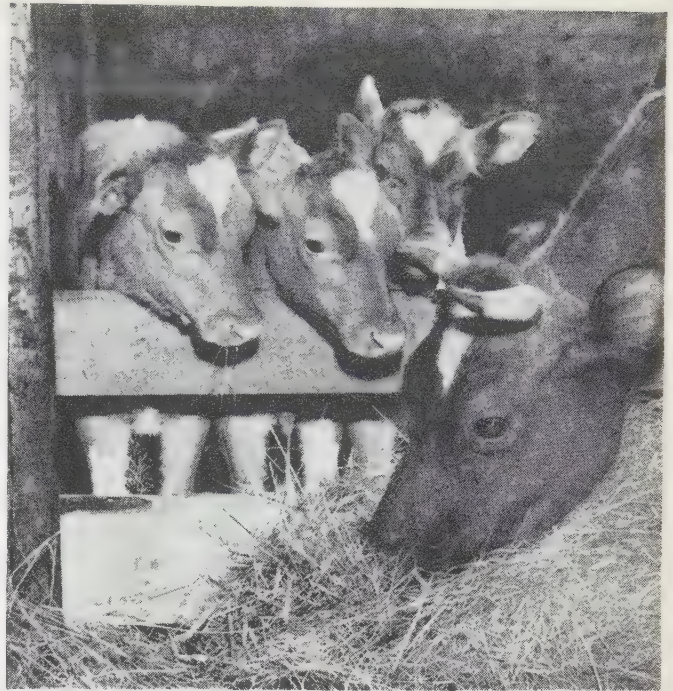
The committee on refugees reported assistance to 1,693 new cases up to Oct. 1946, raising the total number of cases from Jan. 1, 1937, to 7,059. War Relief Services (W.R.S.) of the N.C.W.C. reported 679 relief shipments to 36 countries, valued at \$15,325,388, during the fiscal year Oct. 1, 1945, to Sept. 30, 1946. For 1947 the cash relief budget was set at \$5,000,000. W.R.S. of N.C.W.C. also urged Latin Americans to assist in resettling European refugees and in the United States asked that immigration quotas be modified to allow entrance of refugees.

During 1946 N.C.W.C. ceased publication of *Acta Apostolicae Sedis* as this official commentary was available from the Vatican.

National headquarters in 1946 were at 1312 Massachusetts Ave., N.W., Washington 5, D.C. The N.C.W.C. has as its official publication the monthly *Catholic Action*. (J. LAF.)

Catholic Youth Organization: see CATHOLIC ORGANIZATIONS FOR YOUTH.

Cattle. The cattle cycle, which passed a peak in 1944, continued on the downward swing in the United States in 1945 and on Jan. 1, 1946, the number of all cattle was only 79,791,000 head compared with 81,909,000 in 1945 and the record high peak of 82,364,000 in 1944. During the five years before 1944 the number of cattle increased 26%. The number of milk cows included in this total increased about 18% in five years and showed only a slight decline in numbers in 1946. The



IDENTICAL TRIPLET CALVES born during 1946, were believed by their owner, R. P. Baker of Troy, N.Y., to be the only triplet calves produced by artificial insemination

strong demand for meat and milk kept the cattle industry from declining as the usual cycle would have done. The decline was practically halted in 1946. Cattle slaughter under federal inspection ran below 1945 during the first half of the year but jumped above the record of 1945 in July when price ceilings were removed, only to drop again when they were replaced. Then, when controls were removed again, the flow of cattle to market was resumed at a record rate. The livestock markets experienced successive floods and gluts of animals because of the changes in price control to a fantastic degree. At times the market receipts were at record low numbers to be followed by high record receipts.

Cattle prices rose steadily in 1946 to record levels in August after the lapse of price control. The top price for the best grades at Chicago rose to \$30.25 per 100 lb. while the average price of slaughter steers in Aug. 1946 was \$21.71 compared with \$17.30 in June. Meat prices reached records in retail markets but did not hold the high levels through the late months of the year because of consumer resistance against extremely high prices. The average price of live beef cattle of all classes to producers was \$18.10 per 100 lb. in October, \$17.60 in November and \$17.40 in December. Veal calves followed the same general trend.

Cattle feeding continued high in 1945 and on Jan. 1, 1946, there were estimated to be 4,157,000 cattle on feed or about 4% fewer than a year earlier. The number of cattle on feed in the corn belt was low up to Aug. 1. The high prices of meat during the year led to larger numbers being fed during the summer and fall of 1946. The July to September movement of stock and feeder cattle was 36% greater than a year earlier. Prices of feeder cattle were much higher in the fall of 1946 than a year earlier. The record feed crops also stimulated feeding as stockmen's profits were favourable during 1945-46. The supply of feed, even with record crops, was less than the market demand during the years 1944-46. All animals were fed to heavy weights.

Meat production continued high through 1946. Beef output reached a peak in 1945 and in 1946 declined to near the level of

1944 as did veal. Civilian consumption of beef was estimated at 58.7 lb. per capita in 1945 and about the same in 1946. The total of veal declined slightly. The large demand in the second half of 1946 was checked to some extent by the high prices. Government buying was ended Sept. 30, 1946, and the needs of the military forces continued to decline.

A new feature of the cattle business was the expansion of feeding operations by chain stores having slaughter facilities and by contract by meat packers. In these operations the packers operate feed lots or contract with farmers to feed cattle to their requirements. While the large number of cattle was moving to feed lots in September, the rate of slaughter declined and meat production reached a record low level, the smallest for any month after 1920 and only one-fourth of that of Sept. 1945. (See also LIVESTOCK.) (J. C. Ms.)

Cavan, Frederic Rudolph Lambart 10TH EARL OF (1865 - 1946), British army officer, was born on Oct. 16. He saw his first active military service in the South Africa war, 1901, and at the start of World War I had already been in retirement for one year. Recalled to active duty, he served in France and in 1918 assumed command of the British forces on the Italian front. In 1922, he became chief of the Imperial General staff and in 1926 retired. He was named Field Marshal in 1932. Soon after Munich, he met Mussolini in October of 1938, and the Italian dictator assured the Field Marshal that he "loved England." Holder of numerous foreign decorations, Lord Cavan removed the ribbon of an Italian order when that country entered the war against the Allies in 1940. He died in London on Aug. 28. See *Encyclopædia Britannica*.

C.E.D.: see COMMITTEE FOR ECONOMIC DEVELOPMENT.

Celebes Islands: see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

Cellulose Products: see PAPER AND PULP INDUSTRY; PLASTICS INDUSTRY; RAYON AND OTHER SYNTHETIC FIBRES.

Cement. The salient features of the cement industry in the United States during the years 1939-45 are indicated in the table.

After the peak of war construction had been passed late in 1942 there was a sharp drop in cement production, extending to early in 1945, when the approaching end of the war brought a renewal of building activity, causing an increase in cement output from 5,371,000 bbl. in February to 11,104,000 bbl. in October. After the seasonal decline during the winter months, production expanded rapidly, reaching 16,213,000 bbl. in Aug. 1946, a level 6% higher than the monthly average in 1942, the peak year in the war demand. Shipments were running well

Cement Industry in the U.S., 1939-45

	(Millions of barrels)						
	1939	1940	1941	1942	1943	1944	1945
Production	124.7	132.7	166.9	185.3	135.3	92.2	104.3
Portland cement	122.3	130.2	164.0	182.8	133.4	90.9	102.8
Other varieties	2.4	2.5	2.9	2.6	1.8	1.2	1.5
Shipments	125.1	132.9	170.4	187.8	129.5	95.6	107.8
Portland cement	122.7	130.3	167.4	185.3	127.6	94.3	106.4
Other varieties	2.4	2.5	2.9	2.5	1.8	1.3	1.5
Stocks							
Portland cement	23.6	23.4	20.0	17.4	23.2	20.0	16.4
Clinker	5.2	4.9	4.6	3.5	6.0	5.3	4.5
Other varieties	0.2	0.3	0.3	0.3	0.2	0.2	0.2
Exports	1.1	1.7	2.6	1.1	1.7	4.0	6.5
Available supply	125.8	131.7	167.9	186.7	127.8	91.6	101.4

ahead of production at 17,955,000 bbl. and stocks had been cut to 9,300,000 bbl. from 20,000,000 bbl. in February. Plants were operating at 79% of capacity, against an average of 42.5% in 1945 and 73.5% in 1942. This was only the first lap in a postwar building program that was expected to reach unprec-

edented proportions under the combined demand for home, commercial, industrial, municipal and government construction.

Cement sales in Canada followed the same general trend as in the U.S. Output declined from 7,302,289 bbl. in 1943 to 7,190,851 bbl. in 1944, and increased to 8,378,341 bbl. in 1945. Conditions continued to improve in 1946, with sales through July 51% ahead of the same period of 1945. (See also GYPSUM.) (G. A. Ro.)

Census Data, 1946. By way of supplement to the results of the periodic censuses, the bureau of the census collects a wide variety of data on a monthly, quarterly, or annual basis, publishes frequent estimates of population, labour force, employment and unemployment, and makes special censuses of limited areas and surveys in various fields from time to time, as occasion demands. A considerable part of the current data is based on sample inquiries and is, therefore, subject to a moderate sampling variation. With respect to these sample-based statistics it may be said that in general the totals and the larger subtotals in any given table are subject to a fairly small error from this source, but that the smaller and more detailed subtotals are subject to a possibility of error which increases with the decrease in the size of the figures in question.

Growth of Total Population.—Estimates of the population of the United States as a whole have been made month by month after the census of 1940, on the basis of current records of births and deaths (corrected for underregistration) and net immigration, the latter including the excess of arrivals over departures of citizens as well as aliens. The estimates for Jan. 1 and July 1 of each year from this series are presented in Table I. These estimates represent the *de jure* population, including persons in military service overseas. Table I also shows the increase in each six-month period and the various elements used in computing the estimate—namely, births, deaths and immigration from outside the U.S. The estimates are presented to the last digit as computed instead of being rounded, not because they are assumed to be accurate to the last digit but for convenience in summation.

The population of continental United States on July 1, 1946, according to these estimates, was 141,205,806, which represents an increase of 1,584,375 over the population estimated for July 1, 1945. The sources of this increase may be analyzed as follows: There were, during the year ending June 30, 1946, 2,895,144 births, from which may be subtracted 1,502,440 deaths, leaving a natural increase of 1,392,704, which represents the major part of the population increase. The remainder was made up of net civilian immigration amounting to 191,671. The rate of increase for the year ending in June 1946, was 1.1%, which is slightly less than the rate of increase attained in 1943 (1.4%) or 1944 (1.2%), but much higher than the average annual rate of 0.7% for the decade 1930-40. The maximum increase in any six-month period, it may be noted, was that in the second half of the year 1942, which amounted to 981,045, or 0.73%.

The acceleration in the rate of population growth results mainly from considerable increases in the annual number of births, for the most part following at an appropriate interval similar increases in the number of marriages. The contribution of immigration increased from less than 60,000 in the year ending June 30, 1941, to nearly 200,000 in 1945, but still formed only about 12% of the total increase.

During the year ending June 30, 1943, in which the birth rate reached the highest point in recent completed years, there were 3,209,177 births, as compared with 2,628,113 in the fiscal year 1941, and an annual average of about 2,400,000 for the

Table I.—Estimated Population of Continental United States Including Armed Forces Overseas, July 1, 1940, to July 1, 1946

Date	Estimated total population	Net increase		Change since preceding date		Excess of births over deaths	Net civilian immigration
		Number	Per cent	Births*	Deaths*		
July 1, 1940	131,970,224	—	—	—	—	—	—
Jan. 1, 1941	132,637,933	667,709	0.51	1,311,428	642,719	618,457	49,252
July 1, 1941	133,202,873	564,940	0.43	1,316,685	751,745	555,568	9,372
Jan. 1, 1942	133,953,225	750,352	0.56	1,400,533	649,181	718,562	31,790
July 1, 1942	134,664,924	711,699	0.53	1,407,467	695,768	713,223	37,455
Jan. 1, 1943	135,645,969	981,045	0.73	1,630,967	649,922	929,913	51,132
July 1, 1943	136,497,049	851,080	0.63	1,578,210	727,129	792,196	58,884
Jan. 1, 1944	137,368,379	871,330	0.64	1,580,383	709,073	818,457	52,873
July 1, 1944	138,083,449	715,070	0.52	1,436,179	721,109	641,728	73,342
Jan. 1, 1945	138,922,634	839,185	0.61	1,533,007	693,822	746,980	92,205
July 1, 1945	139,621,431	698,797	0.50	1,437,277	738,480	592,089	106,708
Jan. 1, 1946	140,386,509	765,078	0.55	1,469,849	704,770	719,113	45,965
July 1, 1946†	141,205,806	819,297	0.58	1,425,295	606,704	673,591	145,706

*Estimated total, including adjustment for underregistration.

†Preliminary figures.

decade between 1930 and 1940. Since 1943, the number of births recorded have been somewhat, though not very much, lower than in the record year, the lowest figure for a six-month period having been reached in the period from Jan. 1 to June 30, 1946. Preliminary figures for births as reported month by month during 1946, however, indicated a spectacular increase in the birth rate beginning with July. The provisional birth rate (based on registered births) for the first half of 1946 was 19.2 per 1,000 of the population, which was slightly lower than the corresponding rate for the first half of 1945. The rates for the months immediately following, however, indicated a much more rapid increase even than that which led up to the 1943 maximum. Computed on an equivalent annual basis, the provisional birth rate for July was 23.2; for August, 25.3; for September, 27.9; for October, 28.6, and for November, 26.8, or nearly 50% higher than the average for the first half of the year. It seems safe to assume that the number of births in December was approximately the same as in November, in which case the rate for the year 1946 would stand at slightly over 23.0, and the number of births (including allowance for underregistration) to be expected for the calendar year would be at least equal to the 1943 record; and the number to be expected in the entire fiscal year ending June 30, 1947, even with a moderate recession in the monthly rates, would far exceed the 1943 maximum.

While it is difficult to forecast even the immediate future under conditions of such rapid change as those obtaining at the end of 1946, it seems likely at this writing (Jan. 1947) that the high birth rates of the last few months of the present record may be maintained for a number of months. The most substantial basis for this assumption is found in the statistics for marriages, especially in the monthly figures for marriage licences issued as reported for cities of 100,000 or more. The maximum figure in this series, 86,448, was reported for June 1946, with another high figure, 74,640, for August, and 60,110 for November. These figures may be compared with a monthly average of 47,440 for the year 1945. (See *Marriage and Divorce* for further discussion of marriage statistics.) The rapid return of men from overseas military service, beginning in the latter part of 1945, is another factor whose effect was expected to continue through 1947 and perhaps longer.

Forecasts based on medium assumptions with respect to the factors affecting population increase indicated that the population of the United States in 1950 would be 145,460,000; in 1970, 159,847,000; and in 1990, 164,585,000, with a slight decrease to 163,312,000 in the year 2000. These computations were made in 1945 on the assumption that there would be very little increase in population through immigration. If immigration should remain at its 1946 level and, in particular, if the net annual addition from this source should increase materially, the forecast for 1970 would have to be increased by 4,000,000

or 5,000,000, with corresponding increases for later figures.

While those population estimates which include the military forces abroad are the most fundamental of all the estimates which the census bureau makes, especially for use in comparisons over fairly long periods, there are demands for estimates representing only the population actually in continental United States (sometimes referred to as the *de facto* population) or for the civilian population, excluding all persons in military service. Such estimates, together with figures representing the number of persons in military service, are presented in Table II.

A brief study of the columns representing the three types of estimates as presented in Table II will show that while the total population increased regularly period by period (mainly as a result of the excess of births over deaths) the civilian population in particular followed a radically different pattern, showing actual decreases in more than half of the six-month periods for which data are presented, and relatively small increases in most of the other periods except the two most recent.



CENSUS ENUMERATOR securing data from a housewife in London, Eng., during 1946. The family census, the first taken of British families after 1911, was a sample canvass of 1,600,000 families, one name being selected from every ten cards in the National Registration records

Table II.—*Estimates of the Population of the United States—Total, De Facto, Civilian and Military: 1940 to 1946*

(De facto population includes persons in military service in continental United States, but excludes those overseas)

Date	Total population	De facto population	Civilian population	Persons in military service
July 1, 1940	131,970,224	131,954,144	131,659,286	310,938
Jan. 1, 1941	132,637,933	132,560,843	131,896,959	740,974
July 1, 1941	133,202,873	133,060,045	131,557,730	1,645,143
Jan. 1, 1942	133,953,225	133,688,443	131,943,065	2,010,160
July 1, 1942	134,664,924	133,770,500	130,874,910	3,790,014
Jan. 1, 1943	135,645,969	134,041,664	128,727,843	6,918,126
July 1, 1943	136,497,049	133,966,319	127,410,357	9,086,692
Jan. 1, 1944	137,368,379	133,580,283	127,028,036	10,340,343
July 1, 1944	138,083,449	132,552,005	126,536,174	11,547,275
Jan. 1, 1945	138,922,634	131,663,972	127,037,289	11,885,345
July 1, 1945	139,621,431	131,975,774	127,409,297	12,212,134
Jan. 1, 1946	140,386,509	136,837,944	133,542,699	6,843,810
July 1, 1946	141,205,806	139,853,846	138,254,982	2,950,824

The reason for this situation lies of course in the fact that the number of persons entering military service during the war period exceeded the natural increase in the population. It was only with the demobilization of the armed services, following July 1, 1945, that the civilian population began to make marked increases. Somewhat similar relations are shown between the total population and the *de facto* population, the difference in this case representing the number of persons in military service overseas, rather than the total military personnel.

Births and Deaths.—As an indication of the general trend in the principal factors of population increase, namely, births and deaths, there is presented in Table III a summary of the birth rates and death rates for the years from 1920 to 1945. These rates are for calendar years, and are based on registered births, without adjustment for underregistration. Rates based on the adjusted figures would be slightly higher, but would show practically the same variation over a given period of time. The maximum birth rate, it may be noted, was recorded for the year 1921, a year shortly after the close of World War I. During the next dozen years there was an almost continuous and fairly rapid decline in the birth rate to a low point of 16.6 in 1933, which year may be regarded as the bottom of the depression. During the remainder of the decade of the 1930s there were slight changes upward and downward, the net effect of which was a rate of 17.9 in 1940. The higher levels which the birth rate attained in the early war years have already been discussed in connection with the matter of population increase. The death rates have shown, with some irregularities, a tendency to become lower, with no very definite cycles of change.

Table III.—*Birth Rates and Death Rates: 1920 to 1945*

(Based on registered births and deaths)					
Calendar year	Birth rate	Death rate	Calendar year	Birth rate	Death rate
1920	23.7	13.0	1933	16.6	10.7
1921	24.2	11.5	1934	17.2	11.1
1922	22.3	11.7	1935	16.9	10.9
1923	22.1	12.1	1936	16.7	11.6
1924	22.2	11.6	1937	17.1	11.3
1925	21.3	11.7	1938	17.6	10.6
1926	20.5	12.1	1939	17.3	10.6
1927	20.5	11.3	1940	17.9	10.7
1928	19.7	12.0	1941	18.9	10.5
1929	18.8	11.9	1942	20.9	10.4
1930	18.9	11.3	1943	21.5	10.9
1931	18.0	11.1	1944	20.2	10.6
1932	17.4	10.9	1945	19.6	10.6

Immigration.—The net civilian immigration figures (191,671 for the year ending June 30, 1946) referred to above as a factor in current population increase, represent the difference between much larger numbers of arrivals and departures, the total number of arrivals during the fiscal year 1946 amounting to 672,020, with 480,349 departures. These figures, classified into three groups, United States citizens, immigrant aliens and nonimmigrant aliens, are presented for the fiscal years 1944, 1945 and 1946 in Table IV. The figures in this table represent arrivals in, and departures from, continental United States, including

movement between the mainland and the various territories and possessions. In the immigration statistics as usually published by the immigration service the United States and its possessions are considered as one unit. The principal difference, however, between these "usual" figures and figures for the states alone, presented herewith, is in arrivals and departures of United States citizens, of whom there was a net movement of about 40,000 from the territories and possessions in 1946, mainly from Puerto Rico.

Table IV.—*Immigration: Arrivals and Departures of Citizens and Aliens: 1944, 1945 and 1946*

(Years ending June 30. Figures refer to continental United States and include arrivals from and departures for the territories and possessions)

ITEM	1946	1945	1944
Arrivals, total	672,020	421,004	287,967
United States citizens	360,567	219,446	147,516
Immigrant aliens	108,252	38,014	28,439
Nonimmigrant aliens	203,201	163,544	112,012
Departures, total	480,349	222,091	161,752
United States citizens	276,643	129,674	78,375
Emigrant aliens	18,155	7,396	5,653
Nonemigrant aliens	185,551	85,021	77,724
Excess of arrivals over departures, total	191,671	198,913	126,215
United States citizens	83,924	89,772	69,141
Immigrant aliens	90,097	30,618	22,786
Nonimmigrant aliens	17,650	78,523	34,288

By way of explanation of the difference between immigrant and nonimmigrant aliens, the following figures relating to immigration of aliens to the United States and its possessions during the fiscal year 1945 may be quoted. Of the 38,119 immigrant aliens, 11,623 were quota immigrants and the remainder nonquota immigrants, made up mainly of 22,770 natives of nonquota countries, such as Canada and Mexico, and 2,735 wives of United States citizens. Nonimmigrant aliens in that year numbered 164,247, the principal classes being temporary visitors for business, 76,747; temporary visitors for pleasure, 30,982; government officials, their families, etc., 18,054; and persons in continuous transit through the United States, 28,174.

Marriage and Divorce.—The number of marriages which took place in the United States in the years just following 1939 represented very material increases over the record of earlier years, as already noted above. The maximum year of completed record was 1942, in which year there were 1,772,000 marriages, as compared with 1,404,000 in 1939, with considerable decreases in 1943 and 1944, a substantial increase in 1945, and a new record of more than 2,000,000 marriages in 1946. These figures are summarized in Table V for the years 1937-46, with corresponding figures for divorces up to 1945. The increase in the number of divorces has been even more rapid than the increase in the number of marriages, the 1945 figure being exactly twice that of 1939. In 1945 there were 31 divorces for every 100 marriages.

Table V.—*Marriages in the United States: 1939 to 1946*

Calendar year	Number of marriages	Increase (+) or Decrease (—) From Preceding Year		Marriages per 1,000 of population	Number of divorces	Divorces per 100 marriages
		Number	Per cent			
1937	1,451,000	—	—	11.3	249,000	17.2
1938	1,331,000	—120,000	—8.3	10.3	244,000	18.3
1939	1,404,000	73,000	5.5	10.7	251,000	17.9
1940	1,596,000	192,000	13.7	12.1	264,000	16.5
1941	1,696,000	100,000	6.3	12.7	293,000	17.3
1942	1,772,000	76,000	4.5	13.2	321,000	18.1
1943	1,577,000	—195,000	—11.0	11.6	359,000	22.8
1944	1,452,000	—125,000	—7.9	10.5	400,000	27.5
1945	1,618,000	166,000	11.4	11.6	502,000	31.0
1946	2,175,000*	557,000	34.4	15.4	...	...

*Preliminary unofficial estimate based on percentage increase shown for cities of 100,000 or more.

Current figures on the number of marriages in cities of 100,000 inhabitants or more, which are available each month, form one of the most useful bases for short-range estimates of the probable trend of population. These figures are summarized in Table VI.

The most outstanding feature of Table VI is the marked in-

crease in the number of marriages which took place in the months subsequent to Oct. 1945. The population of the areas to which these figures relate represents about one-third of the population of the United States; and while changes in the number of marriages reported for these cities and the number compiled some months later for the United States as a whole were not by any means identical, there was in general a sufficiently close correspondence to make these figures a reliable index of the trend in the country-wide figures.

Table VI.—*Marriage Licences Issued in Cities of 100,000 Inhabitants or More, by Month: 1941 to 1946*

Month	1946	1945	1944	1943	1942	1941	Increase, 1945-46, per cent
Total, 12 mos..	—	569,289	513,147	561,962	594,908	547,177	—
Jan. to Nov.	716,469	511,984	469,933	515,904	544,585	491,739	39.9
January . . .	62,458	42,084	41,140	42,042	51,572	30,694	48.4
February . . .	59,673	35,635	39,727	41,321	42,033	31,453	67.5
March	51,144	41,256	40,119	41,684	40,870	32,663	24.0
April	63,643	39,817	43,032	45,783	47,998	43,381	59.8
May	73,959	45,005	45,165	47,680	49,487	43,389	64.3
June	86,448	55,325	52,153	60,502	60,723	63,956	56.3
July	59,211	49,348	40,390	48,625	46,085	43,424	20.0
August	74,640	50,108	43,498	48,419	52,033	54,880	49.0
September . .	64,113	45,689	42,043	48,094	50,968	47,190	40.3
October	61,070	52,026	42,056	45,844	52,915	47,406	17.4
November . . .	60,110	55,691	40,610	45,910	49,901	42,303	7.9
December. . .	—	57,305	43,213	46,058	50,323	55,438	—

Internal Migration.—Migration within the United States, which was greatly stimulated by the war, continued at an accelerated pace during the first six months of peace. In addition to the returning veterans, that is, the men who were returning from military service to civilian life, there were in Feb. 1946, 5,100,000 nonveteran civilians who had lived in a different county on V-J day. Not many of these were wartime migrants returning to their prewar residence; most of them were either people who had not moved during the war or wartime migrants moving on to new places after V-J day. The present information on internal migration is based on the results of a survey made in Feb. 1946. In this survey each person in a representative sample of about 25,000 families was asked where he was living on April 1, 1940, the date of the last federal census, as well as on V-J day, Aug. 14, 1945. The answers to these questions provided information on migration over two periods; the six months following the close of hostilities, and the period of nearly six years after the 1940 census.

Over the longer interval, 1940-46, which includes the period of defense preparation and of U.S. participation in the war and a considerable part of the period of demobilization, 19,520,000 persons had changed their county of residence, as indicated in Table VII. These migrants made up 14.6% of the civilian population as constituted in Feb. 1946. The migrant figure includes 2,210,000 veterans, or nearly one-fourth of the estimated total of 9,380,000 veterans in the United States in Feb. 1946. In addition,

Table VII.—*Migration of the Civilian Population (a) April, 1940 to February 1946, and (b) August 1945 to February 1946*

(Data based on a small sample. Population in institutions not included)

Migration status and veteran status	Period of April 1940, to Feb. 1946 (5 yrs. 11 mos.)	Period of Aug. 1945 to Feb. 1946 (6 months)
	Feb. 1946	Feb. 1946
Total civilian population, February 1946 . . .	133,900,000	133,900,000
Nonmigrants	114,200,000	121,640,000
Migrants	19,520,000	8,110,000
Within a state	8,100,000	2,320,000
Between states	11,420,000	5,790,000
Persons abroad at beginning of period.	180,000	4,150,000
Male veterans, February 1946	9,380,000	9,380,000
Nonmigrants	7,080,000	2,330,000
Migrants	2,210,000	3,010,000
Within a State	820,000	260,000
Between States	1,390,000	2,750,000
Persons abroad at beginning of period.	90,000	4,040,000
Other civilians, February 1946	124,520,000	124,520,000
Nonmigrants	107,120,000	119,310,000
Migrants	17,310,000	5,100,000
Within a State	7,280,000	2,060,000
Between States	10,030,000	3,040,000
Persons abroad at beginning of period.	90,000	110,000

tion, there were 90,000 of these veterans who were abroad in 1940, while the remaining 7,080,000 had presumably returned to their home counties after discharge from military service. Around 5,000,000 persons were still in the armed forces and were not covered by the survey.

In addition to the 5,100,000 nonveteran civilians who had moved from one county to another in the six months between Aug. 1945 and Feb. 1946, there were 3,010,000 veterans of World War II who had migrated during this period. Most of these were in the armed forces on V-J day, but some had been discharged before that date. The total of 8,110,000 migrants in this six-month period does not include a further 4,150,000 persons who were outside the United States on V-J day (mostly in the armed forces) and had returned to the United States by the following February.

In the classification of migrants as between those who moved from one county to another within a state and those who moved from one state to another, it may be noted that more than 70% of the 1945-46 migrants were interstate migrants, as compared with less than 60% of the whole number of migrants shown for the period 1940-46—and with only a little more than 40% of the migrants between 1935 and 1940, as shown by the 1940 census.

This dominance of long-range movement might be accepted as characteristic of migration in the period of large-scale re-establishment of population after demobilization and industrial reconversion, aided possibly by a familiarity with easy long-distance movement resulting from wartime experience.

From the answers to the two questions carried in this migration survey it is possible to identify those persons who had moved away from their 1940 residence at some time between April 1940 and Aug. 1945, but had returned to it by Feb. 1946. Roughly, this might be considered a measure of the extent to which those who had left their normal place of residence for employment in war activities had returned to their original county of residence after the close of the war. The number of nonveteran civilians who had thus returned between V-J day and Feb. 1946, was only 1,200,000, which seems a small number in comparison with the 17,310,000 nonveteran civilians who in Feb. 1946, lived in a different county from that of their residence in April 1940. Evidently wartime migrants have not tended to go back to their prewar homes, but have chosen to settle down in their new residence, or else to move on to still another county.

Of the 9,380,000 male veterans in the United States in Feb. 1946, 7,080,000 or 75%, were living in the same county as in April 1940, though practically the same percentage had been elsewhere in the United States or abroad on V-J day. Of those who had been away from their home county on V-J day, 5,450,000 were back again in Feb. 1946—2,170,000 from other parts of the United States, and 3,280,000 from overseas. The data on return migration, both for veterans and for nonveteran civilians, are summarized in Table VIII.

Table VIII.—*Return Migration in the United States, 1940 to 1945 and 1945 to 1946*

(Data based on a small sample)

Migration History	Total return migrants	Male veterans	Other civilians
Migrants, 1945 to 1946, returning to county of 1940 residence	3,370,000	2,170,000	1,200,000
Migrants within a state	560,000	140,000	420,000
Migrants between states	2,810,000	2,030,000	780,000
Migrants, 1945 to 1946, returning to state, but not county, of 1940 residence	370,000	230,000	140,000
Persons returning from abroad, 1945 to 1946, who went abroad, 1940 to 1945	4,100,000	4,010,000	90,000
Returning to state of 1940 residence	3,630,000	3,570,000	60,000
Same county	3,330,000	3,280,000	50,000
Different county	300,000	290,000	10,000
Returning to different state	470,000	440,000	30,000

Marital Status.—A survey made in Feb. 1946 indicated that the wartime increase in the percentage of men and women who were married had continued up to that time. Since many men were still in the armed forces in Feb. 1946, the number of married women represented the best approximation to the number of married couples in the population of the United States. At that time there were estimated to be 33,810,000 married women, representing 63.2% of the female civilian noninstitutional population 14 years old and over. A similar survey made in Feb. 1944, showed 32,850,000 women married, or 62.8% of the basic population. In 1940 the decennial census showed as married only 30,090,488 women, or 59.5% of the total female population 14 years old and over. The percentage of women married had been increasing slightly after 1890, but the increase between 1940 and 1946 was equal to all of the increase in the 50-year period preceding 1940. The data on marital status for the civilian population in 1946 and 1944 and the total population in 1940 are summarized in Table IX.

Table IX.—Marital Status of the Civilian Population 14 Years Old and Over, February 1946 and 1944, and April 1940

(Data for 1946 and 1944 based on a small sample and exclusive of persons in institutions)

Sex and marital status	Civilian population, 1946	Civilian population, 1944	Total population, 1940	Per cent distribution		
				1946	1944	1940
Male, 14 years and over	47,290,000	41,260,000	50,553,748	100.0	100.0	100.0
Single	12,520,000	9,320,000	17,593,379	26.5	22.6	34.8
Married	32,070,000	29,690,000	30,192,334	67.8	72.0	59.7
Wife present	31,420,000	(*)	28,657,820	66.4	(*)	56.7
Wife absent	650,000	(*)	1,534,514	1.4	(*)	3.0
Widowed and divorced	2,700,000	2,250,000	2,768,035	5.7	5.5	5.5
Female, 14 years and over	53,520,000	52,300,000	50,549,176	100.0	100.0	100.0
Single	12,310,000	12,630,000	13,935,866	23.0	24.1	27.6
Married	33,810,000	32,850,000	30,090,488	63.2	62.8	59.5
Husband present	31,420,000	28,630,000	28,516,937	58.7	54.7	56.4
Husband absent	2,390,000	4,220,000	1,573,551	4.5	8.1	3.1
In armed forces	1,240,000	2,760,000	(*)	2.3	5.3	(*)
Other	1,150,000	1,460,000	(*)	2.1	2.8	(*)
Widowed and divorced	7,400,000	6,820,000	6,522,822	13.8	13.0	12.9

*Data not available.

Table X.—Civilian Employment and Unemployment in the United States: July 1945, to December 1946

(Figures are exclusive of institutional population as well as of persons in the armed forces. Data based on a small sample)

Week Ending	Civilian population 14 years old and over	Civilian labour force		Unemployed		
		Number	Per cent of population	Employed	Number	Per cent of labour force
Total						
1945:						
July 14	93,290,000	55,350,000	59.3	54,400,000	950,000	1.7
Oct. 13	95,040,000	53,170,000	55.9	51,610,000	1,560,000	2.9
1946:						
Jan. 12	99,780,000	53,320,000	53.4	51,020,000	2,300,000	4.3
Feb. 9	100,780,000	53,890,000	53.5	51,240,000	2,650,000	4.9
March 9	101,600,000	55,160,000	54.3	52,460,000	2,700,000	4.9
April 13	102,290,000	56,450,000	55.2	54,120,000	2,330,000	4.1
May 11	102,790,000	57,160,000	55.6	54,850,000	2,310,000	4.0
June 8	103,140,000	58,930,000	57.1	56,360,000	2,570,000	4.4
July 13	103,650,000	60,110,000	58.0	57,840,000	2,270,000	3.8
Aug. 10	104,020,000	59,750,000	57.4	57,690,000	2,060,000	3.4
Sept. 14	104,410,000	59,120,000	56.6	57,050,000	2,070,000	3.5
Oct. 12	104,590,000	58,990,000	56.4	57,030,000	1,960,000	3.3
Nov. 9	104,830,000	58,970,000	56.3	57,040,000	1,930,000	3.3
Dec. 14	105,050,000	58,430,000	55.6	56,310,000	2,120,000	3.6
Male						
1945:						
July 14	40,290,000	35,270,000	87.5	34,790,000	480,000	1.4
Oct. 13	41,870,000	34,650,000	82.8	33,710,000	940,000	2.7
1946:						
Jan. 12	46,300,000	37,160,000	80.3	35,390,000	1,770,000	4.8
Feb. 9	47,260,000	37,890,000	80.2	35,750,000	2,140,000	5.6
March 9	48,040,000	38,870,000	80.9	36,680,000	2,190,000	5.6
April 13	48,680,000	39,860,000	81.9	37,990,000	1,870,000	4.7
May 11	49,130,000	40,480,000	82.4	38,590,000	1,890,000	4.7
June 8	49,450,000	41,660,000	84.2	39,650,000	2,010,000	4.8
July 13	49,880,000	42,710,000	85.6	40,950,000	1,760,000	4.1
Aug. 10	50,170,000	42,580,000	84.9	40,980,000	1,600,000	3.8
Sept. 14	50,460,000	41,850,000	82.9	40,270,000	1,580,000	3.8
Oct. 12	50,550,000	41,820,000	82.7	40,270,000	1,550,000	3.7
Nov. 9	50,740,000	41,950,000	82.7	40,430,000	1,520,000	3.6
Dec. 14	50,920,000	41,990,000	82.5	40,300,000	1,690,000	4.0
Female						
1945:						
July 14	53,000,000	20,080,000	37.9	19,610,000	470,000	2.3
Oct. 13	53,170,000	18,520,000	34.8	17,900,000	620,000	3.3
1946:						
Jan. 12	53,480,000	16,160,000	30.2	15,630,000	530,000	3.3
Feb. 9	53,520,000	16,000,000	29.9	15,490,000	510,000	3.2
March 9	53,560,000	16,290,000	30.4	15,780,000	510,000	3.1
April 13	53,610,000	16,590,000	30.9	16,130,000	460,000	2.8
May 11	53,660,000	16,680,000	31.1	16,260,000	420,000	2.5
June 8	53,690,000	17,270,000	32.2	16,710,000	560,000	3.2
July 13	53,770,000	17,400,000	32.4	16,890,000	510,000	2.9
Aug. 10	53,850,000	17,170,000	31.9	16,710,000	460,000	2.7
Sept. 14	53,950,000	17,270,000	32.0	16,780,000	490,000	2.8
Oct. 12	54,040,000	17,170,000	31.8	16,760,000	410,000	2.4
Nov. 9	54,090,000	17,020,000	31.5	16,610,000	410,000	2.4
Dec. 14	54,130,000	16,440,000	30.4	16,010,000	430,000	2.6

Table XI.—Civilian Employment in Agriculture and in Non-Agricultural Industries. July 1945 to December 1946

(Data based on a small sample)

Week ending Both Sexes	Total civilian employment	In non-agricultural industries	In agriculture	
			Number	Per cent of total
1945:				
July 14	54,400,000	44,500,000	9,900,000	18.2
Oct. 13	51,610,000	42,800,000	8,810,000	17.1
1946:				
Jan. 12	51,020,000	44,300,000	6,720,000	13.2
April 13	54,120,000	45,950,000	8,170,000	15.1
July 13	57,840,000	47,870,000	9,970,000	17.2
Oct. 12	57,030,000	48,410,000	8,620,000	15.1
Dec. 14	56,310,000	49,100,000	7,210,000	12.8
Male				
1945:				
July 14	34,790,000	27,600,000	7,190,000	20.7
Oct. 13	33,710,000	27,090,000	6,620,000	19.6
1946:				
Jan. 12	35,390,000	29,550,000	5,840,000	16.5
April 13	37,990,000	31,180,000	6,810,000	17.9
July 13	40,950,000	33,140,000	7,810,000	19.1
Oct. 12	40,270,000	33,500,000	6,770,000	16.8
Dec. 14	40,300,000	34,010,000	6,290,000	15.6
Female				
1945:				
July 14	19,610,000	16,900,000	2,710,000	13.8
Oct. 13	17,900,000	15,710,000	2,190,000	12.2
1946:				
Jan. 12	15,630,000	14,750,000	880,000	5.6
April 13	16,130,000	14,770,000	1,360,000	8.4
July 13	16,890,000	14,730,000	2,160,000	12.8
Oct. 12	16,760,000	14,910,000	1,850,000	11.0
Dec. 14	16,010,000	15,090,000	920,000	5.7

The extent to which the war necessitated the temporary separation of married couples is indicated by the figures for married women classified according to whether their husbands were present (that is, living in the same household) at the time of the survey. There were in Feb. 1944, 2,760,000 married women whose husbands were absent in the armed forces, this group representing 5.3% of the whole number of married women. By Feb. 1946 this number had been reduced, mainly by the return of husbands from military service, to 1,240,000 or 2.3%

of the total. The number of married women with husbands absent elsewhere than in the armed forces declined from 1,460,000 in 1944 to 1,150,000 in 1946. This may represent the return of husbands who had left their wives to seek employment in war activities, though even the figure quoted for 1944 is smaller than the number of married women with husbands absent in 1940, as returned in the decennial census.

Employment and Labour Force.—On the basis of data obtained each month from a representative sample of 25,000 or 30,000 households in the United States, monthly estimates have been published since March 1940, giving the number of persons in the civilian labour force, the number employed (with separate figures for those in agriculture and those in nonagricultural industries), and the number unemployed. These statistics are summarized for the year 1946, with comparable data for July and Oct. 1945, in Table X and the data for the labour force are shown in graphic form in the chart on page 189.

At least four important trends may be observed in the figures for the 18 months covered by Table X. First, the rapid increase in the civilian population 14 years old and over which followed close behind the demobilization of the military forces. The increase in the civilian population between July 1945, and Dec. 1946, amounted to 11,760,000, being the sum of the number of persons released from military service and the normal increase in the population 14 years old and over. Since the military separations were by far the more important factor, the increases recorded month by month naturally ran closely parallel with the numbers released from the services.

Second, the civilian labour force (the sum of the number of persons employed and the number seeking work) followed rather closely the course of the rapidly increasing civilian population, though the percentage of the population in the

labour force declined rather sharply from 59.3 in July 1945 to 55.9 in October and to 53.4 in Jan. 1946, rising again to 58.0 in July 1946, at the peak of the seasonal employment, and standing at 55.6 in December.

Except for the first three-month period, these declines in the percentage of the population in the labour force resulted from the fact that the additions to the labour force lagged somewhat behind the additions to the civilian population. There was an increase in the actual numbers in the labour force in each month in 1946 up to the seasonal maximum of 60,110,000 in July 1946. After the seasonal peak was passed, the civilian labour force seemed to have stabilized at around 59,000,000, with a further decline to 58,430,000 in December. Since the labour force is dominantly male, the changes observed in the figures for males alone follow closely the trends just noted in the totals. Relatively, however, the decline in the female labour force during the early postwar months was much sharper, the percentage of the female population in the labour force dropping from 37.9 in July 1945, to a low of 29.9 in Feb. 1946, then rising to 32.4 in July and declining from 32.0 in September to 30.4 in December.

Third, the number of civilians employed dropped from 54,400,000 in July 1945 to 51,610,000 in October and to 51,020,000 in Jan. 1946, in part because of unavoidable delays in the reconversion from war industries to the production of civilian goods. This trend was quickly reversed, however; the October total was exceeded in May, and a maximum of 57,840,000 was reached in July 1946, with employment maintained at a little over 57,000,000 from September to November, and a decline to 56,310,000 in December.

Fourth, unemployment increased, of course, during the early reconversion period, rising from 950,000 in July 1945, to 1,560,000 in October, and 2,300,000 in Jan. 1946, and to a maximum of 2,700,000 in March. It then declined to a little less than 2,000,000 in Oct. and Nov. (1946) and then increased to 2,120,000 in December. Even the maximum of 2,700,000, it may be noted, was only a small fraction of the unemployment which was forecast by many economists in the early months of 1945.

The changes in the numbers of unemployed took place for the most part among the male workers; the number of females seeking work held close to 400,000 or 500,000 throughout most of the period under consideration.

Because of the importance of the agricultural industry and the radically different conditions which obtain as between agriculture and most other industries, it is important to have a record of employment in these

Table XII.—Estimates of Employment Status of Male Veterans of World War II, November 1945 to November 1946

(Totals based on data from the war and navy departments. All numbers in thousands)

Week ending	Total male veterans of World War II	In civilian labour force			Not in labour force		
		Total	Employed	Unemployed	Total	In school	Other
1945:							
Nov. 10	5,600	3,830	3,310	520	1,770	170	1,600
Dec. 8	7,020	4,990	4,240	750	2,030	230	1,800
1946:							
Jan. 12	8,580	6,410	5,570	840	2,170	290	1,880
Feb. 9	9,600	7,440	6,380	1,060	2,160	420	1,740
March 9	10,410	8,410	7,200	1,210	2,000	540	1,460
April 13	11,080	9,240	8,250	990	1,840	540	1,300
May 11	11,520	9,830	8,900	930	1,690	570	1,120
June 8	11,890	10,380	9,400	980	1,510	480	1,030
July 13	12,280	10,810	9,880	930	1,470	460	1,010
Aug. 10	12,580	10,950	10,100	850	1,630	480	1,150
Sept. 14	12,790	11,230	10,400	830	1,560	760	800
Oct. 12	12,810	11,150	10,390	760	1,660	1,160	500
Nov. 9	13,030	11,380	10,680	700	1,650	1,100	550
Dec. 14	13,160	11,450	10,610	840	1,710	1,110	600

two subdivisions of the industrial field. Data for civilian employment in agriculture and in nonagricultural industries are summarized, by quarters, from midyear in 1945 to the end of 1946 in Table XI.

The rather wide seasonal variation between July and January or February is one characteristic of agricultural employment, as compared with employment in the other industries, which showed a fairly steady increase from Oct. 1945 to Oct. 1946—aided, of course, by the increase in the total labour force—and even showed a slight increase in December, in spite of the decrease in total employment.

On the basis of the sample survey from which were derived the figures discussed above, estimates of the employment status of all veterans of World War II were made. These estimates for the months from Nov. 1945 to Dec. 1946 are presented in Table XII. Considerable numbers of men were separated from the military forces during the course of the war, so that the number of veterans at the beginning of the period covered by these estimates materially exceeded the number of recent discharges, and the number at the end of the period exceeded the maximum strength of the armed forces, even though around 2,000,000 men were still in the service.

The rapid increases in the number of unemployed veterans during the four months just preceding March 1946, reflects the rapidity with which service men were becoming ex-service men; and the increases in the number unemployed (from 520,000 in Nov. 1945 to 1,210,000 in March 1946) might well have been the result of throwing such large numbers of new candidates for jobs on a job market which was not growing quite fast enough to absorb them. From April to Nov. 1946, the number of unemployed veterans continued to decrease steadily, standing at 700,000 in November, but rising to 840,000 in December. The considerable numbers of veterans neither working nor seeking work were explained at first as made up primarily of veterans who were resting after their military activities or who had not yet entered the labour force for various personal reasons, and of those who were unable to work. By Oct. 1946 the number of veterans in school had reached a total of more than 1,000,000, and the number neither in school nor in the labour force had declined to 500,000.

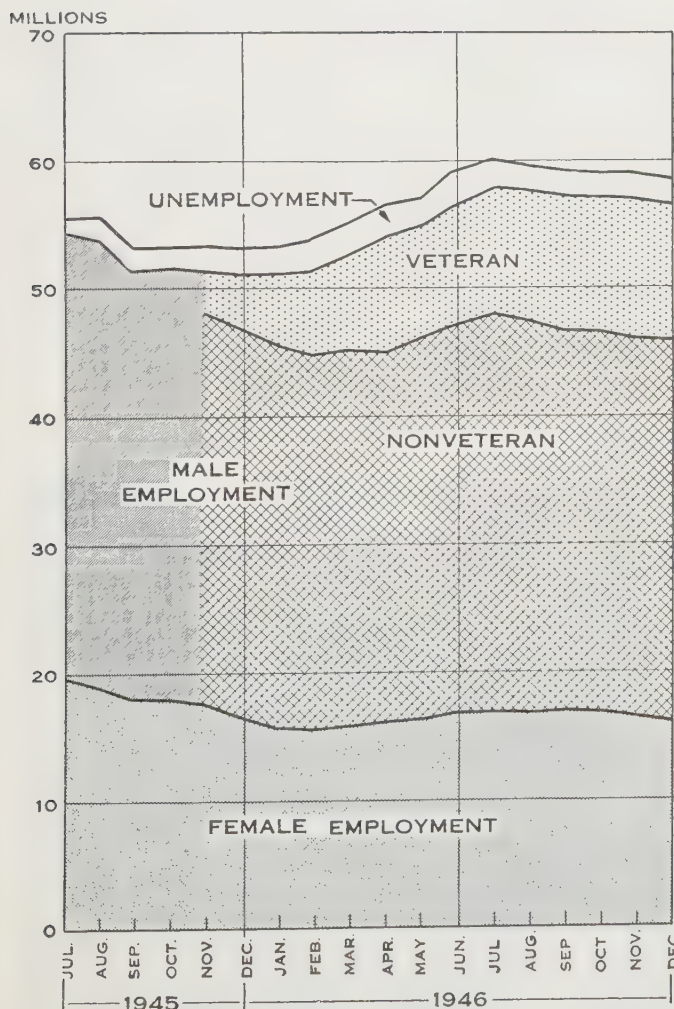
(See also ALIENS; BIRTH STATISTICS; HOUSING; IMMIGRATION AND EMIGRATION; MARRIAGE AND DIVORCE; WAGES AND HOURS; WEALTH AND INCOME, DISTRIBUTION OF.) (L. E. T.)

Centennials: see CALENDAR, 1947, page xxii.

Central America. That section of the Americas situated between Mexico on the north and Colombia on the south. Six republics are located in the area: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panamá; in addition it includes the colony of British Honduras and the Panama Canal Zone. Area: approximately 222,675 sq. mi.; pop.: about 9,088,000. Most of the inhabitants live in the temperate highlands of the southern cordillera.

History.—The political situation in Central America during 1946 was relatively quiet. Popular demonstrations against the administrations occurred, in the forms of mass meetings and strikes, but there were no major armed revolts, and no government was overthrown. Costa Rica, traditionally the most peaceful of the republics, experienced the most violence, two armed risings being thwarted in their inception by the government. In El Salvador popular demonstrations forced the Castañeda Castro administration to shuffle its cabinet three times during the year.

The last of the region's long-term military dictatorships



CIVILIAN EMPLOYMENT and unemployment, July 1945–Dec. 1946 (Source: U.S. Bureau of the Census)

—those of Gen. Tiburcio Carias Andino in Honduras and Gen. Anastasio Somoza in Nicaragua—showed signs of yielding to popular internal and official external pressure during the year, as both promised free presidential elections in 1947.

Three former presidents died during the year, and two more reappeared on the political scene. Gen. Jorge Ubico, of Guatemala (pres. from 1931–44), died in exile at New Orleans, La., in June; León Cortes Castro, of Costa Rica (1936–40), in his own country in March; and Dr. Juan Bautista Sacasa, of Nicaragua (1933–36), in exile at Los Angeles, Calif., in August. In May, Gen. Emiliano Chamorro, pres. of Nicaragua from 1916–20, returned from ten years in exile to assume the leadership of the Conservative party in his country. In July, Arnulfo Arias, pres. of Panamá from 1940–41, was released from prison and almost simultaneously put forward by his party as a candidate for the presidency in 1948.

In foreign affairs, Guatemala re-asserted sovereignty over the territory of British Honduras, but came to an agreement with Great Britain to submit the dispute to the judgment of the United Nations' court of international justice. Renewed efforts to revive the defunct union of Central American states included a meeting of the Unionist party's council in January, a conference of presidents in September (attended only by the chief executives of El Salvador and Guatemala) and a joint session of special commissions in December, all held in the republic of El Salvador. However, only Guatemala and El Salvador displayed active interest. An agreement in May between these two republics for the elimination of passport requirements respecting each other's nationals was subscribed to in September by Costa Rica, but plans to establish a customs union and to consolidate the consular services of Central America did not materialize. The commissions meeting in December were encharged with investigating the political and economic barriers to refederation and with drawing up recommendations of union for the consideration of the several states by March 1947.

Trade and Communication.—Foreign trade fell off in volume during 1946 in spite of increased shipping facilities, owing to shortages abroad of vital import items and reduced local production of the leading export commodities. Banana shipments suffered from labour strikes and wind damage to crops; the coffee yield was hurt by untimely rains; and gold and silver production was adversely affected by shortages of mining machinery. The general economic inflation was featured by rising living costs, budgetary deficits and shortages of goods, but currency values remained firm in relation to the U.S. dollar.

Central America's portion of the Pan-American highway was reported in April as being passable in all weather more than 3,200 mi. from Mexico to the Canal Zone, except for stretches of about 214 mi. in Costa Rica and 35 mi. in Panamá. A 200-mi. section between the canal and the Colombia border was still unsurveyed jungle. (See articles on individual countries.)

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(M. L. M.)

Cereals: see BARLEY; CORN; OATS; RICE; RYE; WHEAT.

Ceylon. A British crown colony, lying off the southern extremity of India and approaching within 6° of the equator. Area: 25,332 sq.mi.; pop. (March 1946): 6,650,825. Chief towns (pop. census 1931): Colombo (cap., 284,155); Jaffna (45,708); Galle (34,424); Kandy (37,147). Languages: English, Sinhalese, Tamil; religion: chiefly Hinduism and Buddhism.

Governor for 1946: Sir H. Monck-Mason Moore.

History.—Demobilization and the change-over to peace-time industry began in Ceylon after the last meeting of the War council on Dec. 17, 1945. In spite of the shortage of transport, war prosperity had led to a rise in wages, full employment and better living conditions. A phenomenal rise in revenue, however, was followed by a rise in prices. Labour troubles led to short-lived strikes, which were promptly dealt with. The food problem at one time appeared serious, but was eased by the successful visits of the food commissioner to England and Australia.

The recommendations of the Soulbury commission, which gave the island responsible government of the parliamentary type, had been endorsed by Whitehall on Nov. 1, 1945, as "the foundation for a future dominion of Ceylon." It failed, however, to meet with the approval of the Tamils, who feared that a constitution based on the western democratic principle of majority rule would place the minorities in a state of permanent subjection.

The introduction of democratic institutions synchronized with sweeping educational changes. Ceylon now had its own autonomous university, where special attention was paid to oriental studies. Free education from the kindergarten to the university was introduced. A highly significant move was the adoption of the mother-tongues, Sinhalese and Tamil, in place of English as the medium of instruction. A similar change was proposed for the law courts. The general prosperity of Ceylon was reflected in the increase of the population by 25% from 1930.
(H. G. RN.)

Education.—Sinhalese and Tamil schools 4,135; scholars, male 374,277, female 292,634; English and bilingual schools 416; scholars, male 66,467, female 34,756; University of Ceylon (1945), students 1,065.

Banking and Finance.—Revenue (est. 1946–47) £25,650,000; expenditure (est. 1946–47) £25,585,333; public debt (Sept. 1944) £22,095,770. Rate of exchange (1946): One rupee (100 cents)=1s. 6d. or 30.16 U.S. cents.

Trade and Communication.—Overseas trade (merchandise, 1945): imports £44,276,870; exports (domestic) £44,354,980; re-exports £5,291,000. Communication and transport: roads for motor traffic (1943) 6,551 mi.; railways (1944) 912 mi. (including 106 mi. narrow gauge); shipping entered (1942) 2,724,000 net tons; motor vehicles licensed (Dec. 31, 1941):

USING ELEPHANT POWER to topple a coco-nut palm in making a clearing near Colombo, Ceylon, in 1946



20,092 motor cars and taxis; 4,394 trucks and vans; 2,486 omnibuses; 2,644 cycles; 66 tractors; 231 trailers; wireless receiving set licences (Dec. 31, 1940) 9,736; telephone instruments in use (1938) 10,424.

Agriculture.—Production in short tons (1945): rice (yearly average) 209,200; rubber 111,552. Value of exports (1944): tea £23,324,130; copra £2,139,300; coconut oil £1,211,200.

Chambers of Commerce. The year 1946 was one of growth and progress for the Chamber of Commerce of the United States, in its capacity as a major representative of business. The chamber's membership grew to a total of 2,500 member business organizations with an underlying membership of their own of 1,083,000 firms, corporations and individuals.

Labour-management difficulties were of major concern during the year. The chamber worked to formulate an employer-employee policy to increase understanding and co-operation between the two. Stabilization of public and private monies, international finance and renegotiation and cancellation of war contracts also loomed large in the chamber's work. As building controls were relaxed, housing problems were echoed by civic planning needs. Conversion of the nation's transportation and communication systems to peacetime operations and their improvement to meet future needs, were carefully studied.

During the year, the chamber maintained close touch with congressional and administrative activities. It interpreted to government the needs of business, and, in turn, served business and the public as an informant on national and international affairs. The chamber advocated the loan to Great Britain, universal military training, improved educational facilities for the nation's youth, civilian control of atomic research and elimination of world trade barriers. Finally, the national chamber issued a broad and effective report on communistic activities in the U.S..

In May 1946, William K. Jackson of Boston, Mass., was elected president of the Chamber of Commerce of the United States; Ralph Bradford continued as general manager.

(W. K. J.)

Junior Chambers of Commerce.—More than 150,000 junior chambers of commerce members (known as "Jaycees") in the United States and Canada swung into action during 1946 to fight for better communities and cleaner government, international friendship and understanding.

On a community level, more than 1,200 local organizations worked to establish municipal airports and to combat juvenile delinquency with sports programs, a Jaycee baseball league for boys (under 16 years of age) and teen-age canteens. They led clean-up campaigns in community face-lifting projects and fought tuberculosis and syphilis by sponsoring city-wide X-rays and blood tests. They laboured on year-around safety campaigns to reduce traffic fatalities. Veterans' affairs were of prime importance, and in Detroit Jaycees canvassed every building in the city to find housing for ex-service people. Every six weeks, information on national problems and an enclosed referendum to sample membership opinion were sent to each U.S. local group. Jaycees everywhere strove to bring political issues to the people in bipartisan public forums and get-out-the-vote activities.

U.S. Junior Chamber men voted at their annual convention to support the United Nations and the United Nations Relief and Rehabilitation administration. They urged the U.N. charter be amended to form a constitution for a federal world government of the peoples of the world with a bill of rights to protect them.

By 1946 the Junior Chamber of Commerce idea of learning leadership by organized effort in projects of community and

national improvement had spread to 30 nations. In February of that year the U.S. Junior Chamber joined with delegates from 18 nations to establish Junior Chamber International with headquarters in Panamá City, Panamá. International president was Erasmo Chambonnet, Colon, C.Z., and secretary was Hildebrando Nicosia, Panamá City.

Headquarters of the U.S. Junior Chamber of Commerce was the La Salle hotel, Chicago, Ill. Its principal officers were: president, Selden F. Waldo; executive vice-president, Rex McMorris; treasurer, William O. Kurtz, Jr. (S. F. W.)

Great Britain.—At its 86th annual meeting in April 1946 the Association of British Chambers of Commerce recorded its opinions on a number of national and international trade questions. The U.S. proposals for discussion at the international conference on trade and employment, to be held in 1947, were criticized on the grounds that lack of discrimination in international trading was unfair to those nations which were obliged to import on a large scale. In its report on the British proposals the association maintained that the commonwealth, colonies and dependencies were as much entitled to be regarded as a single economic unit as were the states of the U.S.A. and of the U.S.S.R. In any proposals that imperial preference should be abandoned, the association considered that undertakings not to increase margins of preference and not to introduce new preferences should not be entered into unless a similar undertaking were obtained that tariffs reduced as a *quid pro quo* for the elimination of preferences should not again be increased, and that no new ones should be imposed.

During the year the association made representations to the chancellor of the exchequer urging a reduction in direct taxation, even if the national account should be unbalanced as a result. At the annual meeting in April it put forward the opinion that taxation defeated its own object of raising revenue if it took a form which deprived either worker or employer of the incentive afforded by a fair reward for labour. The bill to amend company law was carefully watched by the association and efforts were being made to secure agreements with other countries with regard to double taxation. The government's nationalization policy caused much concern and three reports, *Nationalization or Private Enterprise*, *Nationalization of Transport* and *Nationalization of the Gas and Electricity Industries*, were put out by the association, supporting freedom of enterprise and urging a pause in the enactment of legislation involving further nationalization and control. (R. B. Dy.)

Channel Islands: see BRITISH EMPIRE.

Charles (CHARLES THÉODORE HENRI ANTOINE MEINRAD DE SAXE-COBURG, COUNT OF FLANDERS) (1903—), prince of Belgium, was born in Brussels, Oct. 10, younger brother of King Leopold III of the Belgians. On Sept. 20, 1944, shortly after the liberation of Belgium from German occupation, Prince Charles was appointed regent by a joint vote of the parliamentary chambers, as the king was still a prisoner of the enemy. On May 8, 1945, King Leopold was freed by Allied troops at Salzburg and four days later he confirmed the choice of the parliament, asking his brother to "continue the mission he had assumed in the interest of the nation." Considering the acuteness of the "royal question" (see BELGIUM), the prince regent deliberately avoided taking an active part in Belgium's political life. He was not often seen in public and officially his role was limited to helping in the formation of successive governments. Prince Charles visited England at the end of Jan. 1946; in May he spent a fortnight in Portugal and in mid-October he stayed three days in Paris. No reasons were given for these visits. (G-H. D.)

Cheese.

The production of cheese in the United States in 1946 amounted to a total of 1,050,000,000 lb. compared with 1,115,000,000 lb. in 1945 and 669,000,000 lb. in the 5-year average 1935-39. Only about one-third as much cheese was exported in 1946 as in 1945 and the military needs declined to about 15,000,000 lb. Stocks of cheese in storage increased during the midyear to exceed the prewar level but did not equal the volume of 1945. The price of cheese advanced following the end of the Office of Price administration ceilings and reached new high levels in August but the demand slackened by October and Wisconsin cheddars were sold at about 46 cents per pound. The rate of civilian consumption increased as the meat shortage continued and reached about 6.8 lb. per capita. The development of new varieties of cheese encouraged the use of this food to a marked extent so that all the increased output was expected to be consumed at sustained prices. (See also BUTTER; DAIRYING; MILK.) (J. C. Ms.)

Chemical Therapy: see CHEMOTHERAPY.

Chemistry.

In terms of chemical publication, 1946 reflected the war years. A considerable volume of research, which had been performed for military reasons, was released during the year. Interesting and valuable as much of such research may be, 1946 still cannot compare with an average prewar year in terms of broad, fundamental advance in chemical knowledge. Many scientists, however, returned to basic problems. This was expected to be reflected in the chemical journals for 1947. Nevertheless, for an indefinite period, the level of research activity for military purposes would probably remain far above that of prewar times.

Where once a large fraction of chemical publications appeared in German, only the Swiss ones remained in 1946. Apparently, however, the Allied military governments were taking the first steps towards permitting some resumption of German scientific activity and publication. The situation was not clear because of the lack of co-ordination among the four zones of occupation.

French chemists exhibited a noteworthy recovery from war conditions. The level of publication in French was unusually high. In that language, in Russian and in English, nearly all the research of any consequence in 1946 was published.

Nobel Prize. (See PRIZES OF 1946: *Nobel Prizes*.)

Americium and Curium.—By tradition, the discoverer of a new element may name it. The existence of elements of atomic numbers 95 and 96 had been announced in 1945, but their discoverer, Glenn T. Seaborg, announced their names in 1946. Number 95 was called americium, symbol Am; number 96 was called curium, symbol Cm.

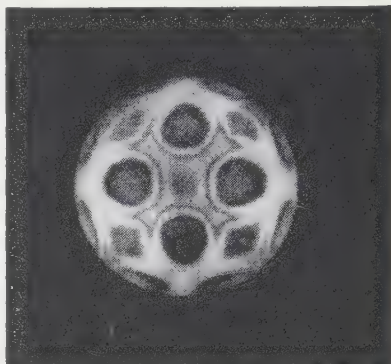
The atomic number represents the positive charge on the nucleus of the atom and consequently the number of electrons arranged with the nucleus to make a neutral atom. These electrons are arranged in shells of which the innermost, *K*, may hold but 2 electrons; *L*, the next, 8; *M*, 18; *N*, 32; *O*, 50; etc. In the first rare earth, lanthanum (at. no. 59) shells *K*, *L*, and *M* are filled, shell *N* contains 18 electrons, shell *O*, 9, and *P*, 2. Eight electrons constitutes a shell of particular stability. Consequently, lanthanum will rather readily lose the two *P* electrons and one *O* electron. It forms the ion, La^{+++} , and trivalent compounds. Element number 60 has one extra positive charge on the nucleus and, consequently, one more electron. This electron is found in shell *N*. In following elements, shell *N* is filled. These elements are all much alike since their chemistry is largely determined by the three outermost electrons common to all of them, though a few also exhibit other valencies.

Seaborg proposed that a similar series begins with element 89 (actinium). The electron assignment in the transuranium elements has not yet been released, and some scientists were known to disagree with this view. The elements immediately beyond actinium do not exhibit a very stable trivalent state, but by americium the trivalent state is the most important one.

Cunningham obtained a weighable quantity of pure americium hydroxide, $\text{Am}(\text{OH})_3$. No pure curium compound had been prepared up to the close of the year; its chemistry was known only from tracer studies.

Americium and curium constitute the seventh and eighth members in the newly characterized "actinide" series. The elements in the analogous position in the rare earth series are europium and gadolinium. Johann Gadolin was an early 19th century pioneer in the study of rare earths. It was by analogy with these elements that 95 and 96 were named, curium being named after Madame Curie, the discoverer of radium.

Further details of the chemistry of the transuranium elements were released during 1946. When it became evident that plu-



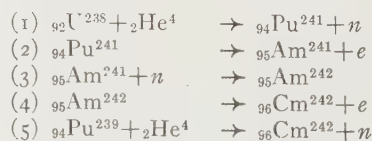
A SINGLE CRYSTAL SPHERE of copper showing interference patterns of oxide film resulting from heating in air. This was an important development in the study of metals in 1946

tonium (at. no. 94, mass 239) would be superior to uranium 235 (at. no. 92, mass 235) as a fissionable isotope for an atomic bomb, it was necessary to design a plant for the separation and purification of the plutonium produced in the uranium pile. The procedure was entirely worked out by experiments upon a total of but 1/1000 of a gram of plutonium. Means of working on a microgram (0.000001 gram) scale were developed. From this information, the

plutonium producing plant at Hanford, Wash., was built. It worked successfully from the start; no formal pilot plant was built and the scale up from the original data was by a factor of 10^{10} . A number of pure compounds of plutonium were made as well as the metal. Solubilities and reactions were determined.

The preparation of pure neptunium (at. no. 93) was also announced. The isotope employed was not the short-lived predecessor of Pu^{239} , but a by-product of the uranium pile, Np^{237} , which has a half life of more than 2,000,000 years. This isotope, like Pu^{239} is fissionable; upon absorption of a neutron, it explodes into several fragments.

Details of the formation of americium and curium were released. The reactions are:



Here, *n* is the symbol for a neutron, the particle of mass 1 and charge 0; *e* is the symbol of the electron. $\text{}^2_2\text{He}^4$ represents the nucleus of the helium atom, the alpha-particle. The subscript at the lower left gives the atomic number of the isotope; the superscript, its atomic weight.

Isotopes as Tracers.—Incident to the operation of the uranium pile, radioactive isotopes of a number of elements are formed. Many elements not resulting directly from this process may be synthesized by placing suitable elements (or their compounds) within an operating pile to utilize its high level of neutron activity, since neutrons act on a number of nuclei to synthesize radioactive ones.

Synthetic radioactive isotopes were used in the years just before the war as tracers to study animal metabolism and to determine mechanisms of chemical reactions. The availability of such radioactive material from the Manhattan district and from the new British pile at Harwell, England, should greatly stimulate such work. The radioactive carbon isotope, C^{14} , will

be of particular interest in organic chemistry.

During the year it was announced that the Houdry corporation of Philadelphia was separating C^{13} from natural carbon, which is mostly C^{12} , by thermal diffusion columns. It was also being produced by the Eastman Kodak Company by a chemical exchange process. C^{13} may also be used as a tracer. Its course is followed by methods involving mass determinations of products.

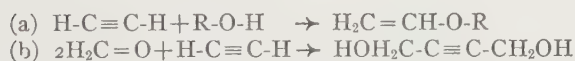
Amino Acids.—No satisfactory method of analyzing mixtures of amino acids existed in the past. Since proteins are built from the 30 or so naturally occurring amino acids, this is a matter of great interest. The technique of microbiological assay as developed by Esmond E. Snell was extended to amino acids. A symposium at the September meeting of the American Chemical society was devoted to this.

Like man, bacteria have specific nutritional requirements. The growth requirements of certain lactic acid bacteria had been worked out in regard to vitamins permitting methods of assay of vitamins to be developed. The amino acids required for growth of these bacteria have been determined. A broth is provided which contains sugar, salts, vitamins and all but one of the necessary amino acids. If a material to be analyzed for this amino acid is added and the broth inoculated, the rate of growth of the bacteria is quantitatively a function of the amount of the amino acid present. This provides a rapid, reliable assay.

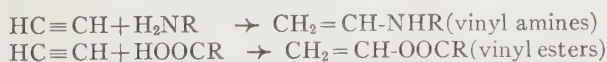
Acetylene.—The extensive German development of syntheses based on acetylene was revealed by British-American investigating teams. In large part, the acetylene was hydrogenated to ethylene for the manufacture of glycol, $C_2H_4(OH)_2$, and its derivatives, ethylene dichloride, $C_2H_4Cl_2$, and styrene, $C_6H_5CH=CH_2$, for synthetic rubber. Such processes are of no interest where petroleum is available since refining operations yield much ethylene as a by-product.

More significant are the developments of W. Reppe and his group at the I. G. Farbenindustrie. These resulted largely from their finding how to handle acetylene at temperatures up to $200^\circ C$. and at pressures up to 20 atmospheres without explosion, the danger of which had hindered previous exploitation. This was largely accomplished by dilution with an inert gas such as nitrogen.

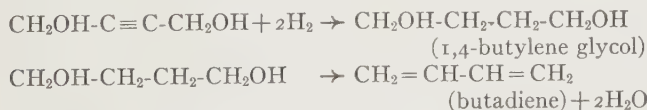
Syntheses were of two types:



Thus, in one case, vinyl derivatives, $CH_2=CH-$, result; in the other, derivatives of acetylene, $-C \equiv C-$. In (a), potassium alkoxide is the catalyst. The vinyl ethers upon polymerization yield adhesives and coating materials, which had been made only in Germany. With other catalysts, other molecules can be added:

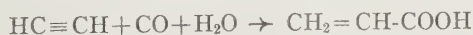


In type (b), copper or silver acetylide serves as catalyst. The product was converted to butadiene for synthetic rubber:



Instead of formaldehyde, ketones can be added to yield unsaturated alcohols or diols; amines give aminobutynes. These can be hydrogenated or chlorinated to give a variety of products.

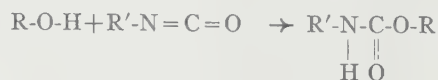
A reaction combining types (a) and (b) gives acrylic acid and its derivatives which are important sources of certain plastics. $Ni(CO)_4$ is the catalyst.



Substitution of alcohol for water gives the ester.

High Polymers.—The production of polyisocyanates, a German development of the latter part of the war, aroused consid-

erable interest in the plastics industry after it was revealed by Allied investigating teams. The formation of a new family of plastic materials constitutes one of the most important German discoveries of the war years. An isocyanate reacts at a relatively low temperature with a free hydroxyl group to form an amide:



A di-isocyanate such as hexamethylene di-isocyanate (Desmodur H):



will react with a molecule containing two hydroxyl groups such as glycol, $HO-CH_2-CH_2-OH$, to form long chain molecules. Such chains are characteristic of plastics which soften on heating. Upon using a tri-isocyanate, the chains are cross-linked and polymers which do not soften on heating result. The isocyanates will react with the free hydroxyl groups of cellulose and its derivatives to yield products of decreased solubility and increased temperature resistance. They were applied to the tanning of leather and to the improvement of drying characteristics of glyptal resin compositions. The manufacture of these materials outside of Germany was under way at the end of the year.

Oxidation.—In the 1920s and 1930s much was learned about the nature of reactions involving transfer of an atom or group; much less was known about that of reactions involving electron transfer, that is, oxidation reactions. A symposium held by the Faraday society at the University of London led to the disclosure of much important work in this field.

The suggestion of L. Michaelis that two electrons cannot be exchanged in a single step (*i.e.*, oxidation of organic compounds proceeds in more than one step) received further support and was extended to inorganic oxidation-reduction reactions.

The reduction activation technique of polymerization developed in the laboratories of Imperial Chemical Industries was disclosed at this meeting. Oxidizing materials such as peroxides and persulfates have long been known to catalyze polymerization reactions. It has been held that free radicals initiate polymerization chains perhaps in this manner:



The product of this reaction is a free radical which can add to the monomer in the same way. Repetition of this process produces a chain polymer of many units from one initiating-free radical.

In the I.C.I. process, a reducing agent is added to the mixture of polymer and, say, persulfate. A wide variety of salts, inorganic compounds and organic compounds may serve as reducing agents. Presumably, high concentrations of intermediate products of the oxidation process serve as polymerization initiators. If hydrogen peroxide is the oxidizing agent and Fe^{++} the reducing agent, the active intermediate is believed to be the hydroxyl radical and to arise thus:



Adsorption Analysis.—Chromatographic analysis was extended in an important manner by Arne Tiselius and Stig Claesson at Uppsala (Sweden). As the name suggests, chromatographic analysis originally was applied to coloured compounds, a solution of which was passed through a column of adsorbent. All solute was adsorbed at the top. Upon further passage of a solvent, the less strongly adsorbed solutes were carried down the column and the components were found in successive bands identifiable by colour. By appropriately segmenting the adsorbent, pure compounds were recoverable. It was later found that on continued passage of a solvent, each component successively appeared in the effluent. This is called elution analysis. With uncoloured compounds special methods of analysis had to be applied and each successive batch of eluent had to be analyzed.

Tiselius and Claesson placed a small cell immediately below

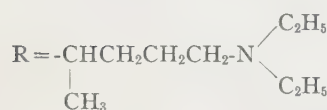
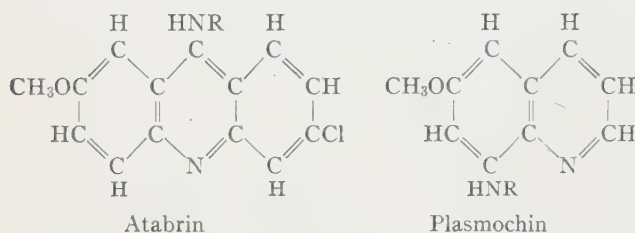
the adsorbent to allow continuous observation and recording, if desired, of the refractive index of the solution. Elution analysis may thus be carried out far more conveniently and accurately. They also developed a technique in which the unknown is absorbed in the column and then displaced by a solution of a very strongly absorbed substance. Upon plotting change in refractive index against volume passed, a curve of ascending steps is obtained. The height of the level part of a step is characteristic of a particular compound, its length, of the quantity present.

The method was applied successfully to amino acids, homologous series of organic acids, and a number of other difficult mixtures. It should become a widely used tool in organic chemistry.

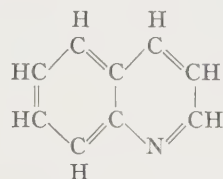
The technique has also been applied to gases and vapours. The refractive index cell is replaced by one in which the heat loss from a hot wire is measured. Of course, any physical property may be used to follow adsorption analysis but the two described above are convenient and general.

Antimalarial Compounds.—During World War II a vast volume of work was performed in England and in the United States, in quest of better antimalarials. Results of these investigations appeared in 1946.

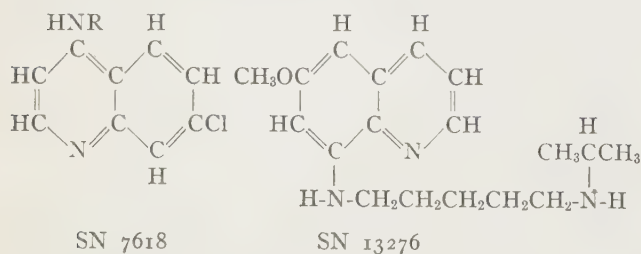
Before the war, two German drugs had been advanced as antimalarials, atabrin and plasmochin.



Both of these compounds are derived from quinoline,



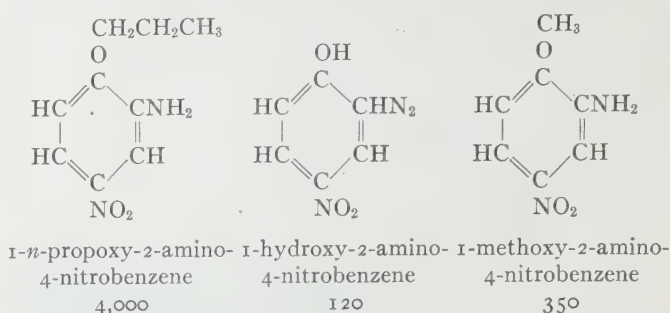
Nearly 10,000 new chemical compounds were prepared throughout the world in this investigation. Most of these were quinoline derivatives. Knowledge of its chemistry was thus greatly extended. Several effective drugs came out of the program, in particular SN 7618 and SN 13276 (index numbers of the Survey of Antimalarial Drugs which tested more than 15,000 compounds). SN 7618 was in commercial production and was especially effective in treating the deadly *vivax* malaria. SN 13276 was not fully tested but appears even more promising.



(R is the same as in atabrin)

The resemblance of SN 7618 to atabrin and of SN 13276 to plasmochin will be noted.

Sweetening Agents.—P. E. Verkade announced the discovery and commercial exploitation in Holland of a new sweetening agent about 4,000 times as sweet as cane sugar and about 10 times as sweet as saccharin. The compound and two similar ones with the ratios of their sweetnesses to that of sugar are:



Properties of Faces of Single Crystals of Metals.—Since an ordinary piece of metal is composed of microscopic crystals arranged helter-skelter, its surface is a mosaic of all possible faces of the component crystals and properties of the surface are averages of those of different faces.

Allan T. Gwathmey, at the University of Virginia, developed means of growing large single crystals and undertook systematic investigation of a number of properties of single, "pure," faces. Large single crystals of metals had been made before but Gwathmey's systematic investigation was without precedent. Most properties determined formerly on composite surfaces would have to be restudied on single faces.

In a single crystal, metal atoms are arranged in a highly ordered manner something like a three-dimensional chess-board. Place an atom of iron at each of the eight corners of a cube and one at its centre. Extend this pattern in all directions by adding more atoms. A *body-centred cubic lattice* results, in which each component cube is parallel to every other. Each atom at the vertex of a cube is shared by the seven other cubes meeting at this point. This is the ordinary form of iron.

If this crystal is cut along a plane parallel to a face of a component cube, the *cube face* of an iron crystal results. In this, the atoms are arranged exactly as the squares on a chess-board. But if the crystal is cut at an angle of 45° to the cube faces and such that the cut passes through parallel and diagonally opposite edges of component cubes, a different face results. It is constituted by parallel rows of atoms, as before, but alternate rows are staggered, and, per square cm. of face, there are 1.414 times as many atoms. Gwathmey found such faces to react at different rates with oxygen and other reagents, to exhibit different catalytic properties, and different capacities for adsorption of gases, to wear differently, etc. Furthermore, other and different angles of cutting will produce still other crystal faces, all of different properties.

One of Gwathmey's methods of producing single crystals involves slowly lowering a cylindrical crucible with a conical bottom from a furnace. A single-seed crystal forms at the point of the cone where the temperature first falls to the freezing point of the metal. This grows to fill the crucible.

One end of this is machined to a sphere. On its surface all possible faces must appear. Upon heating in oxygen, oxide is formed at different rates on different faces. On copper, the fastest rate is five times the slowest. This effect is made visible by beautiful coloured patterns of interference colours resulting from thin films of oxide. (See the photograph of a single copper sphere on p. 192.) The orientation of the crystal may be determined from the fact that six-cube faces (corresponding to the six-faces of the elementary cube) must exist. Knowing the orientation, larger quantities of any given face may be sliced from the crystal. Catalytic properties may, thus, be studied. In the combination of hydrogen and oxygen to water, there is one copper face of twice the catalytic activity of another. Among the properties studied are: adsorption, oxidation, corrosion, wetting, catalytic activity, electrode potential, susceptibility to

electrodeposition, wear, and coefficient of friction.

Penicillin.—In consequence of several years of effort in U. S. and British laboratories, penicillin was synthesized by purely chemical methods. The synthesis of benzyl-penicillin (penicillin-G) in small quantities was announced by V. du Vigneaud and co-workers at Cornell. It was not known up to the close of the year whether the reaction can be developed to compete with the mould fermentation method. Apparently the mechanism of the synthesis is obscure so that, unfortunately, no light was thrown on the structure of penicillin. However, the structure was confirmed by X-ray analysis.

Commercial production of crystalline sodium penicillin was announced. The only form available previously was the amorphous. The crystalline form is much more stable. For example, the time required for 15% loss in potency was found to be 0.5 day for the amorphous form and 28 days for the crystalline. (See also ATOMIC ENERGY; BIOCHEMISTRY; PHYSICS; VITAMINS.)

BIBLIOGRAPHY.—*Chemical Abstracts* (1945); *Chemical and Engineering News* (1945); *Nature* (1945). (R. L. B.)

Chemotherapy. Penicillin, as it had been made available commercially until early in 1946, was shown to consist of a mixture of four or more closely related chemical compounds, namely penicillins F, G, K and X. Several groups which had been studying the efficacy of penicillin in the treatment of syphilis found that the results appeared to be better when penicillin made subsequent to that time was employed. Investigation revealed that the introduction of new types of penicillium mould in the manufacturing process resulted in the production of a mixture of penicillins containing a high proportion of one known as penicillin K. The K type of penicillin was found to be highly active against bacteria in the test tube, but in the human or animal body, it was altered, destroyed or excreted so rapidly that the infecting germs were not exposed to sufficient penicillin to kill them. This situation was quickly corrected by appropriate changes in the manufacturing process and all of the penicillin available in the latter half of 1946 contained more than 75% of penicillin G, the kind known to be effective in the body.

Crystalline penicillin G became available commercially, simplifying transportation and storage of the drug because it is more stable than the impure forms. Various dosage forms for special uses were developed and marketed, such as tablets, troches, ointments and dental preparations.

Further experience in the treatment of syphilis revealed penicillin to be the drug of choice in congenital syphilis and to be useful in syphilis of the brain and spinal cord when used in conjunction with artificial fever. Studies were initiated using a combination of one of the arsenic antisypilitic drugs and penicillin as a rapid cure for syphilis. Several years would be necessary to evaluate this form of therapy fully. The preliminary results were promising.

At the end of 1946, controls on the distribution of streptomycin were lifted, and it became generally available. It was shown to be effective in the treatment of tularaemia (rabbit fever), influenzal meningitis, certain blood stream infections and in certain kidney and bladder infections. Results were disappointing in typhoid fever and undulant fever.

Results of streptomycin therapy of tuberculosis continued to be encouraging, but the general impression gained from the studies was that streptomycin would find its usefulness as an adjunct to other forms of treatment.

Streptomycin given in conjunction with promin (sodium 4,4'-diaminodiphenylsulfone-N,N'-didextrose sulfonate), a drug related to the sulfonamides, gave promise of being useful in the treatment of leprosy. The studies had not progressed far enough to draw any definite conclusions.



PENICILLIN MANUFACTURING PLANT of the British government at Speke, Eng. Air used in the production of the drug is cleaned and sterilized in these towers. Penicillin was made available in British drug stores at controlled prices in 1946

During 1946, additional information on five effective anti-malarial drugs became available. Quinacrine (atabrine), the drug used extensively by the armed forces during World War II, was made available to the civilian population for the suppression of malaria. Chloroquine, 7-chloro-4-(4-diethylamino-1-methylbutylamino) quinoline, was found to be effective for the suppression of malaria, particularly *vivax* malaria, as encountered in the South Pacific and Mediterranean areas. It might be a cure for *falciparum* malaria, but more experience was needed. Pamaquine is effective in curing some cases of *vivax* malaria, but is too toxic for routine use. It may be used with quinine effectively. Pentaquine, 6-methoxy-8-(5-isopropylamino-oamylamino)-quinoline, another antimalarial developed during World War II but not available, was found to be effective in curing *vivax* malaria when given with quinine. It was too toxic to be administered alone in doses sufficient to suppress or cure the disease. Paludrine (N₁-p-chlorophenyl-N₅-isopropylbiguanide), was found to have actions similar to Quinacrine, but its administration led to less undesirable side-effects, and it proved more useful for medication of large numbers of troops.

The atomic fission plants began producing radioactive elements for medicinal purposes during 1946. Extraordinary precautions were taken to protect the medical investigators and patients from possible harm from these potent substances. Although most of the radioactive elements found their chief usefulness as "tracer" substances for studying the chemistry of body processes, two of them, radioactive phosphorus and radioactive iodine, found therapeutic application.

Radioactive phosphorus was found useful in treating polycythemia, a condition characterized by too many circulating red

blood cells. Its use in leucaemia was disappointing, although, in some instances, temporary alleviation of symptoms was noted.

Radioactive iodine was reported effective in the treatment of toxic goitre. Too few persons could be treated to determine how lasting the effects might be, but the preliminary results were so encouraging as to create a large demand for this substance.

A group of chemicals developed for use as poison gases were found to have profound physiological effects. The nitrogen mustards (related to ordinary mustard gas) were discovered to produce effects similar to exposure to X-rays. They cause destruction of white blood cells and were tried in leucaemia, Hodgkin's disease and some forms of cancer. The results were disappointing although temporary benefits were observed.

Another product of war research, diisopropyl fluorophosphate (DFP), was found to be useful in the treatment of glaucoma, a disease of the eyes which frequently leads to blindness. The previous treatment involved repeated instillations of physostigmine into the eye; DFP in peanut oil could be used once a day or once in several days and was found to exert better control of the disease than the older drug.

A widespread tropical disease, kala-azar or leishmaniasis, was found to respond well to treatment with any of several antimony compounds, among which neostibosan, stibanose, stibatin, urea stibamine and stilbamidine were found most effective. Stilbamidine was found to be particularly useful in the form of kala-azar affecting the abdominal organs.

Typhus fever, scrub typhus and Rocky Mountain spotted fever were shown to respond encouragingly to para-aminobenzoic acid, a substance long known to inhibit the action of the sulfonamides.

The synthesis of folic acid was announced, and it was shown that this substance was effective in controlling the symptoms of pernicious anaemia, nutritional anaemia and tropical sprue in the same manner as liver extract. Since folic acid may be taken by mouth, the treatment of these diseases may be greatly simplified for the patient.

The United States public health service reported an extensive study on the control of ringworm in children, in which a variety of medicaments were used. They concluded that an ointment containing either salicylanilide or copper undecylenate was the most effective for treatment of this common condition.

Drugs for the treatment of allergies such as hay fever, hives and asthma continued to be studied. Besides Benadryl (beta-dimethyl aminoethyl benzhydryl ether hydrochloride), another antihistamine drug, Tripeleminamine or Pyribenzamine (N,N-dimethyl-N'-benzyl-N'-(d pyridyl)-ethylene diamine) was found to be effective in seasonal hay fever and hives. Somewhat less than half of the cases of seasonal asthma responded to the drug. It produced side effects similar to Benadryl, namely drowsiness, nausea and headache.

Tridione, a drug effective in the treatment of petit mal epilepsy was found to cause destruction of the blood cells in a few cases. Physicians were cautioned to watch closely patients under treatment with this drug.

A new antiseptic, Furacin (5-nitro-2-furaldehyde semicarbazone) was found to be useful in treating wounds. Administered in the form of an ointment, it often controlled bacteria which had failed to respond to either penicillin or streptomycin.

A crystalline substance, rutin, a flavone, found in a wide variety of plants was prepared commercially from buckwheat. Rutin was claimed to exert an action on the walls of capillary blood vessels, preventing them from bursting in persons with high blood pressure or with diseases which cause the capillaries to become more fragile. Investigations on this substance were continuing.

During 1946, investigations on protein hydrolysates, which contain amino acids, the building blocks of body proteins, were advanced. They were found to be of value in preparing patients for surgical operations, in maintaining nutrition in patients unable to take food by mouth, in treating certain forms of liver and kidney disease, and perhaps in the treatment of stomach and intestinal ulcers. Reports from European concentration camps indicated that protein hydrolysates were not of expected value in treating severely starved persons, but purified whole protein taken by mouth was of greater value. It was found that purified whole egg protein most nearly approached an ideal protein for medical purposes.

Influenza type A and B vaccine became generally available during the year. The low incidence of influenza during the latter half of the year did not permit an evaluation of the large-scale use of this vaccine in preventing the spread of epidemics of influenza.

Two new vaccines were developed, one for tularaemia, (rabbit fever) and one for psittacosis (parrot fever). It was claimed that these vaccines were effective in preventing or decreasing the severity of the disease in persons exposed.

Although many of the advances made in chemotherapy during the war were revealed during the year, much remained undisclosed. Initiated during the year were concerted attacks on the treatment of cancer with sex hormones, the treatment of infantile paralysis with curare, the South American arrow poison, the study of substances, such as paraminobenzoic acid, amino acids, and adenylic acid derivatives, which may act to "block" viruses from entering or living in body cells. (See also DENTISTRY; MEDICINE; PNEUMONIA; SURGERY; UROLOGY; VITAMINS.) (W. V. WE.)

Chemurgy. Research in the fields of new crops, new uses for agricultural products and for agricultural residues received substantial impetus during 1946. Congress provided the department of agriculture with \$40,000,000 of new research money, portions of which were directed to be used to develop new crops and to extend the industrial outlets for farm materials. Two new nongovernmental laboratories began full operation.

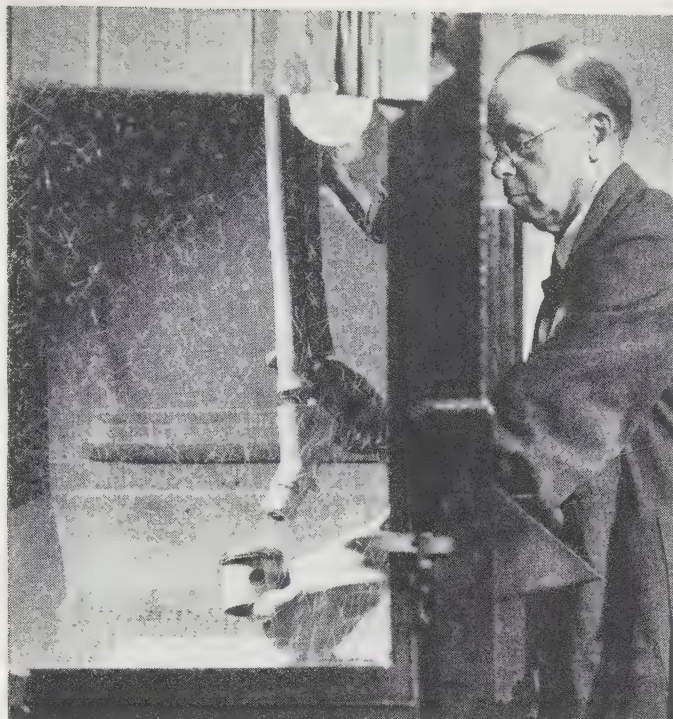
The Midwest Research institute, with a staff of more than 90 persons, was privately financed to serve the six-state area around Kansas City, Mo., where the institute is located. Besides offering facilities for research to be paid for by industries of the region, the program called for special studies, many of which were to centre on the agricultural materials available for industrial uses.

At Birmingham, Ala., the Southern Research institute opened with a similar program to serve the states of the south. With more than \$1,000,000 collected, and a staff of about 40 persons, the Southern Research institute had launched numerous projects looking to more profitable utilization of southern farm raw materials.

A number of state legislatures increased the funds available to state universities and experiment stations for chemurgic types of research.

The rise of synthetic fibres directed greater attention to research as a means for widening the demands for cotton. Three important approaches were studied by the Southern Regional Research laboratory of the department of agriculture, located at New Orleans, La.

The automobile tire industry, one of cotton's largest markets, had been invaded by rayon. Private cotton seed producers had developed new cotton strains with stronger fibres. These, studied by the regional laboratory and tested by tire companies, were found to be superior to the older cottons, and



A PISTON BEING CLEANED of carbon by blasting with a mixture of ground corncobs and whole rice hulls in a demonstration in 1946

showed promise of helping the natural fibre to hold a place in tire manufacture.

Rotproofing of cotton fabrics by partial acetylation was successfully established. The process was expected to be commercially important in such fields as sandbags, seedbed covers, yarn for electrical insulation in tropical climates, fish-net twines, boat lining and bags for covering hams for export. The treatment prolongs considerably the life of the fabrics used for such purposes.

Under study also were methods for improving the resistance of cotton fabrics to wind and rain.

Meanwhile new synthetic fibres from agricultural materials were emerging. A peanut protein fibre, given the name of Sarelion, was announced by the Southern Regional Research laboratory. Still in the laboratory stage, it was reported to possess some of the desirable qualities of wool along with the common weakness of other synthetic protein fibres, which is low strength when wet.

Zein, the protein extracted from corn and commercially produced for coatings and plastics, was the source of another vegetable synthetic fibre announced in 1946. A strong fibre, it promised to lend itself to economical production and use since it can be extruded, spun and finished by continuous process methods.

Still under study at the Western Regional Research laboratory and in commercial laboratories were the keratin protein fibres made from chicken feathers. Here also the main problem is to overcome the weakness caused by moisture. The chicken feather material is especially attractive from a manufacturing viewpoint, since some 175,000,000 pounds of the feathers are wasted annually. The commercial demand is limited to small quantities for cushion stuffing. The feathers are easily available at chicken packing plants.

Paint brush bristles from milk, by way of casein, appeared in commercial markets. A Maryland factory began their manufacture during 1946. Their uniformity and durable quality were expected to make the synthetic bristles a permanent competitor for the natural animal bristles which no longer could be obtained reliably from the former sources in Manchuria.

Leather manufacturers welcomed the progress which might give them a domestic supply of vegetable tanning materials. Synthetic tanning substances had been expensive, and the imported quebracho and sumac had been in short supply. Considerable progress was reported in both production and processing methods with the canaigre root. New Mexican experiments produced roots at an average annual yield of 11.5 tons. The roots are harvested, however, three years after planting the seed.

At Beltsville, Md., the department of agriculture was growing selected strains of sumac, seeking kinds which might be profitably cultivated for the leaves, which contain as much as 40% tannin. Tanning tests made with the products both of canaigre root and sumac leaves had indicated that from a quality standpoint either could compete successfully with imported tannins. The results lend hope that they might result in two new crops for U.S. agriculture.

The paper industry announced in 1946 the successful establishment of guar as a new domestic crop. The industry required a type of mannogalactin mucilage in paper-making processes to improve the opacity, printing quality and other characteristics of certain kinds of paper.

After extensive search guar, a plant from India, was found to be a suitable source. Planting in Arizona proved to yield an abundance of the seed from which the material is extracted. Guar was being produced in 1946 under contract by Arizona farmers. The product was said to have potential uses in cosmetic and pharmaceutical industries.

Further progress was reported during the year with the growing and processing in Florida of ramie, the remarkable Chinese fibre which had formerly resisted mechanical methods for decoration and degumming.

The \$7,800,000 sweet potato starch plant of the United States Sugar corporation at Clewiston, Fla., moved into full operation during the year. It was consuming at capacity the product of more than 12,000 acres, making more than 50,000,000 pounds of starch and 20,000,000 pounds of livestock feed, and creating new employment for nearly 2,500 workers.

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Cherries: see FRUIT.

Chess. The death of Dr. Alexander A. Alekhine on March 24, 1946, at Lisbon, Portugal, left chess without a world champion, but the game picked up considerably in international competition. No less than five major tournaments were held in Europe during the year. Dr. S. Tartakower of Poland won the first postwar tournament at Hastings, England, while Dr. Max Euwe of Amsterdam, Holland, and Herman Steiner of Los Angeles, Calif., were first in a two-division meet at London.

Dr. Michael Botvinnik, the Russian champion, featured a most successful season for the soviet union by winning a masters' test at Groningen, Holland. Mendel Majdorf of Poland won an international tournament at Prague.

In the United States, Samuel Reshevsky of Boston, Mass., was returned to his national championship throne, marking his 8th U.S. championship. Steiner won the national open championship, while A. E. Santasiere of New York won the New York state, and I. I. Kashdan the Metropolitan titles. Larry Friedman of Cleveland was crowned national junior champion, and Miss N. May Karff of Boston won the women's national tournament.

In international team competition, Russia was supreme. The U.S.S.R. defeated Great Britain, 18 to 6, in a four-day radio match, and overcame the United States, 12½ to 7½, in Moscow.



DEMONSTRATION CHESSBOARDS on which all moves were repeated for the benefit of spectators at the International Chess match held from Aug. 20 to Sept. 7, 1946, at Groningen, Holland

Elbert A. Wagner Jr., of Chicago was elected president of the United States chess federation. (M. P. W.)

Chiang Kai-shek (1887-), president of the republic of China, commander in chief of all military forces, director-general of the Kuomintang, and the undisputed leader of China during eight years of war against Japan, faced greater difficulties in solving the problems of national unification and reconstruction in 1946. Repeatedly he stated that China's major problems in 1946 were: restoration of peace and order, completion of the plans for national rehabilitation, nationalization of the armed forces, preservation of national sovereignty, consolidation of world peace and inauguration of a constitutional government. Chiang failed to reach agreement with the communists in solving these problems, was openly attacked by them and criticized by leaders of the other minority parties. Chiang's prestige began to suffer, but he continued to receive honours from abroad, including the United States distinguished service medal and an honorary doctor's degree from Liège university, Belgium, as a tribute to his contribution toward the winning of the war against aggression.

With the removal of the capital from Chungking back to Nanking on May 1 Chiang returned to Nanking. In the latter part of May President and Madame Chiang visited Manchuria where the national troops and the communists struggled for military and political domination. By western calculation Chiang was 59 on Oct. 31, 1946, but the Chinese nation celebrated his 60th birthday on that day. On the same day his term of office which had expired was extended "until the date of the assumption of office by a new president duly elected after the inauguration of the new constitution." On Nov. 28 Chiang formally presented the revised draft constitution to the national assembly which met without the communists. In his speech to the national assembly he declared that at the age of 60 he had no more political ambition.

Chiang was born in a humble family in Feng-hwa, Chekiang, and educated in military schools in China and Japan. In 1911

he became a faithful follower of Sun Yat-sen, who sent Chiang to Russia in 1923 to study Russian military science and revolutionary tactics. In 1926 Chiang led the northern expedition and in 1927 established the national government in Nanking and married Mei-ling Soong. For 20 years thereafter he had been continuously in power. (See also CHINA.)

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Chicago. Second largest U.S. city, a port of entry and the county seat of Cook county, Ill., at the southwest corner of Lake Michigan, Chicago is the largest centre of U.S. rail traffic and of long-distance domestic air routes. Mayor in 1946: Edward J. Kelly.

The population of the city proper by the federal census of 1940 was 3,396,808. The white population numbered 3,115,379, nonwhite 281,429. The population of the 1,184.2 sq.mi. comprising the metropolitan district was 4,499,126. At the close of 1946 Frederick Rex, head of the municipal reference library, estimated the population of the city proper at 3,594,899.

Although the city's industries and traffic suffered severe losses from strikes in 1946, especially the railway strikes and the two coal strikes, paralyzing the Chicago Switching district, world's largest coal-consuming area, production and employment were at capacity levels at the end of the year. Only 3,300 persons were added to relief rolls in 1946, bringing the total to 21,700 compared with 279,000 in 1939.

Outstanding public improvements of 1946 were the acquisition of the new municipal airport, former proving ground for the Douglas aircraft manufacturing war plant and beginning of the last phases of construction of the Dearborn St.-Milwaukee Av. subway.

In the off-year elections of 1946 a record vote was polled resulting in the defeat of the Democratic organization, led by Mayor Kelly, which had ruled Chicago and Cook county with no serious challenge from 1931. Total votes cast were 2,112,464 (80.60% of the registration). Four incumbent Democratic representatives in congress were defeated, making the representation of the Chicago area five Democrats and five Republicans. The Democratic organization suffered the loss of all but 6 of the 18 major county offices contested and those Democrats who won had scant margins. Later Mayor Kelly announced that he would not be a candidate for re-election in 1947.

Reorganization of the Chicago school board through resignation of members closely identified with the dominant political organization and their replacement by members recommended by educational and civic organizations was the other marked political change of the year.

Chicago's program of free food, lodging and entertainment for soldiers, sailors and marines was concluded Sept. 3, 1946, when the 22,767,474th serviceman's signature was added to the register of the last open U.S.O. centre.

Passenger arrivals and departures at Chicago airports for scheduled air lines numbered 2,488,191, an increase of 87.2% over 1945.

Chicago crimes in 1946 included 231 murders, 346 rapes, 1,809 assaults, 3,672 robberies, 64 manslaughters, 9,921 burglaries, 15,224 larcenies, 2,989 automobile thefts. Total number of crimes was 33,075 compared with 38,259 in 1945. Fires numbered 42,893, deaths in automobile accidents 853.

Marriage licences issued numbered 66,622; divorce bills filed 20,882. Hospital records at the close of the year indicated a record number of births. Enrolment of city schools increased 13,779 to a total of 340,279.

The 1947 budget for the city of Chicago and related govern-

mental units such as the sanitary district and park board called for \$233,558,637, exclusive of the school board which had a budget of \$78,879,654 in 1946. Total deposits of all Chicago banks totalled \$5,799,906,000 at the end of 1946 compared with \$5,844,267,000 one year before. (L. H. L.)

Chicago, University of. An institution of higher education and research in Chicago, Ill. Founded in 1891, the university was privately endowed, coeducational and nonsectarian. In the academic year 1945-46 the university conferred 1,316 degrees, of which 719 were bachelor's (including 442 bachelor's degrees for general education conferred in the college, which admits students into its 4-year program after the sophomore year of high school), 293 were master's degrees in the arts and sciences, 97 were doctor of philosophy degrees and 207 were professional degrees in business administration, divinity, law, medicine and library science.

After exclusion of income used for auxiliary enterprises and restricted expendable funds, as well as most of the income received and paid out on numerous contracts with the U.S. government for war purposes (all nonprofit undertakings), the estimated regular budget income for the year 1946-47 was \$12,718,490, an increase of \$1,907,130 over the previous year. The total current income for the year 1945-46 before the exclusion mentioned above was \$20,593,580, and the comparable estimated total current income for 1946-47 was \$21,289,492. Gifts for all purposes for the 1945-46 period amounted to \$2,797,981, an increase of 18.5%. Endowment funds as of June 30, 1945, were \$72,521,247, and the book value of all the university assets was \$137,769,656.

The most spectacular of the new developments at the University of Chicago during 1946 were the three institutes—the Institute of Nuclear Studies, the Institute of Radiobiology and Biophysics and the Institute for the Study of Metals.

In the Institute of Nuclear Studies, two-thirds of staff time was being devoted to fundamental studies of the properties of the nuclei and the other third to making nuclear energy available for peacetime purposes. The university's cyclotron was being reconverted, and plans were being made for securing a new and larger cyclotron that would enable the radio chemists to produce new transuranic elements, such as americum and curium, and to study their properties. A 100,000,000-volt betatron was also purchased for major experimental activities. In the Institute for the Study of Metals metallurgists, physicists and physical chemists were brought together to study the fundamental problems of metals, the behaviour of metals, the relations of their behaviour to their structure and the mechanisms whereby the various types of structure were obtained. The Institute of Radiobiology and Biophysics was to study the biological effects of radiation and the physical structure and physical functions of biological systems.

The Argonne National laboratory, formerly the Metallurgical laboratory, was being operated in 1946 by the university for the Manhattan district on a basis which permitted participation by the staffs of 25 universities and other research organizations in the middle west interested in nuclear research. Walter H. Zinn, associate professor of physics at the university, was director of the Argonne in 1946.

A second new project at the university during the year was a program of research and planning, in municipal planning, set up in co-operation with the Public Administration Clearing House, the American Society of Planning Officials and with the Chicago chapter of the American Institute of Architects. Rexford Guy Tugwell, former governor of Puerto Rico, was appointed professor of political science to take charge of this

work.

Another new project at the university originated in the interest which members of the faculty had in political theory and practice. Convinced that the next war would destroy civilization and that the only protection against war was the formation of a world government, Richard P. McKeon, dean of the division of humanities, and G. A. Borgese, professor of Italian literature, proposed that a committee be formed to frame a world constitution, not for the purpose of having it adopted—though they would not object to that—but for the purpose of discovering what a world constitution would look like and what the actual difficulties would be in drafting one and in getting it adopted. A committee was formed, with McKeon as chairman.

Broad extension of the University of Chicago's already extensive work on the cause and cure of cancer into a program that would be one of the largest in the world was established at the university through the generosity of the Goldblatt Brothers foundation, which pledged \$1,000,000 for the erection of a new cancer hospital. A capital fund of \$4,000,000 and annual support of approximately \$600,000 was contemplated for use of the new Nathan Goldblatt Memorial hospital. The 2 powerful instruments, the betatron and the 92-in. cyclotron, were also to be included in the equipment of the cancer centre for studies in radiation therapy of cancer. With the increased supply of radioactive materials provided by the atomic piles, the Institute of Radiobiology and Biophysics planned to carry out a study of cancer treatment.

About 30 individual research projects, ranging from basic studies such as cell division to clinical work in surgery and medicine, were under way at the university at the close of 1946, involving 15 departments in the natural sciences and clinical areas.

Seven months after the end of World War II the university's role in poison gas warfare research was revealed. A top secret on the Midway, the toxicity laboratory tested 1,500 chemical compounds, many of them far more lethal than those used in World War I. The laboratory was operated by the university under the auspices of the Office of Scientific Research and Development and later by the chemical warfare service of the U.S. army.

Chancellor Robert M. Hutchins on his request was granted a leave of absence beginning Oct. 1 for the academic year ending June 30, 1947, to participate in the expanded adult education activities of the Encyclopædia Britannica, Inc., and its affiliated company, Encyclopædia Britannica Films Inc. The university became affiliated with Encyclopædia Britannica, Inc., in 1943. At Britannica, Hutchins was chairman of the board of editors of Encyclopædia Britannica, Inc., chairman of the executive committee and director of the Encyclopædia Britannica Films Inc. Ernest Cadman Colwell, who was made president of the university in 1945, exercised the powers of chancellor during Hutchins' leave.

Approximation of housing space for students for the university's record enrolment, 12,366 (5,000 of whom were veterans) was provided by prefabricated dormitories, apartments and separate houses. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

Chiefs of Staff, The Combined: see COMBINED CHIEFS OF STAFF, THE.

Child Labour. Efforts to protect children and youth from harmful labour, interrupted to a greater or lesser degree in most countries by World War II, were again evident by 1946 in countries where sufficient economic and political stability prevailed. World-wide concern for the wel-

fare of young workers appeared in the discussions at the International Labour conference in Montreal, Que., Canada, in the fall of 1946 and definite advances were made during the year in Great Britain, the British dominions and the United States.

United States.—Under the president's Reorganization plan the administration of the child-labour provisions of the Fair Labor Standards act and the program of research and promotion of standards for child labour and youth employment carried on by the children's bureau were retained in the department of labour when the children's bureau, with the exception of its industrial division, was transferred to the Federal Security agency. To keep intact the department's full program in the child-labour field the industrial division of the bureau was transferred as an organizational entity to the division of labour standards, where it became the Child Labor and Youth Employment branch of that division.

Federal Interagency Committee.—The Federal Interagency Committee on Youth Employment and Education, made up of representatives of federal agencies dealing with employment and education of young people to facilitate joint planning in those fields, submitted a report to the director of war mobilization and reconversion. This report recommended a nation-wide program for youth, including school programs to serve the individual needs of all young people, removal of financial barriers to school attendance, suitable job opportunities, good standards of employment, good counselling and placement services and community action on behalf of youth to bring into play all available resources.

Facts About Youth Employment.—Although during the year 1946 war pressures on the labour market were eased and industrial reconversion proceeded rapidly, the volume of employment of young persons did not drop so rapidly as might have been expected. During World War II labour shortages had brought about great increases in the number of children and young people at work, a lowering of legislative child-labour standards and a trend toward longer hours and less favourable working conditions.

Sample labour-force surveys made monthly by the U.S. bureau of the census indicated that almost 3,500,000 boys and girls 14-17 years of age were at work in April 1945, a school month, with many more working during the summer peak. Of these 3,500,000, about $\frac{1}{2}$ were believed to be working full time and not attending school; the other half, working in addition to going to school. By April 1946 the number of employed minors 14-17 years had dropped to about 2,225,000, but even this was more than twice the number working when the decennial census was taken in March 1940. Of those working in April 1946, about 750,000 were 14 or 15 years of age (16% of the population of these ages). Many children under 14, who were not included in these official counts, were employed in both 1945 and 1946.

Child-Labour Legislation.—Many of the weakening amendments to state child-labour and school-attendance laws that were passed during World War II were revoked soon after V-J day. In general, these relaxations did not affect the basic minimum ages for employment and some states were able to strengthen their child-labour laws in spite of wartime pressures. For instance, a comparison of the legislative picture at the end of 1946 with that of 1941 shows that 2 states (Georgia in 1946 and Louisiana in 1942) and Puerto Rico had been added to the group with a basic 16-yr. minimum age for employment, bringing the total to 17 jurisdictions with this standard.

During World War II a few modifications of the child-labour provisions of the federal Fair Labor Standards act were sanctioned, permitting employment of 14- and 15-year-old children in specified non-manufacturing and nonmining occupations under carefully safeguarded conditions. Wartime amendments to 2 hazardous-occupations orders permitted minors of 16 and 17 years to perform a few of the less hazardous jobs connected with logging operations and with the operation of wood-working machines. Practically all these modifications were revoked shortly after V-J day. A new hazardous-occupations order was issued, effective Sept. 1946, establishing a minimum age of 18 in the operation of elevators and other power-driven hoisting apparatus.

International Movements.—The 29th session of the International Labour conference held in Montreal Sept. 19-Oct. 9, 1946, adopted draft conventions for presentation to member states on: (1) medical examinations of children and young persons for fitness for employment in industry, (2) medical examinations of children and young persons for fitness for employment in nonindustrial occupations and (3) restriction of night work of children and young persons in nonindustrial occupations. These conventions contained the basic standards. In addition, two recommendations dealing with methods of applying the conventions were adopted. The conventions on medical examinations required such examinations as a prerequisite for employment of minors under 18 in both industrial and nonindustrial occupations and at least annually up to 18 years of age. The night-work convention required prohibition of employment of young persons between 14 and 18 yr. of age for at least 12 consecutive night hours and for at least 14 consecutive night hours for children under 14 and for those more than 14 subject to full-time compulsory school attendance.

Great Britain.—Steps were taken to put into effect on April 1, 1947, the provision of the new Education act for England and Wales raising from 14 to 15 yr. the age up to which children must attend full-time school and the minimum age for employment during school hours. Asked the order of priority for the projected developments envisaged in the act, Miss Ellen Wilkinson, minister of education, replied that buildings to accommodate the additional pupil load accompanying the raising of the compulsory school age, to provide for training for industry, training of teachers, school meals and schools to serve new housing developments were most urgently needed. She pointed out also the urgency of reorganization of secondary schools and the development of county colleges.

A new Education act for Scotland setting this standard with respect to school attendance and employment during school hours as the act for

England and Wales received the royal assent Nov. 6, 1946. A similar act for Northern Ireland was introduced in parliament but had not become law by the close of the year 1946.

Wartime regulations under the Factories act, 1937, lengthening the working hours permitted for children under 16 in textile factories from 44 to 48 a week, expired on Dec. 31, 1946. Requests for the further extension of the expiration date were refused by the minister of labour after a public inquiry.

Canada.—The Province of Prince Edward Island passed, in April 1945, an "Act to carry out the International Labour Convention (1937) concerning the minimum age for the admission of children to industrial employment," which embodied the terms of that convention, both as to employments covered and as to the 15-year minimum age.

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Children's Books. With a return to a semblance of the former volume in publishing, children's book production considerably exceeded that of 1945. Old favourites were brought back into print, attractive new editions of the classics appeared and the general format showed improvement as to quality of paper and colour reproduction. The year was significant, as it marked the centenary of two great English artists, Randolph Caldecott and Kate Greenaway. Heartfelt appreciation and a deep awareness of the contributions of these artists were expressed by Anne Carroll Moore in her *A Century of Kate Greenaway* and by Mary Gould Davis in her *Randolph Caldecott, 1846-1886, an Appreciation*. Covelle Newcomb in *The Secret Door* successfully portrayed the life of Kate Greenaway for older girls.

Books for family enjoyment were *Miss Pennyfeather and the Pooka* by Eileen O'Faolain, Maurice Dolbier's *The Magic Shop* and William Maxwell's *The Heavenly Tenants*. Humorous picture books were represented by *Who Blew that Whistle?* by Leone Adelson, *Cap'n Dow and the Hole in the Doughnut* by Le Grand (Le Grand Henderson) and by the inimitable *Pan-cakes for Breakfast* by Grace Paull, while humour in verse appeared in Nancy Turner's *When It Rained Cats and Dogs* and in the compilation of Carl Withers' *Counting Out*. Preschool boys enjoyed *The Little Fire Engine* of Lois Lenski and *The Runaway Shuttle Train* by Muriel Fuller and chuckled over *Timothy Turtle* by Al Graham. Two picture books of distinction were *The Little Island* by Golden MacDonald and Alvin Tresselt's *Rain Drops Splash. How Big is Big?* by Herman and Nina Schneider answered young questioners and *Twelve O'Clock Whistle* by Jerrold Beim and Ernest Crichlow demonstrated the principle of co-operative effort. *The Brave Bantam* by Louise Seaman and Roberta Whitehead's *Peter Opens the Door* interested the three- to six-year-olds, while the d'Aulaires (Ingri and Edgar) added to their picture biographies with *Pocahontas*. Excellent photographs illustrated *My Dog Rinty* by Ellen Tarry and *Johnny and his Mule* by Ellis Credle. Easy-to-read stories appeared by Carolyn Haywood, Eleanor Lattimore and Jo and Ernest Norling.

Folk literature was enriched by *Prince Godfrey* by Halina Gorska, *The Runaway Soldier* of Fruma Gottschalk, by E. Balintuma Kalibala's *Wakaima and the Clay Man* and by *The Tiger and the Rabbit* of Pura Belpré. Octave Feuillet produced a book of special interest in his *Punch: His Life and Adventures*.

Dolls were the theme for *Miss Hickory* by Carolyn Bailey, *Marta the Doll* by Eloise Lownsbey and *Nobody's Doll* by Adele de Leeuw.

Minority groups were represented in *The Burro Tamer* (Spanish-Americans) of Florence Hayes, *Chukchi Hunter* (Eskimos) by Dorothy Stall, *Blue Ridge Billy* (mountain folk) of Lois Lenski and in Marguerite de Angeli's *Bright April* (Negroes).

India was the setting for Jean Bothwell's *Thirteenth Stone* and for *Paji* by Esther Kiviat. Modern China was the locale of *The Bamboo Gate* by Vanya Oakes while history was covered in *China's Story* by Enid Meadowcroft. Chuckles were aroused by Glenn Blough's *Monkey with a Notion* and by *Narizona's Holiday* by Addison Burbank. *Let's Find Out* by Herman and Nina Schneider was a book of simple experiments, and two nature books were Henry Kane's *The Tale of the Wild Goose* and *Animal Inn* by Virginia Moe. Notable illustrations characterized Conrad and Mary Buff's *Big Tree*, while Robert Lawson displayed a new style in his pictures for Tom Robinson's *Greylock and the Robins*.

Pleasant home life was pictured in *The People Upstairs* by Phyllis Coté and in *The Wonderful Year* by Nancy Barnes. Sequels were written by Alice Dalgliesh, Elizabeth Coatsworth and Maud Lovelace, and boys met old friends in the books of Howard Brier, John Tunis and Howard Pease. *The Avion My Uncle Flew* by Cyrus Fisher was an unusual aviation story.

Horse stories were prevalent; girls enjoyed *Shooting Star Farm* by Anne Molloy and Regina Woody's *Starlight*, while boys read *Strawberry Roan* by Don Lang and *Mountain Pony* by Henry Larom. U.S. historical stories were welcomed from such popular authors as Hildegard Hawthorne, Stephen Meader and Merritt Allen.

England in the 13th century was the setting of Jane Gilbert's *Imps and Angels*, Elizabethan England was pictured in *Romany Luck* by Patricia Gordon and the King Arthur legends featured Eleanor Jewett's well-written *The Hidden Treasure of Glaston*.

Arts and crafts were represented by Tina Lee's *What to Do Now* and songs and music were found in Opal Wheeler's *Sing in Praise*, in *Gilbert and Sullivan Songs for Young People* arranged by Margaret Bush and in *Keep Singing, Keep Humming* by Margaret Bradford.

Biographies were written about such personages as Thomas Jefferson, John Smith, Dolly Madison, Eleanor Dickinson, Robert Fulton, Sun Yat-sen and Paul Robeson.

Older girls read Gladys Malvern's *Gloria, Ballet Dancer*, *Great Day in the Morning* by Florence Means, *Going on Sixteen* by Betty Cavanna, while those with a flair for T. H. White revelled in *Mistress Masham's Repose*.

Books concerning the nativity and Christmas celebrations ranged from Alta Seymour's *A Grandma for Christmas* to *Pedro, the Angel of Olivero Street* by Leo Politi and *A Little Child* compiled by Jessie Orton Jones.

Invaluable was *Treasure for the Taking*, a rich bibliography on children's books by Anne Eaton. Attractive new editions of Howard Pyle's *The Merry Adventures of Robin Hood*, *Arabian*

Nights, edited by Andrew Lang, *Dandelion Cottage* (Carroll Rankin) and *Understood Betsy* (Dorothy Canfield) appeared. (See also BOOK PUBLISHING; PRIZES OF 1946.) (E. A. Gs.)

Children's Bureau, United States: see CHILD WELFARE.

Child Welfare. Continental Europe.—During 1946 the devastating effects on children of World War II were still evident, particularly in combat-torn territories. The extensive aid given to many countries by the United Nations Relief and Rehabilitation Administration was insufficient to meet the needs. Reports from various areas indicated a high child mortality rate and a shortage of food, fuel, clothing and other necessities. Many schools and institutions for children were destroyed during the war; their rebuilding was retarded by lack of materials. Thousands of children were still in camps for displaced persons.

In spite of these difficulties, some economic improvement in several countries made possible steps toward rebuilding child welfare services. In France, e.g., the organization of a nationwide uniform system of services for mothers, babies and young children was ordered in Nov. 1945. This act, aimed mainly at the reduction of infant and child mortality, calls for, among other things, the setting up in each district of clinics for expectant mothers, and for babies and young children, with facilities for medical supervision of the health of these persons. Protection of school children's health on a uniform national basis, instead of through the heretofore scattered local efforts, was regulated in Oct. 1945. All this work was placed under the control of public health authorities.

Family allowances and other forms of aid to families in France, which had been available from before World War II, were increased and new kinds of benefits were introduced by law in Aug. 1946. This law provides for childbirth benefits payable under specified conditions in the form of a lump sum on the birth of each child; family allowances for the second and each subsequent child from birth until the end of compulsory school attendance, and later in some cases; single wage benefits for couples whose income consists of the wages of husband or wife only; and prenatal benefits which may be paid for the entire duration of pregnancy. In May 1946 the benefits of social security were extended by law to all French citizens, instead of only to wage earners as formerly, and will be paid after industrial production reaches a specified level. Measures for better enforcement of the school attendance law were prescribed in May 1946 and an interdepartmental committee was organized in October of that year to formulate plans for the study of cases of children and youth who are morally endangered, delinquent, or war victims.

In Czechoslovakia family allowances for children under 18 were introduced by a law of Dec. 1945.

In Denmark the legislation on public welfare was amended and codified in Aug. 1946. Among other subjects, this law regulates supervision over children in boarding homes; children of illegitimate birth; children who are neglected or mistreated or who present behaviour problems; children whose mothers receive temporary public aid; and children of widows or widowers and orphans for whom regular allowances are paid. This law was administered by a national board, a chief inspector of child welfare assisted by a staff of inspectors, and by local child welfare committees.

In Norway free medical and dental services for school children, which were discontinued during the war, were re-established, and the serving of meals for these children was resumed in the city of Oslo.

In the soviet union measures for more extensive health serv-

DRAWING from *Strawberry Girl* by Lois Lenski for which she was awarded the Newbery medal in June 1946



ices for mothers and children were prescribed in a five-year plan for the economic reconstruction of the country; the work under the plan began early in 1946. In July of that year measures were ordered for improving the health services for children in kindergartens and schools in the more important cities, and the work was delegated to special physicians.

In Sweden a decree of June 1946 provided government aid for free school lunches for all children, not only in the primary schools as previously but also in the intermediate, secondary and technical schools. A compulsory health insurance law with cash benefits and medical care for the insured and their families was enacted on Dec. 18, 1946, to become effective in 1950.

In Turkey under a law of 1945 on maternity insurance, effective July 1, 1946, insured women and wives of insured men receive medical care during pregnancy and confinement and cash benefits.

Great Britain and the British Dominions.—In Great Britain the report *On the State of Public Health During Six Years of War*, published by the ministry of health in 1946, showed that the birth rate rose from 14.8 per 1,000 living persons in 1939 to 17.7 in 1944; the infant mortality rate per 1,000 live births decreased from 50.57 in 1939 to 45.44 in 1944; and the maternal mortality per 1,000 total births decreased in the same period from 3.10 to 1.92. The same report states that the nutrition of children was somewhat better at the end of the war than in the beginning, because of a more suitable and balanced diet.

By the law on national insurance of Aug. 1946 the previous legislation under which benefits were paid in sickness, childbirth, unemployment and to dependents of a deceased wage earner was extended to include additional categories of persons and new kinds of benefits. The payment of family allowances under a law of 1945 began in Aug. 1946 when about 2,000,000 mothers received their first weekly allowances of \$1 for every child except the first. These allowances are paid for children under 16 and those older if they are serving as apprentices or attending school. A law for a national health service with complete medical care was enacted in Nov. 1946.

In Scotland the education law of Nov. 1946 amended and consolidated previous legislation. It requires as of Jan. 1, 1947, full-time school attendance until the age of 15, instead of 14 as previously, and authorizes its subsequent extension until the age of 16. At the conclusion of this period part-time school attendance will be required to the age of 18. Provision is also made for school children's meals, medical examinations and inspections, and in some cases free treatment.

The United States.—Legislation.—During 1946 congress enacted several measures benefiting children. This legislation almost doubled the appropriations for grants to the states for three programs of the Social Security act; increased federal contribution to the program for aid to dependent children under the same act; provided for research and for demonstration of mental health services, part of them for children, through the National Mental Health act; provided impetus to the building of health centres and hospitals essential for health programs through the Hospital Survey and Construction act; and authorized and defined federal participation in the school lunch program through the National School Lunch act.

Services Under the Social Security Act.—Three services—maternal and child health, crippled children's and child welfare—were carried on with grants under the Social Security act from the children's bureau, U.S. department of labour (after July 16, 1946 in the Federal Security agency). Congress increased their appropriations in August as follows: for maternal and child health from \$5,820,000 to \$11,000,000; for services for crippled children from \$3,870,000, to \$7,500,000; and for child welfare services from \$1,510,000 to \$3,500,000.

The basic maternal and child health services, not available in all counties, showed little change in volume in 1945 from 1944, according to the latest reports. The volume was distinctly smaller than before World War II. In 1946 the services began to expand as physicians and nurses returned from war duty; a few states added programs for mental health and hospital consultation services.

State crippled children's agencies reported the number of crippled children listed on state registers as 424,000 on June 30, 1946, an increase of 36,000 over the previous year. The number of children admitted to clinic service for diagnosis or treatment and of those given medical or surgical care in hospitals was about the same during 1945 as it had been in 1944. Through the 50th week of 1946, 24,955 cases of poliomyelitis had been reported, an increase of 84% over the corresponding period of 1945.

In child welfare services, some 230,000 children were estimated to be receiving services from public welfare workers employed by state or local agencies on June 30, 1946. One-seventh of these children were served by child welfare workers paid in whole or in part from federal funds. In 42 states from which reports were substantially complete, 42% of the children receiving services were living with their parents or relatives; 38% in foster family homes; 15% in institutions; and 5% elsewhere.

Cash-Payment Programs.—The number of children benefiting under programs administered by the Social Security board (after July 16, 1946, the Social Security administration, Federal Security agency) increased, with 431,202 child survivors receiving monthly payments under old-age and survivors insurance (title II) in June 1946. The number of children receiving aid to dependent children under plans approved by the Social Security board was 779,325 in June 1946, 24% higher than in the same month of 1945. On June 30, 1946, some 225,000 children were receiving payments through the Veterans administration because of the death of their fathers. A decreasing number of children received allowances during the year under the Servicemen's Dependents Allowances act.

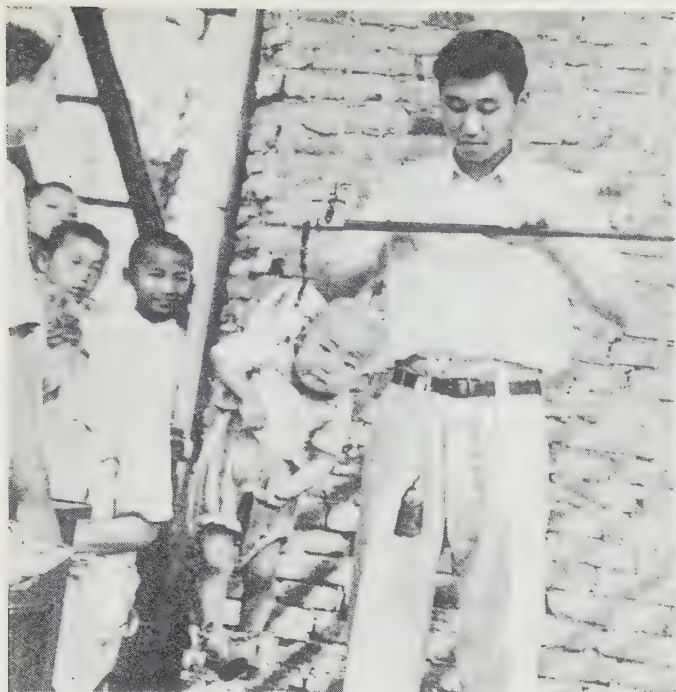
Wartime Programs.—The emergency maternity and infant care program providing medical, hospital and nursing care for wives and infants of men in the lowest four pay grades of the armed forces decreased during the year. Care was authorized for about 1,365,900 cases from the beginning of the program in April 1943 through Dec. 1946. From July 1, 1945, to June 30, 1946, almost 385,000 cases were authorized for care, most of them maternity cases, though the proportion of care authorized for infants has steadily increased; in Nov. 1946 more than one-third of all care was authorized for infants. Congress appropriated to the children's bureau for grants to the states—\$38,049,900 for the year ended June 30, 1946, and \$16,664,000 for the succeeding year.

The Wartime Program of Child Care Centres for Children of Employed Mothers, financed in part through grants from the Federal Works agency under the Community Facilities (Lanham) act, was discontinued in Feb. 1946. Communities still needing these centres had been allowed an extension of time from Oct. 1945, the closing date announced, to try for local support. Many communities were successful; more than three-fourths of the centres were functioning on March 31, 1946.

Vital Statistics.—See BIRTH STATISTICS.

Juvenile Delinquency.—See JUVENILE DELINQUENCY.

Plans and Action for Children.—The National Commission on Children and Youth, meeting in Dec. 1946, drew up an 11-point program of action. Having determined its goals, the commission was concentrating on ways of reaching them.



HUSKY CHINESE CHILD being weighed at a Chinese National Relief and Rehabilitation Welfare station in Peiping during 1946



Above: **CZECHOSLOVAK BOY** tying new black shoe, part of a complete outfit he received from a relief agency in 1946. The garments were donated by people in the United States during a clothing drive for war-devastated countries



Left: **CHILDREN OF DRANCY, FRANCE**, waiting patiently for the American Red Cross relief workers to distribute new shoes to replace the worn ones they had been wearing, in 1946



Below: **HUNGRY ITALIAN CHILDREN** eating an U.N. R.R.A. lunch at a school at Pietralata, where 600 of them were being cared for during 1946

The American Academy of Pediatrics study of child health services, in which the children's bureau and the public health service co-operated, collected data in 39 states during 1946. A study by the children's bureau of how guardianship laws and procedures affect children was in progress in six selected states during the year.

In accordance with the president's directive of Dec. 1945 to facilitate the admission to the United States of eligible persons displaced from their countries by the war, with special emphasis on orphaned children, nearly 300 European children were brought in during 1946.

In the Other American Republics.—In Chile under a government order made late in 1945 the official National Bureau for the Welfare of Children and Youth was to begin supervision of the work for expectant mothers and for children in the provinces in addition to the capital, where it had charge from 1942.

In Colombia regulations issued in Aug. 1946 require every child welfare institution to provide medical and dental care, elementary education and training in a trade or in farm work. Through social workers, contact must be maintained with the children's families.

In Panamá the appointment of a National Council on Minors was ordered in September for the study of improvements in the child welfare services.

In Peru measures were taken in 1946 for providing better medical care in institutions for neglected and delinquent children.

For a better enforcement of the school attendance law, registration of children of school age was ordered in Guatemala early in 1946. Also in Guatemala a decree was issued in Oct. 1946 for the introduction of a system of social insurance, including sickness and maternity insurance and orphans' benefits. In the Dominican Republic the enactment of a similar law was proposed by the president in Dec. 1946.

In Mexico the second family dining hall was opened in Mexico City in Dec. 1945. At this dining hall, as at the first one which had been in operation from 1941, meals are served at cost and sometimes free to low-income families. Also in Mexico the First National Conference on Health and Welfare, held in Aug. 1946 and attended by about 600 delegates, made recommendations for the improvement of maternal and child welfare services.

International Activities.—A conference of the Central American countries on nutrition was held in February in the city of Guatemala, and a resolution was passed for the establishment of a Central American Institute of Nutrition.

The Fourth Annual Border Health Conference was held in El Paso, Tex. and in Ciudad Juárez, Mexico, late in April 1946, under the auspices of the U.S.-Mexico Border Public Health association. A resolution was passed for establishing a section on maternal and child health and welfare as a part of this association.

The chief of the U.S. children's bureau served as secretary of the Temporary Social commission of the United Nations, on whose recommendation the permanent Social commission was set up in 1946 as part of the Economic and Social Council of the United Nations. The commission planned to take up studies of child welfare among other subjects.

The U.N.R.R.A. was preparing to finish its work in 1947. On recommendation of the council of this organization to the United Nations, the International Children's Emergency fund was established in Dec. 1946.

Also concerned with children were the following specialized agencies of the United Nations: The United Nations Educational, Scientific and Cultural organization, which began to function in 1946; the World Health organization, the constitution of which was adopted by the International Health conference, July 1946; the International Labor organization; and the Food and Agriculture organization. (See also CENSUS DATA, 1946; CRIME; FEDERAL BUREAU OF INVESTIGATION; INFANT MORTALITY; MARRIAGE AND DIVORCE; SOCIAL SECURITY.)

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(K. F. L.)

Chile.

A republic fronting on the south Pacific coast of South America for about 2,600 mi., its average width being only 110 mi. Area (official est., 290,085 sq.mi.); pop. (1945 official est.) 5,389,554; density (1944) 18.29 per sq.mi. Racial composition is largely white; mestizos are estimated at 15% and Indians (chiefly Araucanians in the far south) at 5%; oriental and Negro elements are negligible. The bulk of the

population lives in the central valley; Santiago province alone has (1945 est.) 1,535,969 inhabitants (density per sq.mi., 223.12). The capital is Santiago (pop., including suburbs, 1940 census, 952,075). Other important cities (with 1940 census) are Valparaíso (212,072), Concepción (85,938), Viña del Mar (70,013), Talca (45,462), Antofagasta (50,244), Chillán (39,909), Temuco (39,217), Iquique (37,713), Talcahuano (30,082), Valdivia (34,600), Lota (1945 est., 34,445), Rancagua (21,621), Punta Arenas (29,883), Osorno (25,075), La Serena (21,383), Puerto Montt (21,552) and Curicó (19,532). Roman Catholicism was the dominant religion. The constitution of 1925 established a unitary government headed by a popularly elected president serving a six-year term. The bicameral congress is composed of a senate of 45 members and a chamber of deputies of 147. Presidents in 1946: Juan Antonio Ríos Morales, to June 27; Alfredo Duhalde (became acting president, Jan. 17), June 27-Oct. 17; Juan A. Iribarren, Oct. 17-Nov. 3; Gabriel González Videla, after Nov. 3.

History.—Pres. Ríos was compelled by ill health to withdraw from the active presidency on Jan. 17; he was succeeded provisionally by Alfredo Duhalde, leader of the dominant Radical party. Soon after Duhalde's assumption of the presidency he was forced to issue a warning against illegal strikes and on Jan. 22 the government withdrew legal recognition from two striking nitrate unions. Other sympathy strikes followed, culminating in a large protest meeting at Santiago, Jan. 28, during which fighting broke out which caused the death of 9 and the injury of more than 100 persons. The government proclaimed a state of siege and the Chilean Confederation of Labour countered by calling a one-day general strike for Jan. 30. The situation remained critical even after the end of the general strike Jan. 31.

Pres. Ríos died at Santiago June 27. On July 6 Pres. Duhalde set new presidential elections for Sept. 4. Parties on the political right, the Agrarian, Liberal and Conservative, attempted during July to pick a coalition candidate but were unable to agree; their chief possibilities were Eduardo Cruz Coke (Conservative), Arturo Alessandri and José Maza (Liberals) and Jaime Larraín García (Agrarian). The choice of the Radicals (the government party) lay between Gabriel González Videla, former ambassador to France, and Provisional Pres. Duhalde; González ultimately won the nomination. The party on July 27 expelled Duhalde from membership for alleged dereliction of duties. On Aug. 3, however, Duhalde withdrew temporarily from the acting presidency to become a more or less independent presidential candidate; he was succeeded for a brief time by Vice-Adm. Vicente Bielich. Alessandri on Aug. 11 withdrew as a candidate in favour of his son, Fernando Alessandri Rodríguez. Communist support seemed likely at first to go to the party president, Sen. Elías Laferte, but later was given to González Videla. Socialists, led by the veteran Marmaduke Grove, refused to join the leftist coalition and most of them subsequently voted for Duhalde, as did the rightist Agrarians. The election on Sept. 4 gave González a plurality of about 48,000; of the 471,890 votes cast, he received 189,606 to 141,505 for the second highest candidate, Cruz Coke. The Liberal, Fernando Alessandri, won 128,721, and Bernardo Ibáñez, running with some Socialist support, got 11,922. As no candidate thus received a popular majority, the election was constitutionally thrown into the vote of the congress, scheduled to meet Oct. 24. Duhalde resigned the presidency Oct. 17 and was succeeded by Interior Minister Juan A. Iribarren. The congressional election gave the presidency to González by a vote of 138 to 46. In naming his cabinet on Oct. 31 he included three Communists.

Chile, on Dec. 14, reaffirmed a claim to antarctic territory between 53° and 90° W. longitude.

Education.—Schools enrolled in 1946 close to 600,000 pupils.

A 1943 estimate of the literacy rate was 76%, third highest of all Latin American states. The University of Concepción announced plans in 1946 to build a new medical school.

Finance.—The monetary unit is the peso, valued in Nov. 1946 at from 2.55 to 5.16 cents, U.S. The revised 1946 budget put revenue estimates at 5,882,900,000 pesos and expenditures at 5,878,300,000 pesos. The 1945 budget was balanced at 4,749,000,000 pesos but actual expenditures were 5,741,000,000 pesos as against revenues of 5,531,000,000, leaving a 1945 deficit of 210,000,000 pesos. However, previously accumulated budget deficits were reduced in 1945 by 81,000,000 pesos through bond sales. The treasury cash overdraft Jan. 1, 1946, was 586,800,000 pesos. The internal direct funded debt on the same date was 3,866,000,000 pesos, an increase of 774,000,000 pesos in one year. Foreign bond retirements in 1945 included \$6,479,500, £227,989 and 15,000 Swiss francs. The government on Mar. 8, 1946, announced its intention to resume full service on the foreign debt. Paper currency in circulation Jan. 1, 1946, was 3,506,600,000 pesos. The Central bank on May 21 had sight liabilities of 3,800,000,000 pesos (of which 2,900,000,000 represented currency in circulation); gold and foreign-exchange holdings at the same time were \$95,000,000 but these had decreased by Nov. 5 to \$76,800,000. The government early in 1946 announced plans to spend 500,000,000 pesos during the year under its 6-yr. public works program, plus 300,000,000 pesos on other works not included in the special program. The government's low-cost housing bureau planned to spend 265,000,000 pesos in 24 provinces during 1946 for erection of 4,595 dwellings. The official cost-of-living index at the beginning of 1946 was 445 as against 100 in March 1928.

Trade and Communication.—Chilean exports to the United States in 1945 were valued at \$137,100,000 (1944: \$153,600,000); imports from the United States were valued at \$51,300,000 (1944: \$51,400,000). World sales of Chilean nitrate in 1944-45 were 1,436,282 metric tons (1943-44: 1,050,555 tons). Barley exports in 1945 were 20,635.6 metric tons (1944: 18,846.5 tons). Oats exports in 1945 were 8,614.9 metric tons valued at \$592,349 (1944: 5,715.9 tons valued at \$331,621). Exports of wheat in 1945 were 1,170 metric tons, almost all of it to Bolivia, valued at \$146,733 (1944: 1,305 tons valued at \$166,483). Deciduous fruit exports in 1945 were 3,864 metric tons valued at \$553,600 (1944: 3,759 tons valued at \$521,100). Export of all types of copper in 1945 was 470,642 metric tons; all mineral exports, except nitrates, totalled 829,214 metric tons (1944: 573,618 tons). Grain exports in the first 3 mo. of 1946 were 6,195 metric tons valued at \$927,440 (same period in 1945—4,730 tons valued at \$482,196); the grains included 72.1% malting barley and 26.3% oats. Late in 1946 Chile bought 50,000 metric tons of sugar each from the Dominican Republic and Peru. Chile's 1936 commercial agreement with Ecuador was on Oct. 18 changed to an unconditional and unlimited most-favoured-nation agreement. During 1946 Chile concluded a large-scale agreement with Cuba for exchange of nitrates for sugar. A trade agreement was concluded with Peru. The United States and Great Britain concluded special contracts for purchase of electrolytic copper, the former for 100,000 long tons at 11.875 cents a pound and Great Britain for 35,000 tons.

Railway mileage was 5,434, highway mileage more than 28,000. A comprehensive program to improve Chile's railroads was put forward late in 1946; it contemplated expenditures of about \$60,000,000 and 800,000,000 pesos. The state railways lost 150,000,000 pesos during 1945 and in consequence raised freight rates in 1946 by an average of 18%, first- and second-class passenger fares by 10% and third-class fares by 20%. Reciprocal air service authorizations were concluded with the Brazilian Cruzeiro do Sul line, the Argentine FAMA (Flota Aérea

Mercante Argentina) and Lloyd Aéreo Boliviano; Air France and British South American airways were authorized to fly to Santiago. Plane service from New York city in 40 hr. began Nov. 17.

Agriculture.—Estimates of various crops for the 1945-46 season were: wheat 8,806,485 metric quintals (metric quintal = 220.46 lb.) (1944-45, 9,091,317 metric quintals); sunflower seed 16,692 metric tons (decrease of 40.5% from 1944-45); flax fibre 1,365 metric tons (decrease of 1%); flaxseed 3,837 metric tons (increase of 10.1%); hemp fibre 5,369 metric tons (decrease of 11.3%); hempseed 4,904 metric tons (increase of 1.1%); onions 49,134 metric tons; garlic 8,402 metric tons; barley 722,310 metric quintals (1944-45, 801,310 metric quintals); oats 801,306 metric quintals (1944-45, 1,021,990 metric quintals); rice 117,941 metric tons (record production). The 1945-46 citrus fruit crop was expected to be a record; deciduous fruits also had bright prospects. Cattle population in 1944 was estimated at 2,305,713; the estimated 1946 slaughter was 590,576.

The government drew plans in 1946 for a special fund of 500,000,000 pesos to finance the settlement of 50,000 to 100,000 European families in southern Chile.

Manufactures.—An important Chilean steel industry appeared in the making in 1946. The Fomento corporation in April established the Compañía de Acero del Pacífico with \$15,000,000 of domestic capital; earlier Export-Import bank loans and other credits raised its resources to \$53,000,000. It was expected to be in operation by 1949 with an annual capacity of 180,000 tons of pig iron and 200,000 tons of finished products. A governmental decree of Feb. 20 provided for creation of national producers' corporations to cartelize industry; they were to consider such matters as nationalization, improvement of quality of production, changes in capitalization, distribution of labour supply, sales and export, standardization, acquisition of raw materials and machinery, etc.

Copper production in 1945 was 488,000 metric tons (1944: 500,000 tons). Nitrate production in 1945 was 1,196,576 gross tons. An oil well was brought in in Tierra del Fuego Dec. 29, 1945, with an estimated daily capacity of 6,000 bbl. Whale-oil production in 1945 was 3,456 metric tons from 477 whales.

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China. China, a republic of eastern Asia. Area, about 3,858,900 sq.mi., divided into 35 provinces, including Taiwan (Formosa), the 9 provinces of Manchuria and a special terri-



"NO REST FOR THE WEARY" was the title of this cartoon drawn in 1946 by Crawford of the *Newark Evening News*



the Political Consultation conference, the government and the communists finally concluded an armistice agreement. With the general cease-fire order effective on Jan. 13 and U.S. assistance in implementing the cease-fire order through the offices of the executive headquarters, the Political Consultation conference, which consisted of eight representatives of the Kuomintang, seven communist delegates, nine delegates of the Democratic league, five delegates of the Youth party and nine representing nonpartisan groups, reached the following major agreements on Jan. 31: (1) reorganization of the government and broadening of its representation; (2) convocation of a national assembly on May 5 to adopt a constitution; (3) principles for political, economic and social reforms; (4) unification of military command. With Gen. Marshall as the mediator an agreement on military reorganization and for the integration of the communist forces into the national army was signed on Feb. 25 which provided that 12 months after the coming into force of this agree-

ment China's army should consist of only 108 divisions (90 government and 18 communist) under a ministry of national defense. Before these agreements were put into practice, fighting between the government and communist troops spread in Manchuria following the withdrawal of the soviet troops from Mukden on March 11, Changchun on April 16, Harbin on April 26 and Tsitsihar on April 28. The government troops entered Mukden on March 12, and the communists occupied all the northern Manchurian cities immediately after the soviet withdrawal. After the government troops took Changchun, known as the capital of Manchuria, May 23, a 15 days' truce (June 6-22) in Manchuria was declared. However, fighting was intensified during the summer in Jehol, gateway to Manchuria, northern Kiangsu, northeastern Hopeh and southeastern Shantung. The effort of Gen. Marshall and John Leighton Stuart, the newly appointed U.S. ambassador, to bring the two sides together by creating a committee of five on Aug. 29 headed by Amb. Stuart to discuss a coalition government was fruitless as neither the government nor the communists were willing to give up their military gains. In the latter part of September, the government troops attacked Kalgan, the major communist base, and Chou En-lai, chief communist negotiator, quit the peace negotiations. On Oct. 11 Kalgan fell to the government and on Oct. 21 Chou was persuaded to return to Nanking for further negotiation. Five days after the opening of the national assembly on Nov. 15, Chou flew from Nanking to Yen-an. On Dec. 4 Chou wired Gen. Marshall from Yen-an that "if the Kuomintang would immediately dissolve the illegal National Assembly now in session, and restore the troop positions of January 13, the negotiations between the two parties may still make a fresh start."

To induce the communists and the third parties to join the assembly, Chiang issued a qualified cease-fire order on Nov. 11 and postponed the opening of the national assembly from Nov. 12 to 15. On Christmas day the national assembly without the communists and the left wing of the Democratic league adopted a new constitution combining the important features of a presidential and parliamentary system of government with Sun Yat-sen's Five Power Constitutional Democracy to be put into effect on Dec. 25, 1947. Until the new constitution was put into force and the new president elected, the Kuomintang would continue to be the ruling party.

The government and communist rivalry reflected the differ-

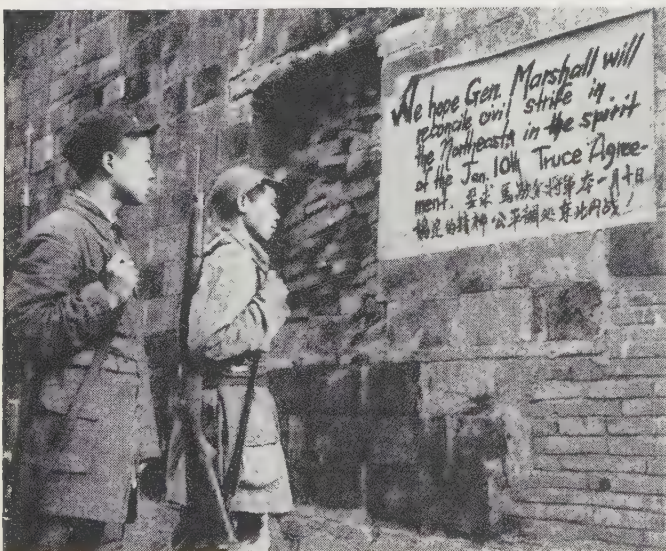


CHINESE with a varied assortment of wares to sell, in a black market trading section in Mukden, Manchuria, during 1946. Because of inflated prices there were few customers except those with items to barter

ence between the U.S. and soviet policies in China. The soviet troops remained in Manchuria after Feb. 1, the agreed date for complete withdrawal of soviet troops. On Feb. 26 the soviet supreme military command in Manchuria stated that soviet forces would complete evacuation before the date of departure of the U.S. troops from China. In the meantime Washington, D.C., sent Chungking and Moscow an identical note for information on the Sino-soviet talk on Manchuria and on Feb. 26 Secy. James F. Byrnes denied any knowledge of a Big Three agreement authorizing the soviet removal of machinery from Manchuria, the direct damage of which was estimated at \$858,000,000 by Edwin Pauley, U.S. reparations representative. In March China rejected the soviet claim to all enterprises in Manchuria that had served the Japanese Kwantung army. In April the soviet government agreed to have all troops out of Manchuria by the end of April while the U.S. army decided to disband its forces in the China theatre on May 1. On Aug. 31 China and the U.S. concluded an agreement which enabled China to get about \$800,000,000 of wartime U.S. properties in China and the west Pacific. It was revealed that from V-J day to Sept. 30 China received about \$1,000,000,000 of lend-lease materials from the U.S. On Dec. 18 Pres. Truman reiterated the U.S. policy toward China as stated on Dec. 15, 1945, namely: recognition of Chiang's government as legitimate, cessation of civil war and broadening of the national government as a condition to U.S. economic aid.

Other important diplomatic developments included: the formal recognition of the independence of Outer Mongolia on Jan. 5; the conclusion of the Sino-French treaty on Feb. 28, similar to the Sino-American and British treaties of 1943; the signing of a Sino-Canadian commercial pact on Sept. 27, providing for the reciprocal exchange of unconditional most-favoured-nation treatment; and the signing of a new five-year Sino-American treaty of friendship, commerce and navigation on Nov. 4, based on principles of reciprocity and most-favoured-nation treatment.

Education.—The 1946 program of cultural rehabilitation was: to restore those schools which moved to the interior during the war; to re-establish those schools which closed because of the war; to establish new schools. The educational expenditures for 1946 amounted to approximately 5% of the national budget. There were about 145 institutions of higher learning



CHINESE SOLDIERS of the Communist fourth army in Hopeh province reading a sign painted in English and Chinese urging the strengthening of Sino-American friendship in 1946 and expressing the hope that Gen. George C. Marshall would end the civil war

with an enrolment of 78,000, almost double the prewar figure. In July 1945 there were in Free China 3,455 secondary schools with an enrolment of 1,101,087 and 265,417 primary schools with 18,000,000 pupils.

Defense.—The program of reorganization and demobilization of the army was interrupted by civil war. The national army consisted of about 250 divisions, totalling approximately 3,000,000 men. The communist force was increased to about 1,500,000 men. With the donation by the U.S. of small warships China's war vessels numbered about 60 with an aggregate tonnage of 38,000 and with 25,000 navy personnel. China's small air force consisted of a few hundred planes. The three military branches were under the direction of the ministry of defense. About 80% of the budget was devoted to military purposes.

Trade and Communication.—The 1946 unfavourable balance of trade was unprecedented. From January to September imports (exclusive of United Nations Relief and Rehabilitation administration goods) through Shanghai were valued at Ch. \$781,855,000,000 while exports totalled only Ch. \$161,763,000,000. To encourage export and preserve foreign exchange the maritime customs in July prohibited the import of textile goods, animal products and other nonessential goods, and restricted the import of food and motorcars. In November the licensing system was applied to all imports.

Excluding railways in Formosa, the railway mileage totalled more than 12,000 mi., about half in Manchuria and about 3,500 in north China. More than one-third of the latter were wrecked or wholly inoperative because of the communists. Purchases in 1946 increased China's shipping tonnage to 1,500,000 tons. China had about 100,000 mi. of highway, 30,000 of which were damaged as a result of the war. China's civil aviation and telecommunication remained insignificant in proportion to its population.

Finance.—The value of the Chinese dollar (yuan) constantly depreciated. On March 4 the official rate of exchange was fixed at \$1 U.S. to Ch. \$2,020 and on Aug. 18 it was \$1 U.S. to Ch. \$3,350. At the year's end the black market rate of exchange was \$1 U.S. to Ch. \$5,000–7,000. In the big cities the general price index was about 4,000 times the prewar level. At the end of 1945 the volume of note issuance was more than Ch. \$1,000,000,000,000, and the monthly rate of note issue in 1946 numbered in the billions. The minister of finance announced in March the national budget of 1946 as Ch. \$2,524,900,000,000 and the deficit as Ch. \$677,100,000,000. The actual expenditures and deficit were still greater. China's wartime loans totalled \$1,345,080,568. To Sept. 30, 1946, U.S. lend-lease to China totalled \$1,564,698,000. In March the U.S. Export-Import bank granted China \$33,000,000 credit for cotton purchases.

According to the new banking regulations promulgated on April 17 only county banks were allowed to be established. There were nearly 600 banks with more than 2,350 branch offices.

Agriculture, Manufactures, Mineral Production.—Because of war and agricultural backwardness China faced a serious food shortage in 1946 and there was mass starvation. The general industrial production also decreased sharply and many industries were on the verge of total collapse. The peak annual production of important minerals before or during the war were: coal—Manchuria 30,000,000; North China, 30,000; and Free China 6,000,000 tons; steel—Manchuria and North China 3,000,000 and Free China 10,000 tons; tungsten ore—13,000 tons; tin—11,000 tons and antimony—13,000 tons. Removal of equipment by the U.S.S.R. in Manchuria greatly reduced the coal and steel production.

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tional Government Year Book 1944 (in Chinese); G. B. Cressey, *China's Geographic Foundations and Asia's Lands and Peoples*; Robert Payne, *Forever China*; David Nelson Rowe, *China Among the Powers*; Theodore H. White and Annalee Jacoby, *Thunder Out of China*. Periodicals: *Amerasia*; *Asia*; *China Magazine*; *China Monthly*; *Far Eastern Survey*; *Pacific Affairs*; *Voice of China*. (H. T. CH.)

Chinese Turkestan: see SINKIANG.

Chosen: see KOREA.

Chou En-Lai (1898–), Chinese Communist army officer, was born in Huaiyin, Kiangsu province. He attended Waseda university in Japan and Nankai university in Tientsin. In 1919 he led a student rebellion which resulted in his arrest and imprisonment. He subsequently went to Paris where he founded a Communist group among Chinese students. On his return to China in 1924 he joined Sun Yat-sen's movement and was made director of political training at Whampoa Military academy of which Chiang Kai-shek was president.

Chou managed to escape a death sentence during the anti-red drive of 1927 and intensified his activity with Chinese communist movements. After the Japanese attack on China in July 1937, Chou called on Chiang to bury political differences and establish a united front with the Communists against Japan. Chiang accepted the proposals, and Chou became Yen-an's liaison officer, at Chungking. The Nationalist-Communist truce was not durable and the number of incidents between the two armies increased dangerously by 1944.

Chiang, Chou and Gen. George Marshall, President Truman's personal representative, arranged a truce, disclosed Jan. 10, 1946, but it was of short duration as were the successive truces during 1946. On Sept. 19 Chou quit the Nanking peace negotiations, charging that Chiang and the U.S. were basing their policies in China on the assumption of war with the soviet union. He later resumed the consultations.

Christian X (1870–), king of Denmark, of whom a biographical account will be found in *Encyclopædia Britannica*. Nephew of Queen Alexandra of Great Britain, he succeeded his father, Frederick VIII, in 1912. King Christian became increasingly popular with the passing years and kept in close contact with his people.

During the early years of World War II, even after the German invasion of Denmark, the king kept an autonomous Danish administration. From Aug. 1943 until the end of the war he was a virtual prisoner at his castles of Sorgenfri or Amalienborg. Throughout the struggle he personified the independent spirit of his people, and naturally became the central figure in the period of liberation. His birthdays—the 76th was celebrated on Sept. 26, 1946—were occasions for popular expression of loyalty to him and of national unity. The year 1946 was happily one of no great crisis for either monarch or people. (See also DENMARK) (F. D. S.)

Christian Science. The need for Christian Science wartime ministers whose work was supervised by the Christian Science Camp Welfare committee, did not end with the cessation of hostilities in World War II, although such need gradually diminished. In the autumn of 1946, the postwar activities of the committee consisted mainly in supplying Christian Science workers for 135 Veterans' Administration hospitals in the United States and Canada and serving military and naval personnel at training camps in the United States, as well as occupation troops in the European and Pacific theatres. The activities also consisted of rehabilitation work and the collection and sending of food packages to famine-stricken countries abroad.

The Christian Science Monitor continued to maintain its

large staff of correspondents, and in 1946 returned its correspondents to Rome and Moscow. *The Monitor* pioneered in the newspaper world by allowing its readers to start and finish a newstory on page one.

The Christian Science Monitor resumed its "Monitor Views the News" broadcast on a coast-to-coast hook-up of the American Broadcasting company system. *The Monitor's* distinguished editor serves as commentator. Under his editorship this newspaper won special awards for typography, editorial policy and its uniquely thorough coverage of international news. The head of the Washington, D.C., news bureau of *The Christian Science Monitor* received the George Arents medal for proficiency in journalism in ceremonies held at Syracuse (N.Y.) university.

The natural science editor of *The Monitor* was made president of the National Association of Science Writers. He was awarded a medal and citation at a meeting of the American Association for the Advancement of Natural Science. This award was made through the George Westinghouse Science Writers fund.

The Christian Science Publishing society added the Spanish edition of the *Herald of Christian Science* to the other *Heralds* already being published in French, German, Dutch, Scandinavian and Braille. The publishing society also issued many other authorized publications, the latest of which were *Twelve Years with Mary Baker Eddy* by Irving C. Tomlinson, and *Mary Baker Eddy: Her Mission and Triumph* by Julia Michael Johnston.

Early in 1946 a new edition of the Christian Science textbook, *Science and Health with Key to the Scriptures* by Mary Baker Eddy, especially suitable for sale in book stores, was issued.

A *Christian Science Talking Book* presenting the preface and first chapter of the Christian Science textbook was published by the trustees under the will of Mary Baker Eddy. The *Talking Book* is for the exclusive use of those who, because of blindness or impaired vision, are unable to read ink print.

Transcribed programs prepared in the Mother Church were broadcast over approximately 200 stations in the United States, its possessions and Canada. Australia and New Zealand were also beginning to use them. In co-operation with the Columbia Broadcasting system, the Mother Church continued its periodic broadcasts of Sunday "Columbia Church of the Air" programs.

(W. D. K.)

Christian Unity. The first postwar year of relatively free travel and intercommunication afforded numerous occasions and activities for restoring the broken contacts of the churches, as well as continuous advance in the direction of unity. Co-operative organization of the churches in the United States reached an all-time high peak. One hundred forty-seven local councils of churches were reported under paid professional leadership, and 354 under voluntary leadership, in addition to which about 1,600 ministerial associations were carrying on co-operative activities similar to those of formally organized councils. The movement for the first time began to make provision for special professional training of future leaders through the establishment of eight oecumenical fellowships financed by the Rosenwald fund. Favourable action by a majority of agencies concerned and by leading denominations was reported on the movement to merge the eight major U.S. interchurch agencies into the National Council of Churches.

Co-operative unity on a world scale was high-lighted by meetings in February and August of the provisional committee of the World Council of Churches, which had been in process of formation from 1937. The committee of arrangements, headed by Dr. Samuel M. Cavert of the Federal Council of Churches of Christ in America, reported plans for holding the first assembly

of the world council in Holland in 1948. The assembly was expected to set the work of the council in full motion.

Actual mergers of denominations were represented in the United States by the union of the United Brethren and Evangelical Churches (both bodies of German origin and Methodist type) into one body of about 750,000 members. The United Church of Canada absorbed the small Evangelical denomination in Canada. Conferences between Disciples and Baptists were continued. Negotiations for organic union were opened between the Reformed Church in the U.S. and the United Presbyterian Church. Stimulated by strong prodding from their laity, the proposal for the union of the Congregational Christian and Evangelical and Reformed denominations was pressed to the point of considering detailed adjustments by the boards and agencies, and had every promise of early consummation. Similar lay insistence led to accelerated negotiations by the Presbyterian Church in the U.S.A. and the Presbyterian Church in the U.S. (Southern). The Congregational, Methodist and Presbyterian Churches in Australia reached a new stage in negotiations in the promulgation of a scheme of federal union.

Negotiations for union between churches which feel that they are divided on basic issues went forward with varying success. Long-continued official discussion between the Protestant Episcopal Church and the Presbyterian Church in the U.S.A. apparently reached a temporary deadlock in the rejection of the report of its own negotiators by the Protestant Episcopal General convention and the substitution of a resolution expressing readiness for "organic federation" with any other churches in fundamental doctrine agreement, for the full "organic union" which had hitherto been proposed to the Presbyterians. The Presbyterian General Assembly replied by authorizing continued negotiations on the former terms. In Canada, on the contrary, discussions between the Church of England in Canada and the United Church of Canada entered upon a hopeful phase. The Canadian proposal for achieving church union is that each church convey authority to the ministers of the other, through a formal ordination.

The Scheme of Union for South India, previously approved by the Methodist Church (British in origin) and the Church of India, Burma and Ceylon (Anglican), was finally approved by the assembly of the United Church of South India. This action apparently assured the consummation of a union within one church of eight previously separate denominations, originating in missions conducted by five nations, with communicant membership of about 267,000, representing a Christian community of well over 1,000,000.

The year's most significant general discussion of Christian unity was that initiated by the Archbishop of Canterbury in addresses during his U.S. tour, followed by an address to the Free Church Council in England and a subsequent sermon at Cambridge university. The Archbishop advocated an approach to unity which develops an exchange of life, in worship and sacraments, between churches before attempting constitutional changes. Free Church discussion has treated the proposal sympathetically but with caution. In the U.S. the Rt. Rev. Angus Dun, bishop of Washington, inaugurated the recently established Hoover lectureship on Christian unity, by a series of lectures at the University of Chicago on "The Church as Body and Spirit." The most noteworthy publication of the year in the field of Christian unity was *The Interseminary Series*, five volumes of discussions by leading U.S. religious thinkers on interchurch relations.

(H. P. D.)

Chromite. As is indicated in Table I, world production of chromite expanded by about one-half under war demand, reaching a high of 2,210,000 tons in 1942, with moder-

ate decline in 1943. While data were incomplete for 1944 and 1945, with figures at hand for all major producers but the U.S.S.R., it was evident during 1946 that a reversion was under-way to about the prewar level, or possibly lower.

Table I.—*World Production of Chromite*

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Cuba	65.6	57.7	179.9	315.8	390.4	211.8	190.3
Greece	62.9	62.8	?	44	16	?	?
India	55.0	62.2	56.1	55.5	37.2	?	?
New Caledonia	57.3	61.5	71.1	74.6	51.8	60.9	45.0
Philippines	139.7	214.3	330	55	66	?	?
South Africa	176.4	180.4	156.4	372.2	179.9	98.0	85
S. Rhodesia	153.3	273.1	357.1	384.0	316.9	305.4	205.4
Turkey	211.3	187.2	165.7	159.5	217.0	203.5	?
U.S.S.R.	?	?	?	440	358	?	?
United States	4.0	3.0	14.3	112.9	160.1	45.6	14.0
Yugoslavia	65.6	78.3	?	110	72	?	?
Total	1,300	1,633	2,055	2,210	1,972	?	?

Note.—Figures without a decimal are estimates.

Production in Greece, Yugoslavia and the Philippines, all of which had been in enemy hands, was expected to take some time to recover. Cuba, Rhodesia, South Africa, the U.S.S.R. and Turkey had to carry the main load in the war expansion, and consequently faced the heaviest cuts as outputs were scaled down to normal demands. Particularly interesting developments were foreseen in Russia, where extensive exports had been made, following a period of years in which the output was consumed entirely at home. Prospects for continued high production in Cuba were to a considerable extent dependent on the renewal of activities in the Philippines, as in both cases refractory grades make up the bulk of the output. And finally the direction of the whole postwar trend in production depended on the rate at which industry would develop new and expand established uses for chromium.

United States.—For comparison, the supply and demand for chromite in the United States during World Wars I and II are shown in Table II.

Table II.—*Chromite Data for the United States for the periods of World Wars I and II*

(Thousands of short tons)

	Pro- duction	Im- ports	Sup- ply		Pro- duction	Im- ports	Sup- ply	Con- sumption
1914	0.7	83.7	84.4	1939	3.9	355.6	359.9	?
1915	3.7	85.7	89.4	1940	3.0	736.6	739.6	562.9
1916	52.6	129.9	182.5	1941	14.3	1,115.3	1,129.6	800.3
1917	49.0	80.9	129.9	1942	112.9	981.6	1,094.5	892.0
1918	92.4	112.2	204.6	1943	160.1	928.6	1,088.7	944.6
1919	5.7	68.9	74.6	1944	45.6	848.4	894.0	848.4
1920	2.8	168.3	171.1	1945	14.0	914.8	928.8	808.1

In addition to revealing the extent to which the United States was dependent on foreign sources of supply, these figures emphasize the extent to which developments during the interwar period expanded the overall demand. Viewing the records merely from the standpoint of tonnage produced, the 1939-45 record was much better than that of 1914-20, but in comparison with current demand, and with the effort and cost to secure the results, the relative showing was much poorer. Furthermore, much of the 1939-45 output was too low in grade to be salable even under war conditions, and in 1946 still remained in stockpiles.

It has now been effectively demonstrated on two different occasions that only under war demand could the domestic reserves yield an appreciable output, at best only a fraction of the total required, and that of lower grade than industry normally requires. The availability of foreign supplies is therefore a matter of prime importance. This situation is emphasized all the more strongly by the fact that Cuba is the only important producer in the western hemisphere, and all other supplies are subject to long overseas transportation, with all of the hazards which that involves. The sources from which these supplies were obtained during World War II are shown in Table III.

Table III.—*Imports of Chromite into the United States*

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Cuba	73.9	58.2	179.9	137.8	310.7	349.1	297.8
Greece	12.2	15.7	2.2	...	...	...	...
U.S.S.R. . . . .	...	...	...	30.1	99.9	112.3	166.1
India	18.4	36.6	10.9	21.3	2.8	...	...
Philippines	80.5	175.4	288.4	30.5	...	...	...
Turkey	18.6	78.5	61.8	119.5	90.8	98.8	70.8
South Africa	71.6	126.3	189.7	262.3	111.6	40.4	110.4
S. Rhodesia	54.6	177.9	269.2	277.3	243.5	187.8	221.9
New Caledonia	16.1	48.0	90.2	82.7	32.5	34.5	34.5
Total	355.6	736.6	1,115.3	981.6	928.6	848.4	914.8

Inspection of these figures discloses the extent to which the war program rested on maintenance of foreign supplies, and the shifts from one source of supply to another as shipping conditions or the progress of the war affected various producers.

The successful maintenance of an adequate war supply in spite of all of the difficulties encountered is evidenced by a comparison of the supply and consumption columns for the years 1940 to 1945 in Table II. Each year shows a comfortable margin of surplus over consumption, which was stockpiled for future use in case of interruption of imports. At the end of 1945 the Metals Reserve company had 866,333 tons of chromite in storage in the United States, 492,587 tons stored in foreign ports and 61,550 tons afloat, enroute to the United States, a total of 1,420,470 tons. Even though this record must be discounted to some extent, as about one-third of the ore stored in the United States was of domestic production, much of which was too low in grade to be readily usable, it still stands as a monument to a tremendous effort, made necessary by a lack of domestic chromite resources.

The stocks accumulated during the war years were presumably to be turned over to the permanent stockpile, to be supplemented by future purchases until the amount should reach the total recommended by the Army and Navy Munitions Board.

(G. A. Ro.)

Chronology: see CALENDAR OF EVENTS, 1946, pages 1-16.

Churches, World Council of: see CHRISTIAN UNITY.

Churchill, Winston Leonard Spencer (1874-), British statesman, was born at Blenheim palace, Oxfordshire, England, on Nov. 30, the elder son of Lord Randolph Churchill and Jennie, daughter of Leonard Jerome of New York city. For his biography and his political career during World Wars I and II, see *Encyclopædia Britannica*.

With the end of World War II, Churchill gave expression to his distrust of soviet policies. His attitude was reflected in his address (March 5, 1946) at Westminster college in Fulton, Mo., where he appealed for an Anglo-U.S. "fraternal association" to halt the "expansive and proselytizing tendencies" of the soviet union. In a subsequent speech in New York city (March 15), Churchill again called for an Anglo-U.S. "fraternal association" but denied that he ever sought a military alliance and added that he did not believe that the soviet leaders wanted a war "at the present time." Both speeches created an international furor. President Harry S. Truman, who was present at the Fulton speech, subsequently hastened to deny that his attendance meant endorsement of Churchill's views. The Labourite government also dissociated itself from Churchill's statements and Stalin later denounced his former wartime ally as a "war-monger."

While Churchill disapproved what he termed the Labour government's policy with regard to India, Burma, Egypt and Palestine and denounced its efforts to "liquidate" the empire, he largely endorsed its foreign policy and on Oct. 5, 1946, praised the Attlee government "for having decisively broken with communism."

Church Membership. The latest information about church membership in the 55 religious bodies, each reporting more than 50,000 members, was that published by the *Christian Herald* in June 1946 (see table). The total given for continental U.S. was 71,700,142 persons, mainly for years ending in 1945, compared with 70,623,989, as reported by the same bodies for the *Yearbook of American Churches*, compiled under the auspices of the Federal Council of the Churches of Christ in America, published in July 1945, mainly for years ending in 1944. Some bodies do not publish annual figures, and in a few instances the latest data are for the year 1936, the date of the last census of religious bodies as taken by the federal bureau of the census. According to the official reports of the statisticians of the religious bodies, total church membership had been increasing for some years. The

church membership figures published in 1945 and 1946 represented the largest proportion of the total population ever reported in the religious bodies.

The 55 religious bodies having more than 50,000 members had 97.4% of all the church members in continental U.S., according to the complete report published in 1945. The remaining 2.6% of the members were in the 201 smaller bodies. Of the total reported church membership in 1945, 32.3% was Roman Catholic; 1.3% Old Catholic, Polish Catholic and Eastern Orthodox; 6.4% Jewish and 60% Protestant. In 1945 there were reported by 256 religious bodies 72,492,669 members, of whom 59,717,181 were 13 years of age and over. The total number of church members in 1945 was 52.5% of the estimated population.

(B. Y. L.)

*Church Membership in Continental United States, As Reported in 1946,
for the Religious Bodies*

Body	Churches	Members
Adventists, Seventh Day	2,549	201,035
Assemblies of God	5,311	241,782
Baptist Bodies:		
Northern Baptist Convention	7,266	1,565,400
Southern Baptist Convention	25,965	5,667,926
National Baptist Convention, U.S.A., Inc.	24,460	4,076,380
National Baptist Convention of America	7,386	2,352,339
American Baptist Association	1,064	115,022
Free Will Baptists	1,393	228,643
National Baptist Evangelical Life and Soul Saving Assembly of U.S.A.	644	70,843
Primitive Baptists	1,726	69,157
United American Free Will Baptist Church	380	75,000
Buddhist Churches of America	46	70,000
Church of the Brethren	1,021	181,087
Church of Christ, Scientist	2,170	268,915
Churches of God:		
Church of God	2,728	101,441
Church of God (Anderson, Ind.)	1,572	88,176
Church of God in Christ	2,000	300,000
Church of the Nazarene	3,010	190,620
Churches of Christ	10,000	309,551
Congregational Christian	5,875	1,113,930
Disciples of Christ	7,923	1,691,374
Eastern Orthodox Churches:		
Greek Orthodox (Hellenic)	280	275,000
Russian Orthodox	368	300,000
Evangelical and Reformed	2,824	689,780
Evangelical	1,857	248,195
Federated	508	88,411
Religious Society of Friends (Five Years' Meeting)	950	113,638
Independent Fundamental Churches of America	650	65,000
Jewish congregations	3,728	4,641,200
Latter Day Saints:		
Church of Jesus Christ of Latter Day Saints	1,823	810,644
Reorganized Church of Jesus Christ of Latter Day Saints	566	114,027
Lutherans:		
American Lutheran Conference:		
American Lutheran	1,834	584,499
Evangelical Lutheran Augustana Synod of N.A.	1,123	487,266
Norwegian Lutheran Church of America	*	620,907
Lutheran Synodical Conference of N.A.:		
Evangelical Lutheran Synod of Missouri, Ohio and other states	3,992	1,394,134
Evangelical Lutheran Joint Synod of Wisconsin and other states	841	259,097
United Lutheran Church in America	3,765	1,719,821
Mennonite	419	51,611
Methodist Bodies:		
African Methodist Episcopal	7,265	868,735
African Methodist Episcopal Zion	2,252	489,244
Colored Methodist Episcopal	4,200	380,000
Methodist	40,698	8,083,767
Polish National Catholic	146	250,000
Presbyterian Bodies:		
Cumberland Presbyterian	1,063	70,567
Presbyterian Church in the U.S.	3,513	580,665
Presbyterian Church in the U.S.A.	8,436	2,104,443
United Presbyterian Church of North America	844	198,759
Protestant Episcopal	7,298	2,163,711
Reformed Bodies:		
Christian Reformed	310	128,914
Reformed Church in America	742	173,975
Roman Catholic	14,302	23,963,671
Salvation Army	1,368	206,412
International General Assembly of Spiritualists	236	100,000
Unitarian	378	61,948
United Brethren in Christ	2,748	433,480
Totals:	235,816	71,700,142

*Not reported

Church of England. An important event in the first post-war year was the revival of ecclesiastical legislation. The Benefices (Suspension of Presentation) measure, the Curates' Grants measure and the Clergy (Supplementary Pensions) measure all received the royal assent in 1946. In the Church assembly the Church commissioners for England measure for the amalgamation of the Ecclesiastical commission and Queen Anne's Bounty, the Bishops' Retirement measure and the Parsonage (Amendment) measure received final approval. The Church Dignitaries' Retirement measure, dealing with deans, provosts, archdeacons and canons, received general approval. The Clergy (national emergency precautions) act came to an end on Nov. 15. A new commission was appointed to report on the revenues of parish church cathedrals, and another to report on the care of church people in mental homes and hospitals and on the training of chaplains for these institutions. One report stated that 925 candidates, including ex-servicemen, had been accepted for the ministry, and another stressed the need for instruction in public worship and for dogmatic rather than ethical preaching. The assembly voted £50,000 toward the expansion of training colleges for teachers, and Lord Selborne outlined a scheme for the co-ordination of religious education in all its aspects by five departmental councils. Parliament agreed that under the Education act (1944) children in elementary, aided and "special agreement" schools might attend church services on special as well as regular occasions.

The convocations of Canterbury and York approved the revised Canon 99 on "Impediments to Matrimony" and accepted a new table of kindred and affinity. Several new appeals were made, including the bishop of London's appeal for £750,000 for churches and schools and those of the archbishops for £600,000 for training ex-servicemen for the ministry and for £300,000 for Canterbury cathedral. The diocese of London produced the first scheme under the Reorganization measure (1941): 83 parishes were to be amalgamated and 79 sites to be sold for church-building in new housing areas. The work of the Church of England Men's society was revived.

The Rt. Rev. A. F. Winnington Ingram (bishop of London, 1901-39) died on May 26 and Dr. J. K. Mozley, one of the leading Anglican theologians and formerly canon of St. Paul's, on Nov. 23.

(A. J. MAC.)

Church Reunion: see CHRISTIAN UNITY.

Cigars and Cigarettes: see TOBACCO.

Cinema Industry: see MOTION PICTURES.

C.I.O.: see CONGRESS OF INDUSTRIAL ORGANIZATIONS.

Citrus Fruits: see FRUIT.

City and Town Planning: see TOWN AND REGIONAL PLANNING.

City Government: see MUNICIPAL GOVERNMENT.

City Manager Plan: see MUNICIPAL GOVERNMENT.

Civil Aeronautics Administration. All phases of civil aviation showed growth beyond predictions in 1946. The tremendous spurt in personal flying and flight training is reflected in the fact that the number of registered aircraft more than doubled, from 37,789 at the end of 1945 to 85,000 at the end of 1946, and the number of certificated pilots (private, commercial and transport) increased from 296,895 to 400,000. Student pilot certificates issued during 1946 numbered 170,000, as against 77,188 in 1945.

Primarily to meet the demands for small planes, civil aircraft production jumped from 2,047 planes in 1945 to 35,000 in 1946. Surplus military aircraft accounted for the balance of the increase in registrations.

Air lines carried a total of 13,819,000 passengers—almost double the 1945 figure. Air-line traffic measured in passenger miles amounted to 7,258,000,000. This represents an increase of 6,000,000,000 passenger miles over 1940. Passengers flying on international routes of U.S. flag carriers passed the 1,000,000 mark for the first time, increasing from 492,792 in 1945 to 1,040,000 in 1946.

This tremendous volume in air-line operations was accomplished with significant improvement in the safety record. Passenger fatalities per 100,000,000 passenger miles flown on domestic and international routes were reduced from 2.31 in 1945 to 1.47 in 1946.

Thousands of new businesses sprang up in the field of non-scheduled passenger and cargo service. The CAA received requests from 3,061 such services for operating certificates under the new regulations governing them.

Keeping pace with this upsurge, the CAA broadened considerably the scope of its activities. In the international field, CAA technicians took a leading role in U.S. participation in P.I.C.A.O. (Provisional International Civil Aviation organization) regional route services conferences at Dublin (North Atlantic area), Paris (European-Mediterranean), Washington (Caribbean) and Cairo (middle east). Another important CAA-P.I.C.A.O. project was a three-week demonstration at Indianapolis, Ind., to world technicians of U.S. radio aids to air navigation, which then were generally adopted at a meeting in Montreal as the basis for international standards.

To perform its safety regulation duties on the expanding routes of U.S. air carriers, CAA opened offices in Paris, London, Cairo, Mexico City and Sydney, Australia. Technical missions were sent to Turkey, Colombia, Peru, Venezuela, Chile, Mexico and Brazil, and an engineer was sent to the Philippines to pave the way for airways construction under the Philippine Rehabilitation act. In addition, CAA personnel were assigned to operate surplus navy airways facilities at Paris, Dakar and the Azores under an executive order providing for the operation by the CAA of such facilities essential to civil flying until nationals of the countries concerned could be trained to staff them. Certain surplus army facilities in Alaska also were transferred to the CAA for operation.

On the domestic scene, initial steps were taken under the \$500,000,000 National Airport act, including completion of regulations, formulation of a three-year National Airport plan and approval of project applications for the first year's program.

To cope with increasing airways traffic, new devices were readied for operation. Three modified G.C.A. (ground-controlled approach) radar sets were being installed for experimental use during the winter of 1946-47 in the New York, Chicago and Washington airport traffic control towers. Instrument landing systems were installed by CAA at approximately 50 airports as the air lines completed installation of corresponding airborne receiving equipment and pilot training in its use. A very high frequency airway was placed in operation between Las Vegas

and Denver, first stage in the eventual conversion of the entire 40,000 miles of airways to V.H.F. Developmental work continued at the CAA experimental station in Indianapolis on many other radio and radar improvements. (See also AIRPORTS AND FLYING FIELDS; AVIATION, CIVIL.) (T. P. W.)

Civilian Production Administration.

The Civilian Production administration, established as successor to the War Production board by executive order 9638 of the president of the United States, began operations on Nov. 3, 1945. John D. Small was named administrator.

Instructions from President Truman were that CPA's functions and powers, transferred to it from the WPB, "be utilized to further a swift and orderly transition from wartime production to a maximum peacetime production in industry free from wartime government controls, with due regard for the stability of prices and costs, and to that end shall be utilized to: (a) expand the production of materials which are in short supply, (b) limit the manufacture of products for which materials or facilities are insufficient, (c) control the accumulation of inventories so as to avoid speculative hoarding and unbalanced distribution which would curtail total production, (d) grant priority assistance to break bottlenecks which would impede the reconversion process, (e) facilitate the fulfillment of relief and other essential export programs, and (f) allocate scarce materials and facilities necessary for the production of low-priced items essential to the continued success of the stabilization program of the Federal Government."

Handed down from the WPB along with its priorities and allocations powers was a faith in the laissez-faire principle for peacetime industry. This was in keeping with the general thinking of the administration—that a return to peacetime full production and full employment could be achieved most rapidly with a minimum of government control. The policies CPA followed, therefore, called for assisting industry to attain its production goals at points where the over-all progress of reconversion was threatened, but without detailed planning and directing by government of the various processes of industrial reconversion.

Wherever possible, the agency preferred to exercise its influence with industry informally through contacts of CPA executives and through the meetings of industry advisory committees. The formal controls which the agency employed chiefly regulated the use and distribution of some specific materials whose scarcity limited the expansion of the entire economy. Many controls were grouped around a few key civilian programs on which CPA concentrated: housing for veterans, production of low-cost clothing, breaking of industrial bottlenecks, relief for individual hardship, aid for small business, limitation of exports and inventories of goods in short supply domestically.

The physical reconversion of plants to civilian goods was accomplished rapidly. But certain shortages persisted: not in most cases because of low production, but because the high rates of production that were quickly attained for components and materials were inadequate to support the even higher schedules for production of end-goods. Despite the fact that the production of basic materials in Oct. 1946, was almost the same as at the wartime peak in 1943, the unprecedented producer requirements for materials, equipment and new facilities could not be met.

While for some products there was not enough industrial capacity, in the cases of others, there was a lack of natural resources, either domestically or internationally. In a period of clamorous and conflicting demands, these conditions called for government measures to assure supplies for the most essential

needs. In addition to orders affecting certain specific commodities, there were a few general measures to prevent the aggravation of shortages; *i.e.*, limitation of exports of certain commodities and prevention of large inventory accumulations.

CPA used its powers also to ensure maximum production of short materials and parts by granting priorities to their producers. These enabled them to obtain materials and equipment or construction materials when expansion was necessary. This same type of assistance was extended to new plants in most industries, except textiles, to small business concerns and to concerns run by veterans, in order to help these producers operate at a minimum economic rate.

Some short products required the invocation of a combination of orders to get production in sufficient volume. These then assumed the status of "programs" which CPA sponsored. Principal among these were the low-cost clothing program and the Veterans' Emergency Housing program. The low-cost clothing program was started by the War Production board and continued by CPA to take care of the clothing needs of veterans, by channelling machinery and fabrics to producers in low-price brackets.

The housing program, far more than any other, required a large number of controls. CPA attacked the problem of insufficient building materials by routing basic production materials and equipment to the building materials industry when this was necessary, by limiting the number and type of project (as to essentiality) which could draw on the pool of scarce materials and by reserving the major part of scarce building materials for housing.

The virtual end of price controls late in November brought to a close some CPA projects, such as the low-cost clothing program, which had been tied to price factors. Uncontrolled prices also made impossible the exercise of the full powers which the congress in the spring of the year had awarded to the Office of the Housing Expediter. This opened the way to the gradual resolution of the conflict between a controlled housing program and accelerating general decontrol. In December the issuance of priorities to builders of veterans' homes was stopped and measures limiting other types of home construction were relaxed considerably at the beginning of 1947.

Civilian Production Administrator John D. Small resigned on Dec. 5, stating that of the problems which remained, none, in his opinion, could be cured rapidly by the further exercise of war powers. The Office of Temporary Controls was established on Dec. 12 with Maj. Gen. Philip B. Fleming as its administrator, to take over the remaining functions and speed the liquidation of the CPA, as well as the Office of Price Administration, the Office of Economic Stabilization and the Office of War Mobilization and Reconversion. (See also PRIORITIES AND ALLOCATIONS.) (K. KR.)

Civil Liberties. Unlike the period immediately following World War I, the people of the United States expanded, rather than contracted, their civil liberties during 1946. Voluntary wartime censorship of the press and radio was promptly removed. U.S.-Japanese on the Pacific coast were permitted to return to their homes, thus correcting the racist deprivations created during World War II, and demobilization of conscientious objectors was promptly begun. In fact, transition from war to peace was made without hysteria in any quarter, thus evidencing an adult position distinguishable from the deportation hysteria after World War I.

On the civil rights of minorities front, the United States supreme court held to be in violation of the federal constitution state legislation and practices which in certain areas provided for "Jim Crow" interstate bus service, whereas other courts



THE MAGNA CARTA, symbol of Anglo-Saxon civil liberties, being placed in the strong box of the "Queen Mary" to be carried back to England from the U.S. in 1946

struck down discriminations based on race, creed or colour among applicants for public library positions. Segregation in schools of Mexican as opposed to U.S. children was judicially condemned and closed shop agreements entered into by unions as long as Negroes were segregated in auxiliary units without voting power were voided. A Florida supreme court declared that Negroes were entitled to vote in the Democratic primaries, and a Los Angeles court held unconstitutional restrictive covenants against Negroes with respect to housing. Restrictive covenants entered into between property owners and levelled against people who do not worship on Sunday were extended in many cities. A further test of the poll tax system was of no avail, and the United States senate refused to consider federal legislation to establish federal control over qualification for voting in elections of federal officials. The navy and marine corps finally admitted U.S.-Japanese into service and congress passed legislation to permit Filipinos and East Indians to become United States citizens.

The courts condemned the Associated Press as an agency operating in restraint of trade in thought, and the five leading motion picture companies, together with their three so-called satellite companies were found to be violators of the anti-trust laws and restrainers of the market place of the screen.

President Harry S. Truman appointed a committee on civil rights consisting of 15 members to report on deprivations of civil rights—lynching in particular—and to recommend new federal legislation on the subject. Hence, there would be raised the question of the wisdom of national legislation to correct anti-social folkways imposed on minority groups because of race, creed or colour. A senate investigation under the aegis of Sena-

for James Murray of the senate small business committee was scheduled to consider the frightening decline of daily and weekly newspapers in the United States in the light of the modern theory that the purpose of a free press is to attain truth by diversity of thought. There was increasing approval of international efforts to reduce the burdens on the flow of thought—movies, radio and press—throughout the world, in line with the establishment of the United Nations Educational, Scientific and Cultural organization. (See also ALIENS; ANTI-SEMITISM; BIRTH CONTROL; EDUCATION; LAW; LYNCHING; NEGROES, AMERICAN; NEWSPAPERS AND MAGAZINES; RADIO.) (M. L. E.)

Great Britain.—During 1946 the Labour government repealed the Trades Unions and Trades Disputes act, 1927, thereby removing the illegality of general strikes and lock-outs, increasing the right of peaceful picketing, restoring to civil service trades unions the right to affiliate to a political party, enabling local authorities to enforce trades unionism on their employees and giving unions their former power (under an act of 1913) to use their funds for political purposes. One of the results was an increased trades union pressure on employers to enforce trade union membership on all employees. The freedom of the press also came under consideration; on a free vote of the house of commons the government was asked to appoint a royal commission to inquire into the ownership of the press and other matters.

The government's decision to continue military conscription for an undefined period beyond Jan. 1, 1949, was regarded by many as an invasion of civil liberty, and 53 members of parliament voted against it in November.

Europe.—In France the new constitution in its preamble confirmed the Declaration of the Rights of Man of 1789 and declared certain other freedoms, such as equal rights for women, the right to work and to strike, to belong to a trade union, to collective bargaining, to social insurance, educational and professional training and the acceptance of international law.

In Poland the constitution of March 1921 remained in force, but steps were being taken to revise it. It was regarded as important that knowledge of the democratic rights secured by this constitution and various decrees and laws after the liberation should be diffused among all citizens and this was being done by committees of representatives of trades unions, political parties, lawyers and others. An innovation in the administration of justice was the appointment of lay judges to sit with professional judges, with minor cases handed over to lay courts entirely.

In Holland the only changes were the reintroduction of the death penalty for war criminals, after nearly 100 years' suspension, and an amendment of the constitution to permit the sending of conscripts to the East Indies.

In Greece the 1911 constitution, which guaranteed civil liberties, was being revised. An extraordinary security measure was passed during 1946 for a limited period, giving the government the right to deport citizens engaged in seditious activities, on the recommendation of a security commission composed of two judges and the local prefect.

In Italy a new constitution was being drafted and consideration given to the need for inserting a declaration of fundamental liberties.

In the Yugoslav constitution formed by the constituent assembly which came into force in 1946 there were 23 articles declaring fundamental liberties, supplemented by special laws on the freedom of the press, public meeting and the right of association, but under these acts these liberties could be very severely curtailed by the authorities. Albania was developing laws on similar lines.

Australia.—Wartime restrictions on the issue of passports

and the restrictions on the issue of new publications and the size of existing publications were removed, except as regards daily and Sunday newspapers, and freedom of occupation was restored by the withdrawal of the control of labour.

(R. S. W. P.)

Civil Service. The year 1946 was one of progressive readjustment to peacetime operation for the civil service in federal, state and municipal governments throughout the United States. Dissolution of virtually all war-emergency federal agencies resulted in sharp cuts in national government pay rolls, and a gradual discontinuation of the device of "war duration" appointments brought an element of stability to the public service that had been lacking during the war years.

The downward trend in federal employment, dating back to mid-1945, continued at an accelerated pace. Records of the United States civil service commission showed a total of 2,411,000 federal employees within the United States as of January 1, 1946; six months later the total had dropped to 2,299,000. By year-end the employment level had dropped below two million, and stood at 1,980,000. This represented a net reduction of approximately 400,000 employees during the year.

Personnel cuts in the war and navy departments contributed most to this reduction, but it was further augmented by curtailment of the Office of Price Administration and transfer of the United States employment service back to the various states. The Veterans' administration, on the other hand, was one of the few agencies that expanded during the year. By the end of 1946 it was the fourth largest of the federal agencies, being out-ranked only by the war, navy and post office departments.

Substantial pay increases were made throughout the public service during 1946. For the second successive year, federal employees received pay adjustments, ranging from 25% in the lowest brackets to 14% in the upper brackets. A majority of states and cities also took steps to increase pay of their employees in order to alleviate the hardship arising from the post-war inflationary trend.

The wave of strikes in industry that characterized the year also carried over into the public service. In Pontiac, Mich., a 42-day general strike of public employees brought municipal services to a standstill. Other strikes of lesser magnitude and duration occurred elsewhere, notably in Milwaukee, Wis., Portland, Me. and Rochester, N.Y. The right of public employees to strike became a lively issue in many quarters. In congress, riders attached to departmental appropriation bills required federal employees to sign "no-strike" affidavits.

A new public employee union was formed during the year when members of the United Federal Workers of America and those of the State, County and Municipal Workers of America merged into a single organization, the "United Public Workers of America," affiliated with the C.I.O.

Early in the year, the United States civil service commission discontinued its policy of making "war service" temporary appointments, and by midyear had begun to hold its first peacetime civil service examinations for permanent appointments. Similar steps were also taken in a number of states and cities to resume normal policies shelved during the war emergency.

Returning veterans in large numbers sought public service employment. In this they were aided to a considerable degree by laws giving them preference in examinations, appointments and retention in case of layoff. Among male employees in the federal service, at year-end, veterans outnumbered nonveterans by a substantial margin.

In Missouri, legislation was adopted establishing a merit system for certain departments in the state service. New Jersey

voters approved adoption of the state-administered civil service system in Hackensack, Hoboken, Riverside and Vineland. Police department employees in Omaha, Neb., were also placed under civil service during the year. (J. J. DN.)

Great Britain.—1946 was a year of intense activity for the British civil service; demobilization of the forces and the winding up of many wartime activities coincided with the reconversion of industry, the first steps in reconstruction and the heavy legislative program initiated by the government. As illustrating the above, though the nonindustrial staff of the service and supply departments declined by 45,300 between Jan. 1, 1946, and Jan. 1, 1947, the staff of other departments rose in the same period by 76,250.

Permanent recruitment, which had been suspended in war time, was reopened at the end of World War II, and progress was made in 1946 with a major program of recruitment, extending over about three years, to make good arrears, to replace temporary civil servants returning to their normal occupations and to provide for permanent expansion. In the recruitment to the higher grades greater stress was laid on personal qualities, which could be decided by interview rather than by written examination. In 1946 recruits to the higher grades were given for the first time a period of general training after appointment, but before taking up their duties, at central courses held for the whole service. There were no major alterations in the grading or structure of the civil service.

In March 1946 the office of minister of information was abolished, the ministry being reorganized as the central office of information. In Oct. 1946 a White Paper (Cmd. 6,923) was issued announcing the government's intention to introduce legislation setting up a ministry of defense; the government also abolished the marriage bar in the civil service. (E. E. Bs.)

Clapham, Sir John H. (1873–1946), British historian, was educated at King's college, Cambridge, where he won several prizes for his historical works. He was a fellow of King's college, 1898–1904, became dean in 1908 and tutor in 1913. Sir John also held the posts of Ford's lecturer at Oxford, 1926, and Creighton lecturer at the University of London, 1937. He became the first professor of economic history at Cambridge, 1928–38; his appointment followed publication of his first vol. of *Economic History of Modern Britain* (1926); vol. 2 of this series appeared in 1932 and vol. 3 in 1938. Later Harvard university conferred upon him an honorary degree of Litt.D. and Cambridge appointed him its vice-provost (1933–43). Sir John, who was knighted in 1943, had been selected by the Bank of England to prepare its archives for publication, a work that appeared in 1944 under the title *The Bank of England, a History*. He was also a member of the committee handling restitution of monuments, works of arts and archives that were seized illegally by enemy governments and individuals during World War II. Among his other works are: *The Causes of the War of 1792* (1899), *The Abbé Sieyès* (1912), *The Economic Development of France and Germany, 1815–1914* (1921), and *The Study of Economic History* (1929). He died March 29 while travelling by train to Cambridge.

Clark, Mark Wayne (1896–), U.S. army officer, was born May 1 at Madison Barracks, N.Y., where his father, Col. Charles C. Clark, was then stationed. A graduate of West Point in 1917, he saw service on the western front in World War I and was wounded in June 1918. He was graduated from the Command and General Staff school, 1935, and the Army War college, 1937. In Aug. 1942, he arrived in England to take over command of U.S. ground forces in the European theatre of operations, and in Nov. 1942, he was second

in command of the U.S. forces that landed in North Africa.

Gen. Clark was awarded the congressional medal of honour for having staged, three weeks before the invasion, a successful secret mission to French North Africa where he established contact with French officers and laid the groundwork for the landings. He also was promoted to lieutenant general. Clark led the U.S. 5th army in the invasion of Italy in Sept. 1943, and in Nov. 1944, he was made commander of the Allied 15th army group. He was named (March 13, 1945) for promotion to the rank (temporary) of full general. In April 1945, he launched the final Allied offensive in Italy and on May 2, German forces in northern Italy and part of Austria surrendered to his armies. Clark, who was designated (June 28, 1945) as commander of U.S. occupation forces in Austria, voiced several protests over soviet policy in Austria and asserted (Sept. 11, 1946) that soviet occupation authorities in eastern Austria took "almost everything on the ground that it is a German asset."

In early 1946, a group of former officers that fought under Clark in Italy charged that the general's "blunders" caused unnecessary bloodshed in the Rapido river crossing and urged the senate military affairs committee not to approve his appointment to the permanent rank of major general. The war department stated, however, that Clark had employed "sound judgment" in the battle and his appointment was confirmed June 20, 1946. On Jan. 6, 1947, the war department disclosed that Gen. Clark had been transferred to the command of the U.S. 6th army in San Francisco.

Clark, Thomas Campbell (1899–), U.S. lawyer and attorney-general, was born Sept. 23 in Dallas, Tex. He was graduated with an A.B. degree from the University of Texas (1921) and practised law. He was civil district attorney of Dallas county, 1927–32. In 1937, Clark was made special assistant to the attorney-general of the U.S. He was shifted to the department's antitrust division (1938), was later named co-ordinator of alien enemy control in the Western Defense command, and was given charge of the War Frauds unit in the antitrust division in May 1942. Clark became assistant attorney-general of the antitrust division (March 1943) and in Aug. 1943, he headed the justice department's criminal division with his authority extending to the War Frauds unit. President Truman named Clark to succeed Francis Biddle as U.S. attorney-general, May 23, 1945. Clark assumed office June 30.

In 1946, Clark lifted the wartime curbs on enemy aliens (Jan. 7) and approved (June 16) the sale of the \$200,000,000 government steel plant in Geneva, Utah, to the U.S. Steel corporation for \$47,500,000; the government was subsequently criticized for the latter action. Clark supported Secretary of the Interior Julius A. Krug in his dispute with John L. Lewis over the validity of the Krug-Lewis coal agreement and stated Nov. 15, that the pact applied "for the full period of government operation."

Clay, Lucius DuBignon (1897–), U.S. army officer, was born April 23 in Marietta, Ga. He was graduated from the U.S. Military academy in 1918, and during the latter days of World War I was an instructor at an officers' training school. Clay taught military science and tactics at Alabama Polytechnic institute (1921), and was assigned as an instructor at West Point (1924). During the following years, Clay was associated with a number of army construction and engineering projects in the United States and abroad. A month after the U.S. entry in World War II, Clay went to South America to locate defense airports there. On his return, he was made deputy chief of staff (March 1942) for

requirements and resources in the army service of supply; he was promoted to the rank of a major general the following December. Gen. Clay was transferred to the Office of War Mobilization and Reconversion in Dec. 1944 as deputy director for war programs and administrations. On March 29, 1945, Pres. Franklin D. Roosevelt appointed Clay as deputy to Gen. Dwight Eisenhower in charge of civil affairs in Germany; the following month, Clay was promoted to lieutenant general. In addition to being deputy to Eisenhower (and later to Gen. Joseph T. McNarney), Clay also headed the U.S. group on the Control council for Germany and was deputy military governor of the U.S. zone of occupation.

In the summer of 1946, Clay proclaimed an amnesty for all nazi-inclined "offenders" up to the age of 27, excepting active nazi party members and supporters. On Nov. 5, he told German officials in Stuttgart that unless there was "real and rapid improvement" in their denazification measures within 60 days, the U.S. military government would take over. On Jan. 6, 1947, Gen. Clay succeeded McNarney as commander of U.S. occupation forces in the European theatre.

Clays. Shipments of kaolin in the United States rose from 873,056 short tons in 1944 to 939,988 tons in 1945, accompanied by a 7% increase in value. Although the common-name for this type of clay is china clay, only 9% of the 1944 output was used in ceramics, against 10% in refractories, 59% in paper and 17% in rubber. Sales of ball clay rose from 155,667 tons in 1944 to 174,524 tons in 1945, mostly used in pottery. Consumption of fire clay and stoneware clay declined from 6,344,383 tons in 1944 to 6,090,411 tons in 1945. Miscellaneous clays, used mostly in cement and heavy clay products, increased from 9,080,717 tons in 1944 to 10,848,686 tons in 1945.

Total output of these types of clays was 17,153,823 tons in 1944 and 18,053,609 tons in 1945. Of the respective totals 3,520,735 tons and 3,611,944 tons were sold by the producers, while 13,633,088 tons and 14,441,665 tons were used by the producers in the manufacture of clay products. (See also BENTONITE; FULLER'S EARTH.) (G. A. Ro.)

Clayton, William Lockhart (1880—), U.S. government official and cotton broker, formerly headed the firm of Anderson, Clayton and company in Houston, Tex. He joined the department of commerce in 1942 as an assistant secretary. He also was vice-president of the Export-Import bank and, in 1944, was appointed federal war surplus property administrator.

On Dec. 4, 1944, Pres. Roosevelt named Clayton assistant secretary of state. A strong supporter of the Reciprocal Trade Agreements act, Clayton proposed establishment of a new international trade charter, which, with minor amendments, was subscribed to by 17 nations at London in Nov. 1945. On Aug. 1, 1946, he was appointed undersecretary of state for economic affairs, a newly created office.

Clayton's defense of the \$3,750,000,000 credit to Britain in 1946 was criticized by some opposition leaders in congress who implied that the cotton brokerage firm in which his family had a 40% interest would gain thereby. Clayton declared, however, (Jan. 17, 1947), that the firm had sold only $\frac{1}{4}$ of 1% of its cotton to Britain during the year ending July 31, 1946.

Cleveland. Sixth largest city in the United States, Cleveland, O., had a population of 878,336 by the federal census of 1940. Area 73.1 sq.mi.

In 1946 Cleveland celebrated the 150th anniversary of its founding. Dozens of events were held in the course of the year

to salute the memory of Moses Cleaveland, the city's founder. Attracted by the sesquicentennial events, more than 1,000,000 visitors went to Cleveland during the year.

The municipal budget was set at a record high of \$21,363,997. At a special election in February voters authorized the city government to levy an additional \$3,350,000 for operating and maintenance purposes. Another city levy of \$3,317,784 was approved at the regular November election. Passed at the same time were a Cuyahoga county welfare levy of \$2,847,574 and a board of education levy of \$1,980,000. Expenditures of the county government in 1946 were \$19,920,010. The board of education passed a single salary schedule for teachers, establishing minimum and maximum pay, and later in the year raised the pay of all its salaried employees.

Judges elected in 1946 were: Lee E. Skeel and Joy Seth Hurd to the court of appeals; Homer G. Powell, Joseph A. Artl, Frank S. Day and Burt W. Griffin to the common pleas court; Harry L. Eastman and William J. McDermott, to juvenile court. Gov. Frank J. Lausche appointed as judges of Cleveland's municipal court: Frank D. Celebrezze who had been city safety director; Anthony A. Rutkowski, former chief police prosecutor and Brookes Friebolin who had been assistant city law director.

Other events in 1946 included the following: The city was without newspapers for 32 days as pressmen went on strike. The county exceeded its quota in the Victory Bond drive, buying \$27,490,130 in government bonds. Mgr. John R. Hagan was appointed titular bishop of Limata and designated auxiliary bishop of the Cleveland Catholic diocese in May. He died in September following an operation.

Estimated value of products made in Cleveland in 1946 was \$2,500,000,000. At the year-end employment was within 2½% of the V-J day level and the weekly pay roll of industrial wage earners was in excess of \$9,000,000. Steel ingot operations in the Cleveland district averaged 80% of capacity for the year as compared with the national average of about 72%. The Cleveland Stock exchange had the largest volume of business in 16 years. Building construction for the year was \$36,018,700 as against \$23,881,350 in 1945 but the housing shortage continued as acute as ever. Postoffice receipts were \$14,401,882 in 1946 as against \$13,456,446 in 1945. Bank clearings were \$12,434,528,324 in 1946 and \$11,377,621,183 in 1945. (P. By.)

Climate: see METEOROLOGY.

Clothing Industry. The year 1946 accented the shortage of clothing throughout the world. In the United States and Canada production hit an all-time high, surpassing that of 1941. However, where quantity gained, quality suffered. Materials and make were in most instances far inferior to prewar standards; postwar quality was not up to even wartime standards. Clothing prices were high and went higher with the abolition of price control. The apparently insatiable demand for apparel tapered at year's end.

Manufacturers had a mixed year. On the one hand they had few labour troubles and could sell everything they could turn out, thus being assured of substantial profits. On the other hand many shortages continued; machinery was difficult to obtain; in many instances suppliers were five years behind on deliveries, piece goods was priced high and deliveries restricted; trimmings (particularly rayon lining and good pocketing) remained very difficult to secure. Moreover, in the large centres, manufacturers who used outside contractors to do their sewing felt an extreme pinch in production facilities. Generally this was due to the fact that demand for merchandise was so strong that even dyed-in-the-wool contractors were making and sell-

ing their own clothing. As in every lush period the number of new firms was large and many old small manufacturers looked to the years ahead with apprehension. Basically the industry was sound.

Machinery developments continued. Two large suppliers brought out electric bonding machines that fused thermoplastics by an electronic beam. This type of machine was offered in various models including feed-off-the-arm, bar tack, straight seamer, etc. A radical development in the cutting room was the appearance of an electrically operated cloth spreader that started and stopped automatically, thus saving considerable manpower. Special cutting machines were developed for new and unusual materials that presented new problems. New shade marking machines offered increased speed and variety in that operation. All types of equipment were far behind scheduled deliveries. Even such small items as proportional dividers (used in grading patterns), pattern notchers and punches were hard to obtain. Tailor squares were scarce throughout the world; manufacturing shortages caused the traditional boxwood square to be changed to maple and metal trimmings were eliminated on many models.

Style changes in men's clothes were minor; with the end of all OPA (Office of Price Administration) restrictions the two pants suit and vests with double-breasted coats returned. Toward the end of the year a slight trend away from sportswear and roughwear was noted. Outstanding fads were heavy plaid woollen shirts and multiple layer outer garments for winter wear. Although tremendous amounts of clothing were sold as war surplus, no appreciable immediate harm was done to the civilian market by this disposal. What the long range effect would be was problematical. Traditionally war surplus goods sell best, and hurt most, in years of low income.

The textile market worked overtime to produce the materials for the cutters; competition was nil and new products were few. However, research continued with the promise of many interesting fabrics for the future.

Internationally, the clothing industry took on added importance. Many small countries, previously using homemade or custom-made clothing suddenly became the location of large modern factories. This was especially true in Central and South America, Africa and India.

In Great Britain textile production increased but the necessity for export hindered the yardage available for home consumption. Most restrictions were eliminated but the situation remained harsh. In continental Europe good clothing was extremely difficult to obtain because of a lack of textiles, trimmings and manufacturing equipment; nevertheless rebuilding went on and the situation was easing. World-wide clothing manufacturers installed new, individually motored tables and new machines, mostly made in the United States of America.

Many countries including Great Britain, France and Australia sent delegations to the United States to study its machines, methods and styles, as well as to purchase new equipment. Other countries were represented by individual manufacturers eager to observe mass production methods. The delegations in many countries made written reports to the industry containing recommendations, etc.

The year ended in the United States with peculiar market actions. Retail prices broke badly and the first signs of a buyer's market could be discerned. This stemmed directly from consumer reaction to poor, high-priced apparel. Manufacturers and retailers proceeded to set their houses in order, not knowing what to expect.

FILMS.—*Making Cotton Clothing* (Encyclopædia Britannica Films Inc.) (S. L. S.)

Cloves: see SPICES.

Coal. Data on world production of coal have been received from a number of countries for the years of World War II, but in the data presented in Table I there are still a number of gaps to be filled, mostly among producers of intermediate importance. Germany is the only major producer for which data were lacking in 1946. In 1945, for the first time after 1938, data were available for all of the countries listed in the table (with the exception of China). Total output for all countries for which figures were at hand for both years shows a decline of 9% in output between 1938 and 1945, although 1938 itself was an off year, 6% below 1937. Production was therefore back about to the 1935 level. What the peak output of the war years amounted to still remained to be seen. It is clear, however, that 1945 included some sharp declines from preceding years. There was such a drop in European production because of the disorganization at the end of the war, along with smaller declines elsewhere, that the countries with figures for both 1944 and 1945 showed a decrease of 19%. The 1945 outputs in Europe were being improved in 1946, but these increases would be offset by decreases elsewhere, especially in the United States.

Table I.—*Coal Production of the World*

	(Millions of short tons—all grades)						
	1939	1940	1941	1942	1943	1944	1945
Canada	15.69	17.57	18.23	18.86	17.86	17.03	16.69
United States	446.34	512.25	570.51	643.02	650.82	683.27	630.93
Belgium	32.90	28.23	28.50	27.43	26.12	14.89	17.33
Czechoslovakia . . .	?	?	?	?	?	55.21	29.59
France	55.39	45.18	48.34	48.37	46.77	31	38.66
Germany	473.99	?	?	?	455	404	164
Netherlands	14.40	13.6	14.3	14.0	13.9	9.2	5.6
Poland	?	?	?	?	?	?	23.2
United Kingdom . .	259.10	251.21	231.11	228.07	217.83	207.73	192.56
U.S.S.R.	150	181.44	175	100	145	130	160
China	5.03	6.31	6.61	6.23	6.61	6.02	?
India	31.10	28.66	33.00	32.97	28.66	26.7	29.4
South Africa	18.62	18.94	20.21	22.50	22.66	?	25.33
Australasia	21.86	20.74	23.99	25.22	22.81	?	24.13
Total	1,806.7	?	?	?	?	?	?

United States.—Coal production in 1945 would possibly have made some decline, along with most other mineral products as the war closed, but the perennial handicap of the industry, strikes, settled the matter definitely by cutting output 7% in bituminous mines and 8% in anthracite mines. Bituminous production dropped from 619,576,000 short tons in 1944 to 575,840,000 tons in 1945, while anthracite output dropped from 63,701,000 tons to 54,934,000 tons. Total production dropped from 683,277,000 tons to 630,774,000 tons, and consumption was reduced from 591,830,000 tons to 560,060,000 tons.

Table II.—*United States Coal Production*
(Thousands of short tons)

	Bituminous	Anthracite	Total	Consumption	Men Employed
1939	394,855	51,487	446,342	376,296	422,000
1940	460,772	51,485	512,256	431,331	439,075
1941	514,149	56,368	570,517	492,445	456,981
1942	582,693	60,328	643,021	540,629	461,991
1943	590,177	60,644	650,821	594,517	416,007
1944	619,576	63,701	683,277	591,830	393,347
1945	575,840	54,934	630,774	560,060	370,000
1946 (est.)	527,400	61,000	588,000	?	?

Except for a slow recovery in output after the Christmas holidays, 1946 got off to a good start, with bituminous output totaling 161,000,000 tons in the first quarter. April and May brought the most extended coal strike in several years, with two weeks' normal output in the two months. Operation then proceeded at much more than 12,000,000 tons weekly until mid-November, when 3 weeks were lost in another strike. Production to Dec. 28 totalled 523,832,000 tons, with 527,400,000 tons estimated for the full year. This output was below the demand level, and supplies were short. Taking out the time lost in strikes, however, the output made a good showing for the time worked; a full year worked at the same rate would have given an output approaching 650,000,000 tons.

The strike situation became quite complicated during 1946

and remained unsettled at the end of the year. When the mine operators failed to reach an agreement with the miners in May, the government took over the mines and completed an agreement with the union. Since the government had granted more concessions than the operators had been willing to make, or were later willing to take over, the government was forced to continue the operation of the mines. Then, to complicate matters still more, in November the union by unilateral action voided the contract with the government, and though no formal strike was called, the miners put into operation their established practice of "no contract, no work." At this time coal stocks were short, not yet having been replenished after the previous strike, and after a couple of weeks of fruitless bickering the situation was becoming critical. On order of the president matters were turned over to the courts, and the union was fined \$3,500,000 for breaking its contract with the government. After this setback the miners were ordered back to work until the decision of the lower court could be reviewed by the supreme court, and so matters rested at the end of the year.

Table III.—United States Production of Coal, by States
(Millions of short tons)

	1939	1940	1941	1942	1943	1944	1945
Alabama	12.0	15.3	15.5	19.3	17.2	18.8	18.7
Colorado	5.9	6.6	6.9	8.1	8.3	8.2	7.7
Illinois	46.8	50.6	54.7	65.1	72.6	76.8	72.5
Indiana	16.9	18.9	22.5	25.4	25.1	28.0	25.5
Kentucky	42.6	49.1	53.7	62.2	63.2	71.4	67.9
Ohio	20.3	22.8	29.3	32.8	32.3	33.9	32.7
Pennsylvania	92.2	116.6	130.2	144.1	141.0	146.1	131.7
Tennessee	5.6	6.0	7.0	8.2	7.2	7.3	6.6
Utah	3.3	3.6	4.1	5.5	6.7	7.1	6.6
Virginia	13.5	15.3	18.4	20.1	20.3	19.5	18.1
West Virginia	108.4	126.4	140.3	155.9	158.8	164.7	152.2
Wyoming	5.4	5.8	6.6	8.1	9.2	9.5	9.9
Others	21.7	23.7	24.8	27.9	28.3	28.3	25.9
Total Bituminous	394.9	460.8	514.1	582.7	590.2	619.6	576.0
Anthracite	51.5	51.5	56.4	60.3	60.6	63.7	54.9
Grand Total	446.3	512.3	570.5	643.0	650.8	683.3	630.9

In anthracite the record was much better. The production level was well maintained and little time was lost. The terms of the settlement of the bituminous strike had already been

COAL, badly needed because of the coal miners' strike, was toppled into the Hudson river in the spring of 1946 when a New York Central-West Shore railroad car float sprang a leak

agreed upon when it came time for the renewal of the anthracite contract, and approximately the same terms were arranged for the anthracite miners, after only one week of full loss of time, though during the last few weeks of the bituminous strike the anthracite output had been cut appreciably, since many miners failed to report for work, as a sympathetic move in favour of the bituminous miners. Anthracite production to Dec. 28 was 60,307,000 tons, equivalent to a year's total of about 60,600,000 tons, and an increase of 10% over 1945.

Great Britain.—On Dec. 19, 1945, the minister of fuel and power presented to parliament a bill to nationalize all coal mines, together with certain ancillary undertakings in Great Britain. During the early part of 1946 the bill was fully and at times bitterly debated in the house of commons, but in due course it became an act without any really important amendments. Members of the national coal board were appointed during the year and were to take over on Jan. 1, 1947, all responsibility for getting coal. An independent tribunal fixed the gross compensation to be paid to the existing colliery companies. How this was to be distributed was not made public at that time, but it was interesting to note that the price of many colliery company shares had risen substantially during the year. The coal board made no public statement of its policy, but from various appointments it had made it appeared that its policy was to divide the producing coalfields into about eight to ten districts within natural geological boundaries. Each district was to be self-contained, subject only to general policy control by the national board. Within the districts the mines would probably be segregated into groups and these groups also might be self-contained. The grouping had not been completed by the end of 1946.

This major change in ownership naturally caused uneasiness among all connected with the industry. The owners did not know what compensation they were to receive for their property, the company directors did not know if their services would be retained or not, the senior officials were perturbed about their personal futures and the miner, although jubilant at achieving his long-sought political ambition, realized that



he might not benefit to the extent that the extremist element had led him to expect. The long-standing familiar relationship between a good private employer and his employees might be succeeded by a bureaucracy in which many unofficial privileges would disappear. Unremunerative mines might be closed, and inefficient mines might have their personnel transferred *en bloc* to a modern mechanized mine, which would mean uprooting the miner from a village where his family had lived for generations and replanting him in a strange locality.

On the other hand the general state of the coal mines rendered nationalization almost inevitable. During the preceding 25-30 yr., partly because of national causes (such as exhaustion of the more easily wrought seams of coal) but mainly because of the unsettled state of the industry resulting from competition in the export market and friction between employer and employee with the inevitable rise in costs of production, owners had been prevented from seeking finance to modernize their mines. There were, however, a number of remarkable exceptions to this general statement.

During the year the output per person employed ceased its downward trend and showed signs of rising. Senior members of the National Miners' federation exhorted their men to produce more coal, pointing out that, now that nationalization was on the statute book, it was up to the miner to justify his claim that the industry would prosper under single ownership. Increased underground mechanization was installed, and British machinery manufacturers expected soon to produce a plant to meet all requirements. Mining engineers from Europe and the U.S. were being employed by the national coal board and British engineers visited overseas mines to a greater extent than ever before.

Table IV.—Coal Industry in Great Britain, 1945 and 1946

	1945	1946
Number of persons employed	697,600	691,000
Average output per week (thousand short tons)	3,740	4,290
Output per man per shift (short tons)	1.08	1.17

Other Producers.—Production for all of the other producers of importance are shown in Table I, for both 1944 and 1945. These figures show clearly the extent to which production operations were disorganized at the close of World War II, the effect being particularly detrimental in the European countries after liberation from occupation. As local government was re-established in the various areas, marked progress was made in improving coal output, but even at the end of 1946 fuel supplies were inadequate throughout the whole of Europe. To supplement the data in the table, the following items record progress in 1946, so far as information is available at the time of writing.

Canada.—After declining 11% from 1942 to 1945, much of the previous loss was regained in 1946, with an output of 17,692,000 tons, 7% over 1945.

Belgium.—Although the production rate averaged a little better than 1,000,000 short tons a month during the latter half of 1944 and the first half of 1945, it dropped to a low of 190,000 tons in Sept. 1944. Improvement in the latter half of 1945 brought the monthly output up to 1,900,000 tons at the end of the year, and the total for the first half of 1946 to 12,413,000 tons, better than three-quarters of the prewar rate.

Czechoslovakia.—Production was at a minimum in midyear of 1945, recovering to 2,800,000 tons in December. Improvement continued into 1946, with 15,523,000 tons in the first 5 months—12% under the 1939 rate. Output during the occupation appears to have been above the prewar rate.

France.—Production sagged to little more than 1,000,000 short tons monthly in Aug. and Sept. 1944 but improved steadily after that time. The total for the first half of 1946 was 30,970,000 tons, which is 6% better than the 1937 rate, but 4% less than the 1939 rate.

Germany.—Output increased from around 5,500,000 short tons in June 1945 to 18,500,000 tons in December, and 20,400,000 tons in May 1946, with a total of 99,200,000 tons for the first 5 months of 1946.

Netherlands.—Production increased rapidly from 410,000 short tons in June 1945 to 687,000 tons in October, was irregular in the last quarter of 1945 and the first quarter of 1946 and rose to 840,000 tons in July, with a total of 5,041,000 tons in the first 7 months of 1946.

Poland.—Production increased from a low of 1,000,000 short tons a month in April 1945 and had almost reached the prewar level by the end of the year. The total for the first half of 1946 was 23,852,000 tons, 14% above the 1938 rate.

India.—Total production in the first 5 months of 1946 was 13,132,000 short tons, about on a par with 1939. (See also FUEL BRIQUETTES.) (G. A. Ro.; J. A. S. R.)

Coast and Geodetic Survey, U.S. A major achievement for the year 1946 was the successful adaptation of electronics to hydrographic surveying by the coast and geodetic survey. One of the electronic distance-measuring devices, known as Shoran, developed during the war for precision bombing, was used as the means of fixing the positions of survey ships engaged in sounding ocean depths. The equipment was operated between ship and shore stations at the extreme western end of the Aleutian chain of islands, and off the coast of New England. Precise locations of sea bottom conformations needed for the modern nautical chart were obtained in these regions. Ship positions were determined as close as one mile from the stations and at varying distances extending 102 mi. to seaward. Experimental modifications of several nautical charts were prepared for ships equipped with electronic systems of navigation.

Supplemented by detached units engaged in coastal triangulation and photogrammetry, 13 survey vessels carried on hydrographic surveys in the United States and Alaskan waters. These surveys formed the basic data for the compilation of nautical charts. In 1946, 2,250,000 copies of these charts were printed and issued for the guidance of navigation.

Primary and secondary tidal stations were maintained to gather observations on the flow of sea tides and tidal currents. The publication of daily predictions of tides and currents for all United States ports and for major world ports was printed for a year in advance.

Photographic records of the continuing changes in the earth's magnetic elements were made at the five observatories operated by the bureau. Important data for use in engineering seismology were obtained through the operation of seismographs in many locations in the western states when strong motion earth tremors were recorded.

The coast and geodetic survey furnished basic horizontal and vertical control for engineering and mapping purposes throughout the various states and in Alaska. Principal field operations were the extension of the triangulation and levels in the Columbia river valley for use by other agencies for flood control and power and irrigation projects. A second major field activity was the initiation of similar work in the Missouri river valley. Geodetic parties also operated in Indiana, Nevada, Utah, Arizona, Texas and California.

The sixth consecutive year of the bureau's participation in the program of the state department for scientific and cultural co-operation in the American republics was productive of the most practical results up to that time in standardizing methods and procedures and in the exchange of technical personnel. Seventeen experts from nine American republics attended conferences in the United States, and nine members of the coast

and geodetic survey inspected field operations in several South American countries.

The issue of 6,000,000 aeronautical charts and 4,000,000 airport charts reflected the return of civil aviation to greater peacetime activity.

(L. O. C.)

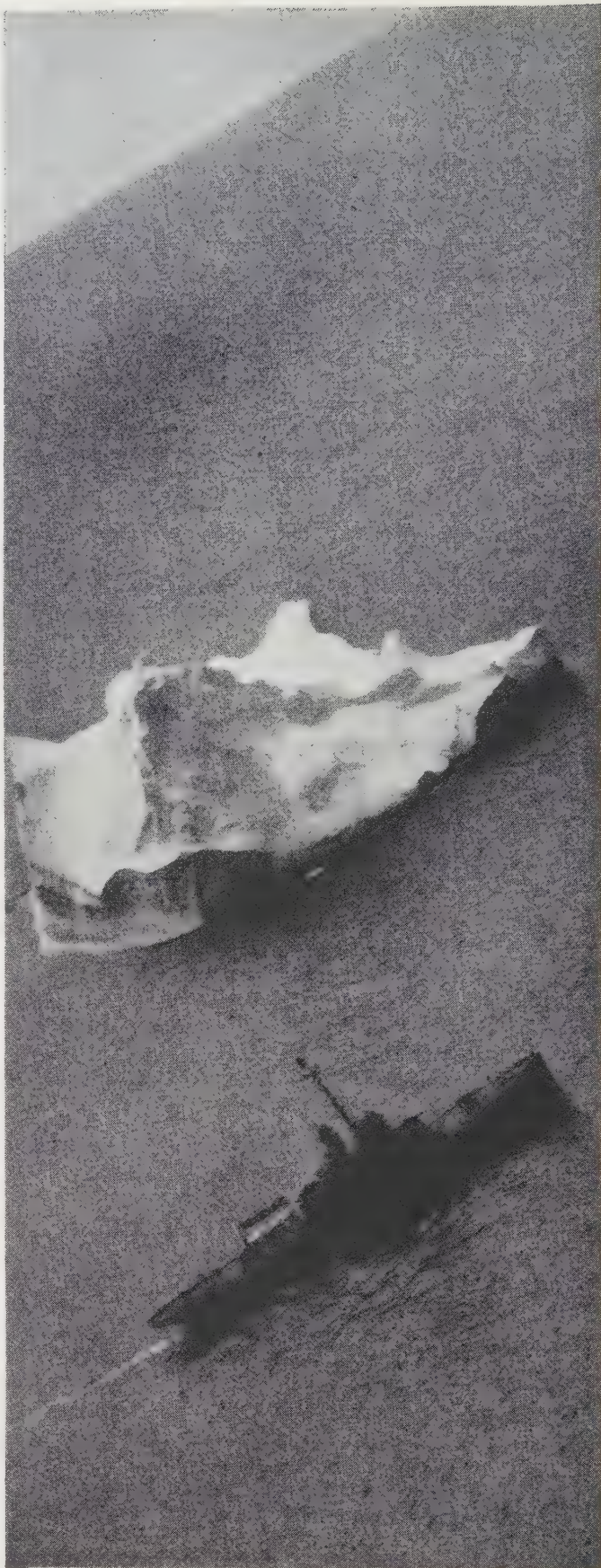
Coast Guard, U.S. As the coast guard returned to its peacetime role under the treasury department on Jan. 1, 1946, increasing emphasis was placed upon its two important functions of maritime safety and law enforcement. Practically all of the 350 navy and 291 army vessels the coast guard had manned during the war had had their crews removed by midyear 1946. The 764 of its own vessels of 65 feet or over, which had been operated during the war, growing from a Pearl Harbor day total of 262, had by the end of the 1946 fiscal year been reduced to 269 actively in commission. Altogether this reduction in the number of vessels manned, together with a reduction in the number of shore units from a wartime peak of 2,237 to 798 on June 30, 1946, had made possible a reduction of military personnel to 26,406 by that time, which was one-seventh the wartime peak and somewhat below the Pearl Harbor day total of 27,415. By Dec. 6, 1946, military personnel had dropped further to 22,156 to meet budgetary requirements, although meanwhile many lifeboat stations had to be placed in a limited caretaker or inactive status and some vessels tied up because they lacked complements.

Under its wartime authority to protect vessels, harbours, ports and waterfront facilities, the coast guard had supervised the safe loading of about 15,500,000 tons of explosives and ammunition in U.S. ports without a major casualty or loss of life. On its return to treasury jurisdiction, this activity continued on an ever-diminishing scale, with only small details of officers remaining on duty in European and Pacific theatres of operation, supervising the reshipment of dangerous cargoes to the United States and their unloading at army and navy ordnance depots on the Atlantic and Gulf coasts.

On Sept. 5, 1946, the Air-Sea Rescue agency, an inter-departmental group, headed by the commandant of the coast guard and engaged in the study of improved and standardized rescue and search methods, was renamed the Search and Rescue agency. Search and rescue units of the coast guard were at the same time integrated into the peacetime organization and the whole developed into a system of constantly alerted communications, coastal lookout and patrols to institute instant and systematic search and rescue procedure in case of maritime disaster. During the 1946 fiscal year the coast guard rendered 6,815 major assistances involving the saving of life or assisting vessels and aircraft in distress, 3,002 miscellaneous assistances and saved lives or rescued persons from peril in 5,753 cases.

The coast guard's 11 air stations were returned by the navy to the operational control of the coast guard on June 30, 1946. In addition to resuming their regular prewar functions, the 195 fixed wing and 31 rotary aircraft attached to them, most of them navy owned, performed search and rescue work, and assumed additional duties of supplying remote Loran and other aids to navigation stations in the Pacific ocean area. During the 1946 fiscal year 179 emergency medical cases were transported, 91 disabled or crashed planes located, 166 obstructions to navigation derelicts reported and 257 illicit distilleries located.

In March 1946 the North Atlantic Ocean patrol was organized, its activities embracing direction of the International Ice patrol, Greenland patrol, Ocean Weather patrol and Aids to Navigation in Labrador, Greenland and Newfoundland. This new patrol also afforded minor logistic support to naval bases in Greenland. Navy patrol squadron No. 6, a coast guard manned



U.S. COAST GUARD CUTTER "MODOC" circles an iceberg as part of International ice patrol work. A B-24 plane overhead checks data with the cutter, which passes information to near-by ships. This work, interrupted by World War II, was resumed in the spring of 1946

unit, operating in the North Atlantic, was transferred to coast guard jurisdiction and became air detachment, North Atlantic

Ocean patrol, engaging principally in ice observation for the International Ice patrol which resumed its operations after a war-time interruption. Three cutters based in Argentia, Newfoundland, maintained continuous patrol from March 15 to July 27, 1946, and a summary of ice conditions which they gathered was sent out from the shore radio stations at Argentia twice daily for the benefit of North Atlantic shipping. For the first time aircraft supplemented the work of the patrol vessels, scouting for ice and determining the limits of the ice fields from the air. One of the cutters, the "Mojave," was engaged in experimental studies relating to radar detection of floating ice. By midyear, the coast guard, in co-operation with the weather bureau, was maintaining, in the interests of trans-ocean marine and air commerce, two ocean weather stations in the Pacific, east of Hawaii, and one in the Atlantic. These were transferred by the navy to the coast guard at this time and plans were made to augment their number as personnel became available. Seventy coast guard coastal stations were, at the same time, making regular reports of weather conditions for the weather forecasting service.

The coast guard's new icebreaker "Mackinaw" on the Great Lakes was able to keep the most essential channels and ports open to navigation, where necessary, during the 1945-46 season, being assisted by tender class cutters. On the Hudson, Penobscot and Kennebec rivers ice-breaking service was also rendered to marine commerce during the season.

There was a net increase of 339 aids to navigation during the 1946 fiscal year, bringing the total to 36,879. The Scotch Cap Light station in the Aleutians was completely demolished by an earthquake and tidal wave on April 1, 1946, with the loss of the entire complement of five men. All lightships removed from their stations during the war had been restored except Fire Island lightship, which had been replaced by a large-type whistle buoy and radio beacon on shore at Fire Island Light station, N.Y. Continued expansion of Loran, a system of radio navigation designed during the war to furnish reliable longitude and latitude positions over greater areas than those covered by radio systems, was being effected for application to peacetime navigation by air and surface craft. At the turn of the fiscal year, 49 fixed transmitting stations on shore were located at strategic points forming 11 chains from Greenland to Tokyo, providing coverage over a wide expanse of ocean for U.S. commercial and military marine and air transport. Eleven Racon stations were in operation at this time along the coasts of the United States, and in Alaska, Hawaii and Puerto Rico, providing a coded response to radar interrogations on the proper frequency and giving a navigational fix in all weather conditions to air and surface craft by means of simultaneous display of both range and bearing information.

During the 1946 fiscal year 693 new vessels aggregating 3,210,798 gross tons were built in U.S. shipyards and certified by the coast guard as meeting safety requirements. As shipbuilding tapered off, inspection incident to repairs, conversions and alterations of transports to passenger vessels, increased. Annual inspections of 8,005 merchant vessels and 488 government vessels, together with 648 boilers on government ships and 976 boilers in government shore establishments swelled the total of marine inspection activity. In addition, 7,447 drydock examinations of craft under construction, repair or conversion, 2,164 reinspections and 126 special surveys were augmented by inspections of all hospital and troopships, both U.S. and foreign, departing from the United States. Inspection of boilers, lifeboats, life rafts, line-throwing guns and other safety appliances at manufacturing plants rounded out a busy year. There were 6,652 casualties to merchant vessels or loss of life or injuries to seamen aboard such vessels investigated to learn their causes and give consideration to remedial measures. The coast guard laid emphasis on securing compliance with the navigation laws through education and co-operation rather than upon assessing penalties, except in cases of wilful violations. During the fiscal year 27,307 more motorboats were given numbers under the provisions of the Motorboat act of 1918 than during the previous fiscal year, bringing the total to 411,310. The International Load Line convention, suspended from 1941, was restored by presidential proclamation to full effectiveness on Dec. 21, 1945, and the coast guard resumed cognizance over its observance in the interests of safer loading.

Merchant marine hearing units, dealing with disciplinary cases of merchant officers and seamen, functioned in all important U.S. ports, and at foreign ports in Europe and the far east, where volume of shipping made them necessary. There were 34,258 cases of misconduct, negligence and incompetence investigated, resulting in 1,001 officer licences and 6,352 seamen certificates being either suspended, revoked or the holders placed on probation for definite periods. Shipping commissioners executed 25,562 sets of shipping documents, issued 15,158 waivers of manning requirements and received 4,568 reports of crew shortages.

Enlistments in the coast guard totalled 10,020 during the year, all original enlistments, beginning in March 1946, being for three-year periods only, for men without previous coast guard experience. One recruit training station at Mayport, Fla., and 14 recruiting stations remained in commission. There were 7,356 men graduated from various coast guard service schools, qualifying them for duty in specialized fields.

Membership in the nonmilitary Coast Guard auxiliary, an organization of motorboat owners, yachtsmen, airmen and amateur radiomen or other



U.S. COAST GUARD CUTTER "EAGLE," formerly the German training ship "Horst Wessel," sailing toward New London, Conn., where the bark was to be used for training purposes in 1946

specially qualified persons, and designed to assist the coast guard on a voluntary basis in the field of maritime activity, numbered 44,963 on June 30, 1946. Its membership embraced affiliation of 13,239 boats, 33 aeroplanes and 7 amateur radio stations. In addition to promoting safety among motorboat and yacht operators, its members voluntarily augmented the meagre complement of many coast guard lifeboat stations and patrol boats during the critical personnel shortage brought about by demobilization and deployment.

U.S. Coast Guard Academy.—The U.S. Coast Guard academy at New London, Conn., founded in 1876, is an institution of higher learning for the training of commissioned officers for the coast guard. Its present home, overlooking the Thames river, was constructed in 1932, with additions made just prior to World War II. The red brick, Georgian colonial buildings centre around the administrative building, Hamilton hall, named after Alexander Hamilton, first secretary of the treasury and founder of the coast guard in 1790.

At the end of 1946 there were 283 cadets. Entrance is restricted to unmarried men between 17 and 22 years of age, and appointments are obtained through competitive examinations. Emphasis is placed on a practical program in which engineering, deck work, deck instruction, pre-cruise readiness, Combat Information Center course, navigation drills, seamanship, tactical signal drills, damage control drills, marlinspike seamanship drills, buzzer drills, night lookout trainer drills and steering trainer drills are featured in a 21-week program in which three training vessels are used. The academy confers upon its graduates the bachelor of science degree and a commission of ensign in the U.S. coast guard. About 100 cadets graduate each year.

(J. F. Fy.)

Coast Guard Academy, U.S.: see COAST GUARD, U.S.

Cobalt. In 1938 and 1939 the world production of cobalt was about 4,000 short tons a year, most of which came from the Belgian Congo and Northern Rhodesia, with smaller amounts from French Morocco, Canada and Burma, and minor outputs from several other places. During the years of World War II outputs declined except in the Congo, averaging 3,500 tons. The United States had no prewar output, but built up a war production that reached 382 tons in 1943 and 575 tons in 1945. The bulk of the output was consumed in the United States, where imports reached a peak of 2,946 tons of cobalt in ore, alloy and metal in 1943, but later declined.

Consumption shifted radically after the cessation of hostilities, as is indicated by the following quarterly totals of approximate uses of different kinds, in short tons:

	1944 Ave.	I	II	1945 III	IV	I	II	1946
Metallic uses	475	575	568	342	233	231	279	
Salts and driers	82	98	98	79	83	103	132	
Nonmetallic uses	23	22	34	38	51	68	76	
Total	580	605	700	459	367	402	487	

Metal uses, in order of importance, are stellite and carbide-type alloys, magnet steels, high speed steels, welding rods and other special steels. Nonmetallic uses are chiefly in frits and pigments. War supplies were maintained sufficiently well to leave some 3,700 tons of accumulated stocks at the end of 1945—1,800 tons held by metals. Data for the first half of 1946 showed a decrease in government stocks and an increase in consumer stocks.

(G. A. Ro.)

Cochin-China: see FRENCH COLONIAL EMPIRE.

Cocoa (CACAO). The supply of cocoa in the United States continued low through 1946 at about the same level as in 1945 or four pounds per capita in terms of beans. Imports were smaller in 1946 than in 1945 but increased toward the end of the year when prices were decontrolled, although the British government continued to handle the production of British West Africa which normally produces two-thirds of the world's supply. The Bahia Cocoa institute took over control of the Brazilian crop in October and began to license all exports. Under war regulations the price of cocoa beans was held at about nine cents per pound in New York. In October the price began to advance and reached a top of more than 25 cents per pound by mid-December.

(J. C. Ms.)

Coconuts (COPRA). The United States began in 1946 to return to its prewar place as the largest importer and consumer of both coconut oil and copra. An agreement was made between the United States and Philippine governments under which the United States agreed to buy all of the surplus copra and coconut oil of the Philippines for the year beginning July 1, 1946, at fixed prices of \$103.56 per long ton for copra and 7.1 cents per pound for coconut oil. A similar agreement was made with the Netherlands government for the year beginning Sept. 1, 1946, at \$110.25 per short ton in the Netherlands Indies. A part of these purchases by the United States could be allocated to other countries by the International Emergency Food council. Exports of copra from the Philippines during the first six months of 1946 totalled 190,000,000 lb. in terms of oil, about two-thirds being shipped to the United States.

(J. C. Ms.)

Coffee. The United States supply of coffee, all imported, increased in 1946 to an average of about 17.2 lb. per capita, green basis, for civilians compared with 16.7 lb. consumed in 1945 and 13 lb. at the low point in 1943. Imports of coffee were 2,717,000,000 lb. in 1945, compared with the low record of imports in 1942 when only 1,714,000,000 lb. were imported, which was about the prewar average. Supplies for 1946 were increased, particularly during the late months of the year when prices were decontrolled. Imports for the first half of 1946 amounted to 1,195,218,000 lb.

World coffee production for 1946-47 was forecast at 35,500,000 bags compared with the 1945-46 crop of 32,700,000 bags. These crops were below the prewar average of 43,100,000 bags, 1935-39, during which period a large surplus accumulated and much coffee was destroyed in Brazil. Brazil expected a crop of 19,900,000 bags 1946-47 of which 14,600,000 bags

were exportable. This output was above the preceding four years but below the prewar level when Brazil produced more than 60% of the world's coffee. The crop of 1945-46 was divided among the areas as follows: South America 29,128,000 bags; Africa, 3,019,000 bags; Asia and other areas, 513,000 bags.

During the first six months of 1946 South America exported only 1,500,000 bags of coffee to Europe. It was estimated that if shipments during the second half of the year continued at the same rate the total would be only one-third the prewar total. Shortage of exchange was stated to be the cause of the small purchases by European countries. France, the largest consumer, was confining its buying almost entirely to its colonies. Great Britain was buying considerable quantities of coffee from Brazil because the latter had agreed to accept sterling in payment. (See also BRAZIL; GUATEMALA.) (J. C. Ms.)

Coinage. The United States mint, an adjunct of the treasury department, was established by act of congress April 2, 1792, and was located in Philadelphia, Pa. The service as constituted in 1945 consisted of mints in Philadelphia, Denver, Colo. and San Francisco, Calif.; the U.S. depository (for gold) at Fort Knox, Ky., and the U.S. depository (for silver) at West Point, N.Y., and U.S. assay offices at New York city and Seattle, Wash. The administrative offices are in Washington, D.C., from where the entire service is administered by the director of the mint.

Not only do the mints make all coins for the U.S., but they also produce large amounts for many foreign governments lacking minting facilities of their own. The mint service is charged with safeguarding of the government's huge values in gold and silver, running into billions of dollars. All medals for the navy, coast guard and marines are made in the mint at Philadelphia, and many for the army; also historic medals and special medals authorized by congress.

From the opening of the mint in 1792 through the calendar year 1946, 33,600,000,000 coins were produced; of this amount 28,600,000,000 were domestic and 5,000,000,000 were manufactured for foreign governments.

During 1946, 2,200,000,000 United States coins were produced. In addition, more than 500,000,000 coins were produced for the governments of Colombia, Cuba, Ecuador, Ethiopia, the Netherlands Indies, Philippines, Saudi Arabia and Venezuela. Domestic coinage by denominations for the calendar year, 1946, follows:

	Pieces	Face Value
Half dollars	19,794,095	\$ 9,897,047.50
Quarter dollars	66,712,800	16,678,200.00
Dimes	344,193,500	34,419,350.00
Five-cent pieces	219,968,200	10,998,410.00
One-cent pieces	1,505,445,000	15,054,450.00
	2,156,113,595	\$87,047,457.50

The new design Roosevelt dime was released on Jan. 30, 1946, the former president's birthday. Commemorative coins authorized by the congress and struck in 1946 were the Iowa Centennial and the Booker T. Washington half dollars. (L. Ho.)

Coke. The salient data on the production of by-product and beehive coke in the United States during the war years are given in the table on p. 223.

As is indicated by these figures, the chief cause of the greater demand for coke was the need for more pig iron. Following a consistent rise in the early years, production began to lag in 1945, but did not drop heavily even after the close of the war, until forced down by the steel and coal strikes early in 1946. Production in the first three-quarters of 1946 included 38,407,125 tons of by-product and 3,077,041 tons of beehive coke, a total of 41,484,166 tons, as compared with 52,339,100 tons in

Coke Production in U.S., 1940-45

(In thousands of short tons)

	1940	1941	1942	1943	1944	1945
Production	57,072	65,187	70,569	71,676	74,038	67,308
By-product	54,014	58,482	62,295	63,743	67,065	62,094
Beehive	3,058	6,704	8,274	7,933	6,973	5,214
Breeze made	4,165	4,555	4,752	4,941	5,116	4,721
Coal charged	81,386	93,138	100,850	102,460	105,296	95,672
Consumption, total	57,026	64,944	70,107	71,407	72,971	66,074
By iron furnaces	41,839	49,470	54,695	56,701	57,072	50,653

the same period of 1945. It was thought that with normal production during the remainder of the year, the total would approach 60,000,000 tons, but the figure was expected to be reduced by the coal strike that began late in November.

In Canada the production of coke dropped from 4,001,563 short tons in 1944 to 3,862,451 tons in 1945, and continued to decline to 2,207,000 tons in the first eight months of 1946, as compared with 2,638,000 tons in the same period of 1945. These figures include breeze and gas retort coke which, on the average, amount to about one-sixth of the oven coke output.

(G. A. Ro.)

Cold, Common.

During 1946 efforts were continued to find methods of preventing the spread of the common cold and similar respiratory diseases. Because of the crowding inevitably associated with military installations, most of the reports came from studies of military groups. During an epidemic of respiratory disease similar to the common cold there were fewer cases of infection among men living in barracks equipped with double bunks than in those barracks with single bunks. The effect of partitioning barracks was studied at a large naval training station where partial compartmentation was obtained with wooden and cloth partitions without apparent effect on reducing respiratory illness.

Applying oil both to floors and to blankets in barracks to cut down on the dust was found to be effective in controlling the degree of bacterial contamination of the air. This method probably is not applicable to ordinary living quarters in houses or apartments. Additional reports appeared on the effect of giving small doses of the sulfonamides over prolonged periods of time. In one such study a small dose of sulfadiazine was administered daily to about 20,000 soldiers for a period of 5 weeks. During this period the hospital admissions (and all those who developed symptoms were admitted to the hospital) for common respiratory diseases dropped one-third by the end of the first week. Probably the use of sulfadiazine in this way, except under special circumstances such as unusual crowding, should not be recommended for the population at large.

A large-scale experiment in England with an oral vaccine against the bacterial infections accompanying the common cold failed to show evidence of value. This conformed with the conservative opinion which had previously been expressed in the United States. One physician said that colds could not be eradicated by the efforts of single groups of scientists working in isolation. The common cold contains too many diverse factors for any one individual to solve.

Several methods of treating the common cold, related respiratory infections or their complications were studied. A Swedish report dealt with the use of sulfathiazole applied locally for certain acute cases of rhinitis (inflammation of the nose) and sinusitis. Improvement was obtained in some of the cases but not in all. Penicillin in the form of a fine spray, technically called an aerosol, was attempted in the treatment of both the ordinary cold and more serious respiratory infections. In most cases aerosols were used for the more serious conditions, such as bronchitis and sinusitis, in which some favourable results were obtained. Unfortunately, there was little reason to believe that penicillin in spray form is of much value in the early stages of

the common cold.

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Colleges and Universities: see UNIVERSITIES AND COLLEGES.

Colombia.

A republic situated in northwestern South America adjoining the Isthmus of Panama. It is the only South American country with both Caribbean and Pacific coastlines. Area: 439,714 sq.mi.; pop. (official est. 1945) 10,701,816. Of the population 68% is classified as mixed-blood, 20% as white, 7% as Indian and 5% as Negro. Most of the inhabitants live in the highlands and mountain valleys of the interior. The capital is Bogotá, with a pop. (off. est. 1944) of 425,240. Other cities are Barranquilla (197,830), Bucaramanga (63,850), Cali (130,180), Cartagena (96,960), Cúcuta (70,050), Ibagué (76,190), Manizales (106,060), Medellín (211,560), Neiva (37,680), Pasto (58,450), Popayán (33,870), Santa Marta (40,040), and Tunja (24,570). Language: Spanish; religion, predominantly Roman Catholic. Presidents in 1946: Alberto Lleras Camargo and Mariano Ospina Pérez.

History.—Political developments during 1946 hinged on the crisis caused by a split in the ranks of the dominant Liberal party which resulted in the election of Colombia's first Conservative president after 1930. The administration partisans entered the presidential campaign with Dr. Gabriel Turbay as their candidate and the support of approximately half of the Liberals, most of the labour union members and all of the Democratic Socialists. The independent faction of the party selected a candidate of its own, Dr. Jorge Eliécer Gaitán, and obtained the support of the other half of the Liberals, the remaining minority of organized labour, and the small National Socialist party. Encouraged by this split in the dominant party, the Conservatives chose a candidate for the first time in 16 years, Mariano Ospina Pérez, a political moderate. In the election on May 5, Ospina Pérez polled approximately 550,000 votes to 450,000 for Turbay and 350,000 for Gaitán, and was accordingly declared president, succeeding the provisional chief-executive, Alberto Lleras Camargo. The latter returned to his seat in the senate.

The apparent Conservative victory was illusory, however, for the Liberals maintained 80 of the 131 seats in the chamber of deputies, 40 of the 73 senate seats and strong majorities in the national courts, departmental legislatures and municipal councils. The new vice-president, Carlos Arango Vélez, elected by the congress, was also a Liberal. Realizing his peculiar position, the new president determined to form a coalition cabinet and pursue a nonpartisan program.

The Liberals displayed no such a conciliatory policy, however, and Ospina Pérez laboured in vain from the time he took office, Aug. 7, for the next four months to form a durable bipartisan ministry. Twice the Liberal members of congress met in convention and voted to remain outside of the administration, but on Dec. 12 a third such meeting resulted in favour of participation, and on the same day the president formed a cabinet composed of six Liberals and six Conservatives.

In foreign affairs, Colombia rejected in January the proposal of Uruguay for collective intervention by the American states in the internal affairs of potentially dangerous nations of the hemisphere. In February a most-favoured-nation commercial agreement was made with Canada. During the United Nations controversy over the veto power, Colombia's security council

representative, Eduardo Zuleta Angel, espoused the small-state cause of opposing the special privilege. Antonio Rocha, the republic's representative on the governing board of the Pan American Union, was elected chairman of the board in November.

Notwithstanding the re-establishment of price controls in March and additional government restrictions on financial remittances abroad in April under the Lleras Camargo administration, inflation plagued the country throughout the year. The cost of living index (100 in Feb. 1937) was 187 in January, 200 in June and 213 in October. In the latter month, 12,000 oil workers struck for higher wages, and the strike spread to other industries. On Nov. 9 a general strike was called in Cali and other centres of the department of Valle, but complete paralysis of industry was averted by the government's imposition of martial law in that area. The administration also took over the distribution of oil and gasoline to prevent a national transportation breakdown.

Political and economic crises did not discourage industrial expansion during the year. The government itself invested heavily in highway, railroad and merchant marine development, and the National Institute of Electrical Development laid plans for increasing electrical power throughout the country from the existing capacity of 120,000 kw. to 650,000 kw. The building boom reached an all-time high with contracts during the first half of the year in Bogotá alone calling for construction amounting to 17,655,000 pesos (6,156,000 pesos for the same period of 1945). A movement was under way in November to establish a new 100,000-ton capacity iron and steel plant in the Río de la Paz region. The rayon industry, bidding for leadership of South American production, planned for the expansion of one mill, at Barranquilla, from an annual output of 1,400,000 kilos to 3,600,000 kilos and for the establishment of a new plant, at Medellín, with a capacity for 3,000,000 kilos.

Education.—Elementary instruction in the public schools is free and technically compulsory for children aged 7 to 14. In 1944, 10,788 primary schools reported enrolments totalling 698,561 students; 1,820 secondary and vocational schools, 120,570 students (128 primary and 260 intermediate schools not reporting). Six public universities had an enrolment of more than 5,500 students. There were two private universities.

Finance.—The monetary unit of Colombia is the peso, valued officially on Nov. 30, 1946, at 57.27 cents U.S. In August the preliminary budget for 1947 proposed expenditures amounting to approximately 244,000,000 pesos (174,000,000 pesos in 1946); ordinary revenues were estimated at 195,000,000 pesos. The fiscal deficit was over 20,000,000 pesos in October. On Sept. 30, gold bullion holdings by the Bank of the Republic totalled 248,842,497.42 pesos, while bank notes in circulation amounted to 217,828,065 pesos. The national debt as of May 31, 1946, was 269,129,235.30 pesos internal indebtedness, 420,279,960.58 pesos external.

Trade.—Imports for 1945 totalled 593,961 short tons valued at 281,182,399 pesos (389,307 tons at 174,666,836 pesos in 1944); exports amounted to 346,612 tons, at 246,175,441 pesos (305,723 tons at 227,135,836 pesos in 1944). Most of the trade was with the United States, which supplied approximately 64% of the imports and took about 62% of the exports. Coffee shipments for the quota year 1945-46 (July 1 to June 30) amounted to 5,433,000 bags of 132 lbs. each (4,458,000 bags for 1944-45). Petroleum exports in 1945 totalled 19,542,689 bbls. (approximately 18,561,000 bbls. in 1944). Platinum exportation, restricted during World War II, was resumed during 1946.

Communications.—Railway trackage measured 2,056 mi. in 1945. There were about 7,700 mi. of improved highway and 35,000 mi. of unimproved roads. The first road linking Bogotá with the Caribbean coast was completed in Oct. 1946, with Santa

Marta as the terminus. Registered motor vehicles in 1944 included 16,955 automobiles, 3,960 buses and 9,407 trucks. Plans were made during 1946 for the unification of the national air and merchant marine services with those of Venezuela and Ecuador.

In 1944 there were 23,146 mi. of telegraph and 112,027 mi. of telephone lines, exclusive of municipal services. In 1946 there were 112 private radio broadcasting stations in addition to the national transmitter.

Agriculture.—The basic industry of Colombia is agriculture, with coffee as the main export crop. Coffee production during the 1945-46 crop year amounted to 5,478,000 bags. Other major crops (with 1944 production figures) are: cacao (8,607,600 kg.), copra (4,164,964 kg.), cotton (5,731,000 kg.), cotton seed (9,289,000 kg.), rice (116,280,000 kg.), sesame (1,264,700 kg.), sugar (73,848,800 kg.), wheat (50,900,000 kg.). The wheat harvest was down 10% in 1945. The cotton crop for 1946 was estimated at 7,877,778 kg. In 1945 the country's livestock included approximately 12,334,000 cattle, 1,000,000 sheep, 2,500,000 hogs and 630,000 goats.

Mineral Production.—The chief extractive industries (with 1944 production figures) are: petroleum (22,290,542 bbls.), gold (553,531 fine oz.), silver (197,318 fine oz.), platinum (34,304 fine oz.), salt (133,453 metric tons), and cement (273,694 metric tons).

Petroleum production in 1945 amounted to 22,824,890 bbls., and during the first 5 months of 1946 production was up 10%. Gold production dropped 17% in the same period.

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Colorado. A Rocky mountain state of the United States, in the west-central part; mean elevation above sea level, 6,800 ft., the highest of any state. Admitted to the union in 1876 as the 38th state and known as the "Centennial state." Area 104,247 sq.mi., including 280 sq.mi. of water surface. The U.S. owns 34.5% of the total land area and 59.3% is in private ownership, the remainder belonging to state, county and municipal governments.

The central and western portions are mountainous and the eastern half consists of rolling plains.

Population (1940) 1,123,296; 52.6% urban, 47.4% rural; 93.6% native, 6.4% foreign-born; white 98.5%, Negro 1.1%, other .4%; 102.6 males per 100 females. The 1940 census reported 2,734 Japanese, the largest in number of all races other than white and Negroes. On July 1, 1946, the bureau of census estimated the civilian pop. at 1,213,914. Capital, Denver (1940 census, 322,412) 1946 est., 412,000; other cities, Pueblo (52,162) 1946 est. 63,000; Colorado Springs (36,789) 1946 est. 46,000; Greeley (15,995) 1946 est. 18,000.

History.—The 35th general assembly (1945) repealed the state service tax and enacted a local government budget, an occupational disease law, created a state institutional board and a fund of \$100,000 for industrial research development. No regular legislative session was held in 1946. A regular session was to be held in 1947. As a result of the 1946 elections, the following state officers were chosen: governor, William Lee Knous (Dem.); lieutenant governor, Homer Pearson (Rep.); secretary of state, Walter F. Morrison (Rep.); treasurer, H. Rodney Anderson (Rep.); auditor, Homer F. Bedford (Dem.); attorney general, H. Lawrence Hinkley (Rep.); superintendent of public schools, Nettie Fried (Rep.); representatives, John A. Carroll (Dem.), William S. Hill (Rep.), Robert F. Rockwell (Rep.), J. Edgar Chenowith (Rep.).

Education.—Under the minimum educational program for the state, about \$3,000,000 in state revenue was to be appropriated to the public schools on an equalization basis to aid in the support of minimum classroom units of 1,800 each. Three-fourths of these revenues must go to teachers' salaries, thus in effect establishing a teachers' minimum annual salary of \$1,350 in most schools.

On Sept. 1, 1946, the number of school districts had been reduced to 1,821. All consolidations in Colorado are on a voluntary basis.

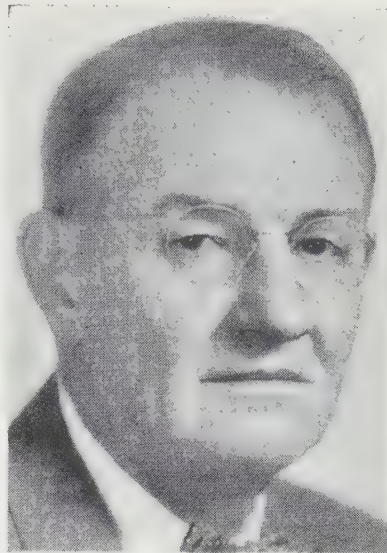
It was estimated that the public elementary and secondary schools in Colorado would receive about \$28,000,000 during 1947. This compares with receipts of about \$26,500,000 in 1945. About 17% of this sum was to be provided by the state government, the remainder furnished by the local and county units. The cost of education per pupil in average daily attendance would be about \$150 per year, as compared with \$130 in 1945.

The school population, a census covering the 6 through 20 age group, showed an increase for 1946, climbing to 297,281 as compared with 289,167 in 1945.

Social Insurance and Assistance, Public Welfare and Related Programs.—Public welfare disbursements in 1945 amounted to \$27,087,243.89; pensions, 41,000 persons more than 60 received an average monthly payment of \$41.50, with an annual "Jack Pot" payment in Jan. 1946. This bonus amounted to \$79.13 to each person eligible to receive a pension. Total amount of pensions paid in 1945, \$22,053,356.44; dependent children 11,000, \$1,410,218.76; blind 441, \$171,036.25; administration \$850,896.53. The federal share of the above programs totalled \$10,249,376.03. General assistance was \$954,856.86. Additional expenditures included tuberculosis assistance, \$105,732.80, to approximately 201 patients; miscellaneous services including child care, burials, distribution of surplus commodities, etc., \$59,828.44.

Communications.—The state highway system in 1945, including 3,891 mi. of federal aid primary and 1,982 mi. of federal aid secondary roads, totalled 12,399 mi.; city streets 3,491 mi.; county roads 36,176 mi.; other local roads 26,423 mi.; national forests 788 mi.; toll 8 mi.; total 79,285 miles. There were 24 railroads operating with 3,883 mi. of main line track; 56 designated airports and landing fields, and 4 army air fields; 273,879 telephones were in use.

Banking and Finance.—As of Dec. 31, 1945, there were 77 national banks and 64 state banks. Deposits in all banks reached an all-time high at the close of 1945, amounting to \$1,096,068,000. Clearing in Denver, Pueblo and Colorado Springs aggregated \$3,532,958,426, an increase of nearly 7% over 1944. State finances were in an excellent condition in 1946 resulting from increased revenue and economy in administration. The unexpended balance in the treasury on June 30, 1946, was \$42,255,744.71, the largest on record. General revenue in the fiscal year of 1946 was \$82,507,982.42. All expenditures,



GOV. WILLIAM LEE KNOUS of Colorado, Democrat, was elected on Nov. 5, 1946

including functional services, debt services and transfers amounted to \$74,720,747.96. Debts—bonded, \$898,000.00; anticipation warrants, \$13,952,676.73; warrants—cash and general revenue, \$2,536,974.06. Investments, \$24,362,222.05. Investments of \$24,362,222.05 plus unexpended balance June 30, 1946, of \$42,255,744.71 made a total of \$66,617,966.76 liquid assets.

Agriculture.—Agriculture in 1946 was in an especially prosperous condition. Indicated final figures were expected to show an all-time high in receipts from the marketing of crops, livestock and livestock products of approximately \$600,000,000. New production records were established for 1946. Hay and roughage were ahead of 1945 and the ten-year average and the crops of potatoes and beans were unusually large. Sugar beets harvested yielded 2,336,000 tons, a 30% increase over 1945. Farm wages were at a record high during the entire year. Livestock and livestock products sold were expected to average \$190,000,000. Poultry and poultry products, \$7,000,000.

Table I.—Leading Agriculture Products of Colorado, 1946

Crop	Unit	Indicated Yield 1946
Corn.	Bu.	14,889,000
Wheat.	"	33,196,000
Barley.	"	13,570,000
Oats.	"	6,003,000
Dry beans.	100# bags	1,600,000
Sugar beets.	Tons	2,336,000
Tame hay.	Tons	1,642,000
Broomcorn.	Tons	13,500,000
Potatoes.	Bu.	20,900,000
All Sorghum (grain).	"	1,950,000
Peaches.	"	1,820,000
Apples.	"	1,100,000

Colorado marketed \$18,000,000 worth of farm truck crops through the Marketing Agencies and Marketing act. Prices received by farmers for farm products in 1946 were from 40% on fruits and vegetables to 140% on bean products higher than in 1945.

Manufacturing.—Colorado ranks high among the states in the manufacture of many commodities: beet sugar, chemicals, cement, coke, rubber products, mining machinery—in which Colorado is a leader in the world—canned fruits, vegetables, coffee roasting and grinding.

Mineral Production.—Mining is Colorado's chief industry. It is a major gold producing state and untouched treasures of essential metals are in its mountains. Of the world's supply of

Table II.—Mineral Production of Colorado, 1945 and 1944

	Value 1945	Value 1944
Gold—placer and lode	\$3,532,725	\$3,900,925
Silver.	1,583,488	1,599,168
Copper.	400,950	282,960
Lead.	2,931,568	2,831,680
Zinc.	8,227,790	9,109,740

vanadium 90% is produced by Colorado, and the state leads the entire world in the production of molybdenum. The production of coal in Colorado was 7,653,979 tons in 1945 compared with 8,110,000 tons in 1944.

(P. Ae.)

Colorado, University of. Enrolment reached a new peak in 1946 with 7,700 students on the Boulder campus, 500 in the medical and nursing schools in Denver, 2,200 in extension classes in Denver and other Colorado cities, and 5,000 studying by correspondence. More than half of the students were veterans. Trailers, quonset huts and army barracks were installed on the campus for emergency housing for veterans. Construction began on more than \$2,000,000 worth of new dormitories to provide rooms for 730 single students and apartments for 94 couples.

Dr. Carl W. Borgmann was appointed co-ordinator of research to supervise approximately 100 research projects being conducted on the Boulder campus and at the school of medicine.

In Sept. 1946 the university announced a new commercial process for extracting levulose from sugar. The work was done under a grant from the Sugar Research foundation.

The observatory at Climax, Colo., established by Harvard university for high altitude coronagraph studies, was incorporated as the High Altitude Observatory of Harvard University and the University of Colorado.

University wartime naval units, including the special oriental languages training unit which trained thousands of officers and men, were disbanded during 1946. A peacetime naval reserve officers training program was re-established. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. L. St.)

Colour Photography: see MOTION PICTURES; PHOTOGRAPHY.

Columbia, District of: see WASHINGTON, D.C.

Columbia University. An institution of higher learning in New York city. The budget appropriation for 1945-46 was \$16,819,167.50. Dr. Frank D. Fackenthal continued to serve as acting president through the year 1946. The main university library building, known as South Hall from the time of its opening in 1935, was named the Nicholas Murray Butler library, in honour of the president emeritus. Three sessions of the American Press institute, founded as a part of the graduate school of journalism in September, were held; seminars of two to four weeks were given for practising newspapermen. *A College Program in Action*, the report on the Columbia college curriculum, was published in 1946. In the fall of 1946 there were 14,371 veterans enrolled at Columbia. Some of these were housed as far away as Shanks Village in Rockland county (married couples) and North Brother Island in the East river (single men). (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (M. H. T.)

Columbium. Production of columbium ores in the United States dropped from 5,771 lb. in 1943 to 3,208 lb. in 1944, and 1,149 lb. in 1945, while imports in the same years increased from 1,191 short tons to 1,842 tons, and 2,139 tons, almost entirely from Nigeria. Increased supplies and decreased demand permitted relaxation of controls. The principal use is as an addition to stainless steels for improved corrosion resistance for parts to withstand high temperatures; although this use was well established prior to World War II, it found new applications in superchargers for aeroplane engines, in gas turbines and in jet propulsion motors. (G. A. Ro.)

Combined Chiefs of Staff, The. The establishment of the combined chiefs of staff by the governments of the United States and Great Britain was announced on Feb. 6, 1942. The four U.S. members were known as the "Joint United States Chiefs of Staff" and consisted of the chief of staff to the commander in chief of the army and navy; the chief of staff, U.S. army; the chief of naval operations; and the commanding general, army air forces. The four British members were known as "Representatives of the British Chiefs of Staff." They consisted of the head of the British joint staff mission in Washington and representatives of the first lord of the admiralty, the chief of the imperial general staff and the chief of the air staff.

Supporting committees were established to combine and co-ordinate all the factors of military intelligence, transportation, munitions, staff planning, meteorology and communications. A combined secretariat was set up to perform the necessary secre-

tariat work for the combined chiefs of staff.

The combined chiefs of staff were charged under the direction of the president of the United States and the prime minister of Great Britain with collaborating in the formation and execution of policies and plans concerning the strategical conduct of the war, the broad program of war requirements and allotment of munitions resources, and the requirements for overseas transportation for the fighting forces of the United Nations.

During 1946 the combined chiefs of staff considered matters deriving from the wartime co-operation of Great Britain and the United States. (A. J. Md.)

Comets: see ASTRONOMY.

Commerce: see BUSINESS REVIEW; INTERNATIONAL TRADE.

Commerce, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

Commerce Commission, Interstate: see INTERSTATE COMMERCE COMMISSION.

Commission on a Just and Durable Peace.

The Commission on a Just and Durable Peace instituted by the Federal Council of the Churches of Christ in America developed its work on the churches' strategy for world order. The general program for the postwar period, entitled "Christian Action on Four Fronts for Peace," was set forth by the commission at its annual meeting in Nov. 1945. In line with this general postwar strategy, the commission prepared a draft statement on world order which was subsequently adopted by the federal council at its special meeting in Columbus, O., March 5-7, 1946. This statement, entitled "The Churches and World Order," applied the general principles previously agreed upon to the specific issues confronting the United States in its foreign policy, its relations to the United Nations and its role in the peace settlements. The statement also dealt with the underlying spiritual crisis of mankind and the resources available for the task. Educational material based on this statement was prepared for church discussion groups across the country.

During the spring and summer of 1946, the commission was charged with the preparation of the first international conference of churchmen on world order after the end of World War II. This conference, meeting in Cambridge, England, Aug. 4-7, 1946, fashioned the charter of a new Commission of the Churches on International Affairs to carry on internationally functions similar to those assigned in the United States to the Commission on a Just and Durable Peace.

Another major undertaking of the commission during the summer and fall was an intensive study of tensions between the soviet and western worlds, eventuating in the statement on "Soviet-American Relations," which was adopted unanimously by the federal council's executive committee at its special meeting on Oct. 11. This statement, which invoked widespread public interest, formed a key document in the continuing educational work of the churches on problems of world order.

(Rt. M. F.)

Committee for Economic Development.

The Committee for Economic Development, formed late in 1942 by U.S. businessmen to plan during World War II for more production and more peacetime employment after victory than the U.S. ever had known, continued and expanded its program of economic research in 1946.

Originally C.E.D. set up two divisions to help reach its objective. One was its field development division, formed to stimulate planning at the grass roots for quick reconversion and high

peacetime production. The national field development helped organize 2,900 local Committees for Economic Development, with 70,000 business men serving as volunteer members.

The other, the research division, sought through objective study to determine what policies of government, business, labour and agriculture would contribute best toward the attainment and later the maintenance of high national levels of peacetime production and employment.

Early in 1946, six months after final victory, work of the field development division was terminated, its task having been largely completed. Reports from nearly 1,000 communities, gathered shortly before this termination took place, indicated speedy reconversion was assured in these areas as a result of company by company, community by community planning.

While this community work was being done, a special C.E.D. marketing committee was obtaining from more than 2,000 manufacturers and trade associations estimates of their postwar output of peacetime goods. These reports indicated that U.S. manufacturers would produce 30% to 45% more peacetime goods than in 1939, the year of the previous peak output.

On the basis of these studies C.E.D. was able to report to President Harry S. Truman in Sept. 1945, that within 12 months the United States would have 57,000,000 gainfully employed workers, and that no prolonged period of serious unemployment was to be expected during the transition. The accuracy of this report was shown just one year later when the U.S. census bureau reported there were then 58,370,000 such workers.

Up to the end of 1946, ten statements on national policy were produced and distributed by the Research and Policy committee. These statements and the date of their issue follow:

Postwar Employment and the Settlement of Terminated War Contracts (Oct. 1943); *Postwar Employment and the Liquidation of War Production* (July 1944); *Postwar Federal Tax Plan for High Employment* (Sept. 1944); *Postwar Employment and the Removal of Wartime Controls* (April 1945); *International Trade, Foreign Investment and Domestic Employment* (May 1945); *The Problem of Changeover Unemployment* (Aug. 1945); *Toward More Production, More Jobs and More Freedom* (Nov. 1945); *Agriculture in An Expanding Economy* (Dec. 1945); *The End of Price Control—How and When?* (April 1946); *Fiscal Policy to Fight Inflation* (Sept. 1946).

During the same period ten research reports also were completed. These statements and their authors follow:

The Liquidation of War Production, by A. D. H. Kaplan; *Demobilization of Wartime Economic Controls*, by John Maurice Clark; *Providing for Unemployed Workers in the Transition*, by Richard A. Lester; *Production, Jobs and Taxes*, by Harold M. Groves; *International Trade and Domestic Employment*, by Calvin B. Hoover; *Agriculture in an Unstable Economy*, by Theodore W. Schultz; *Jobs and Markets*, by six members of C.E.D. research staff; *Postwar Taxation and Economic Progress*, by Harold M. Groves; *Financing Business During the Transition*, by Charles C. Abbott and *Controlling World Trade—Cartels and Commodity Agreements*, by Edward S. Mason.

Most of the research reports and policy statements produced up to the end of 1946 dealt largely with problems of the transition. At that time there remained before the C.E.D. research division numerous incompleting assignments, studies of long range economic problems. Many representatives of government, business, agriculture, labour and the public urged that the research program be continued until these assignments could be completed. Therefore, the C.E.D. board of trustees, after careful consideration, agreed unanimously that the research program should be intensified and accelerated. At the close of the year studies were in progress in such long range problems as collective bargaining, small business, taxation, fiscal and monetary policies.

C.E.D. took two steps to meet the responsibilities of conducting such a program and making known the results of this research. One was to increase the membership of its national board of trustees from 26 to nearly 100. The other was to form a national Information committee, whose function is to bring to

the attention of interested individuals and groups the results of this program.

The board of trustees is the governing body of C.E.D. Paul G. Hoffman, president of the Studebaker corporation of South Bend, Ind., was chairman of the board from the date the committee was organized. Ralph E. Flanders of Springfield, Vt., served as chairman of the Research and Policy committee until he resigned in Jan. 1947, following his election as United States senator from Vermont. He was succeeded by Raymond Rubicam of New York, co-founder and, until he retired, chairman of the board of the Young and Rubicam advertising agency. Sumner Slichter, Lamont professor of Harvard university, was chairman of the Research Advisory board.

Walter Fuller, president of the Curtis Publishing company of Philadelphia, was chosen as chairman of the national Information committee when it was formed in 1946.

Officers of the corporation during 1946 were: executive director, Henry R. Johnston; research director, Theodore O. Yntema, professor on leave from the University of Chicago; director of information, John H. Van Deventer and secretary, E. H. Walker.

C.E.D. is supported entirely by voluntary contributions from hundreds of business concerns. It has no relation whatever to any agency of government nor to any private business organization. It maintains offices in Washington, D.C., in Chicago and in New York. The address in the latter city is 285 Madison avenue, New York 17, N.Y. (P. G. H.)

Commodity Prices: see BUSINESS REVIEW; PRICES.

Commons, Members of House of: see PARLIAMENT, HOUSES OF.

Commonwealth Fund, The: see SOCIETIES AND ASSOCIATIONS.

Communism, a world-wide and closely integrated movement of revolutionary Marxism with Moscow and the soviet union as its centre of inspiration and direction. In the year 1946 communist movements everywhere combined an appeal to local nationalism with a uniform line of a violent rejection of all noncommunist attitudes as "reactionary," "imperialist" or "semi-fascist." Only the communist approach—and that meant the approach demanded by the Kremlin—was regarded as "democratic" and conducive to peace.

The Communist party in the soviet union put a renewed stress on the Leninist-Stalinist ideology. The "breathing spell" granted under the stress of World War II when the rigidity of the party line was temporarily relaxed, came to an abrupt end. In literature and in the arts, in the press and in the schools the strictest supervision and repeated purges enforced an iron conformism. At the same time movements for greater national and cultural freedom of the various nationalities of the soviet union, especially of the Ukrainians, the second most numerous nationality within the vast soviet empire, were ruthlessly suppressed. In spite of this emphasis on party line and party discipline, the Kremlin continued to make use of the emotional appeal to religious and race loyalties of the Russian Orthodox Church and of pan-Slavism. For the first time a systematic attempt was made to organize people of the Orthodox faith and especially of Slav race who were citizens of non-Slav states for support of, and loyalty to, the pan-Slav cause which was identified with communist and Russian leadership. This appeal to Slav racial loyalties was especially directed to the large communities of Slav descent in the United States, in Canada and in Latin America.

During 1946 the Communist parties were dominant in all the Slav nations outside the soviet union, in Yugoslavia, Bulgaria,



ITALIAN COMMUNISTS parading in Rome in 1946

Poland and in Czechoslovakia. They were also in control in Albania and Rumania. In other European countries the communists showed great strength in France and in Italy, while their number was negligible in Great Britain. They tried everywhere to co-ordinate the policy of the Socialist party with their own and to form a workers' front under communist inspiration and direction. They succeeded in this in the Russian-occupied zone in Germany where they formed with the Socialists the "Socialist Unity party of Germany" with its slogan, "Unity of the working class, Unity of the People, Unity of Germany." This communist-controlled party became one of the strongest spokesmen for German unity and German national renaissance, and against any cession of German territory (except to Russia or Russian controlled Poland) and against any federalization or other weakening of a strictly unified Germany. Many of the Socialists in the Russian zone were forced into this unity whose leaders became Wilhelm Pieck of the Communists and Otto Grotewohl of the Socialists. Elections held in Berlin in all four zones in Nov. 1946 showed how weak this communist dominated Unity party was. Everywhere, including the Russian zone, the Socialists showed their great strength. This weakness of the Communists revealed itself in elections throughout Germany and in Austria.

In the western hemisphere the vigour and attraction of communist influence emerged in an official report submitted to the Canadian house of commons on July 15 by a commission appointed to investigate the facts and circumstances of the communication of confidential information to Russian agents. The report revealed the well-prepared and highly organized setup of the espionage network and the extent to which Canadians of important standing in science or administration were willing to supply secret information despite oaths of allegiance, of office and of secrecy.

In the United States the Communist party continued the line of strict class war ideology endorsed in July 1945. Earl Browder, the former secretary, was expelled from the party on Jan. 14, 1946, "for gross violation of party discipline, for developing factional activity and for betraying the principles of Marx-

ism-Leninism and deserting to the side of the class enemy, American monopoly capitalism." The party, it was declared officially, "will equip itself rapidly to become a mass party and more effectively perform its vanguard role today and in the great economic and political struggles which lie ahead." This hope was hardly fulfilled in 1946.

On the other hand communist influence grew in Latin America where it was supported by the activities of pan-Slav movements and by the Latin American Confederation of Labour (CTAL) under the leadership of Vicente Lombardo Toledano. Communist propaganda backed throughout the Russian line in hemispheric and world politics and sharply attacked the United States and "Yanqui imperialism." The largest Communist party was in strategic Brazil where it received more than 10% of the total votes in the Dec. 1945 elections and was especially strong in Rio de Janeiro, in São Paulo and in Pernambuco. In Cuba their Partido Socialista Popular dominated the Cuban Confederation of Labour and formed part of the coalition supporting the government. It was support by the communists which made the election of Gabriel González Videla as president of Chile possible; he rewarded them with three posts in the cabinet, the first time the communists attained cabinet rank anywhere in the western hemisphere. The communists in Chile controlled the vital mining unions there. The party showed also growing strength in Venezuela and in Argentina where by the end of the year it supported the government of President Juan Perón.

In Chile the Socialists are strictly opposed to communism. Their leader Bernado Ibanez charged on Dec. 25, 1946, that communism is out to dominate world labour, "using methods of coercion perhaps worse than those the nazis used to dominate Europe." In a letter to Vicente Lombardo Toledano he rejected the collaboration between Socialists and Communists decided upon by a meeting of the executive council of the Latin American Confederation of Labour in Costa Rica.

The leader of the Brazilian Communist party Luis Carlos Prestes declared that in case of a conflict between the U.S.S.R. and the United States the Latin-American communists would revolt against their own governments should these decide to support the United States.

Communist influence was often the driving force behind the nationalist movements in Indo-China, the Netherlands Indies and Burma, where the party supplied some of the outstanding leaders. In the near east, Syria and the Lebanon had become centres of Communist propaganda, in Syria under Khalid Baghdadash, a Mohammedan of Kurdish descent who was trained in Moscow; in Lebanon under Mustapha el Ariss, the chairman of the Lebanese Federation of Labour, a native Christian and a printer by trade. In Palestine communist influence among Arab workers was growing in 1946; it did not do so among Jewish workers because of the hostility of soviet authorities to Zionism. The Arab communists in Palestine were organized as the Arab League for National Liberation with its centre in Haifa under the leadership of Boulus Farah. In Egypt the government arrested communist leaders who were to be found mostly among young intellectuals, and scientists and suspended communist activities and propaganda.

Communism in China remained very strong in 1946. The Chinese Communist party with Mao Tse-tung as leader and Yen-an as its centre claimed a membership of about 2,000,000. Its strength is based on its disciplined unity and its program of reform. While the party "at present" struggles for a "democratic" China, its final goal is to bring the communist system to China with the works of Marx and Lenin as the guiding compass of the party's work. The Chinese communists like all other communists fit their own policy closely to the Moscow party line. The official communist statements in China at the end of 1946 were especially violent in their attack upon the United States. Leader Mao declared: "The American economic crisis will arrive this year or next. It will certainly deepen the contradiction between world democracy (which means communism) and anti-democracy (which means America). It will promote the formation of a world-wide democratic united movement. American imperialism will never again attain economic prosperity after the next economic crisis and therefore the American imperialists will not for long be riding as high, wide and handsome." In the proclamation the impression was created that the entire world was swinging into line against "imperialistic America." In north Korea under Russian occupation the Communist party, titling itself "democratic forces," assumed complete control of the economic, religious and cultural life. In south Korea and in Japan the Communist party carried on a lively agitation, directed above all against the U.S. methods of occupation. The leader of Japanese communism was Kyuichi Tokuda; the party newspaper *Akahata* (Red Flag) had a circulation of more than 300,000.

Internationally the influence of communism was spread by a number of organizations and congresses, not directly connected with Communist parties. These organizations were especially active in the fields of labour where they found a central organization in the World Federation of Trade Unions established in Paris in the fall of 1945, of students, of youth and of women. (See also DEMOCRACY; FASCISM; SOCIALISM; WORLD FEDERATION OF TRADE UNIONS.)

FILMS.—*Despotism*. (Encyclopædia Britannica Films Inc.) (H. Ko.)

Community Chest.

The community chest is the name given to a local federation made up of social service agencies and individuals, the purpose of which is to promote joint planning for voluntary health and welfare services in the community and to raise by a united annual campaign the funds for their support.

Community Chests and Councils, Inc., was organized in Feb. 1918 as the national association of local community chests and councils of social agencies. It is a clearing house of information and ideas for its members and provides them with many serv-

ices in the fields of health and welfare planning and fund raising.

During World War II, the great majority of community chests extended their scope to become "Community and War Chests." Community Chests and Councils, Inc., was active in helping to establish the National War Fund, Inc., a wartime campaign headquarters organization for all united campaigns for war relief services. The National War Fund campaigns covered not only chest cities but also communities where no chests existed.

Of the 1,182 community chests and councils of social agencies in operation in Aug. 1946 (852 chests and 330 councils), 811 chests and 308 councils were in continental U.S.; 4 chests and 2 councils in Hawaii; 34 chests and 19 councils in Canada; 2 chests in South Africa; 1 chest in the Virgin Islands; and 1 council in the British West Indies. Almost every city in the U.S. (except New York city, which has a limited joint financing organization) in 1946 had a community chest or similar plan of federated financing for its voluntary social services. In 852 cities in 1945 more than 20,000,000 contributions totalling \$197,048,839, were given to community chests to be used during 1946 for voluntary social work in their communities and for National War Fund agencies. In 1946, following the liquidation of the National War Fund, the chest campaigns were united under the name "The Community Chests of America," using the national symbol of the Red Feather and the slogan, "Everybody Benefits—Everybody Gives."

Officers of Community Chests and Councils, Inc., for 1946 were: honorary president, Gerard Swope, New York city; president, E. A. Roberts, Philadelphia, Pa.; vice-presidents, J. B. Adoue, Jr., Dallas, Texas, H. L. R. Emmet, Erie, Pa., Philip Morgan, Worcester, Mass., Mrs. Henry P. Russell, San Francisco, Calif.; treasurer, Milton H. Glover, Hartford, Conn.; secretary, Robert P. Lane, New York city. Ralph H. Blanchard was executive director. The address of the association was 155 East 44th St., New York 17, N.Y. (See also RELIEF.) (B. A.)

Community Trusts.

Upward of \$75,000,000 had been accumulated at the close of 1946 for philanthropic uses by 75 community foundations in the United States and Canada. Their resources had increased by more than \$8,000,000 during the year and their current charitable expenditures had risen to a level in excess of \$2,000,000 annually.

The first community trust was established at Cleveland, O., in 1914. Its purpose was to provide a framework for the effective administration of multiple charitable funds, small as well as large. Power was vested in a central committee of the trust to amend the objectives of any particular fund if adherence to its original uses became impossible or impracticable in the course of time. By centring the fiscal management of funds in fiduciary institutions while vesting control over disbursements in a distributing committee of which a majority is appointed from public sources, the trust sought to achieve what Gen. L. P. Ayres termed "a business control of investments and a social control of expenditures."

The New York Community trust with \$17,090,000 and the Chicago Community trust with \$12,274,000 are the largest of these community foundations. The Cleveland foundation lists resources of \$9,607,000; the Boston Permanent Charity fund, \$5,994,000; and the California Community foundation, \$4,194,000.

Out of cumulative disbursements of \$2,021,000 in 1945, New York city appropriated \$567,000; Chicago, \$351,000; Cleveland, \$253,000; and Boston, \$250,000. Of incoming gifts to community foundations in that year, receipts in Cleveland were \$1,030,000; in Hartford, \$848,000; in Chicago, \$776,000 and in

Kalamazoo, \$586,000.

Among the latest created community foundations were those in Mt. Vernon, O.; Wilmington, N.C.; and Rochester, Minn. (R. Hs.)

Composers, Authors and Publishers, American Society of: *see* SOCIETIES AND ASSOCIATIONS.

Confectionery: *see* CANDY.

Congo, Belgian: *see* BELGIAN COLONIAL EMPIRE.

Congregational Christian Churches. The Congregational Christian Church of the United States represents a union (1931) of the Congregational Church, established 1620, and the Christian Churches, founded after the American Revolution. The churches numbered 5,836 in 1946, organized in 51 conferences, with a membership of 1,130,824. They are community institutions with no restrictions of race, creed or station, and each church elects its own minister and officers and writes its own covenant. During 1946, total contributions received for home expenses were \$19,301,495; for benevolences, \$3,951,495; 2,140 churches were rebuilt or repaired at a cost of \$4,415,658; total property value was \$171,892,927. National headquarters: 287 Fourth Ave., New York 10, N. Y. (*See also* CHURCH MEMBERSHIP.)

Congress, United States. The 80th U.S. Congress convened for its first session on Jan. 3, 1947. It comprised the following members (as of Jan. 3, 1947):

United States Senate

Presiding Officer: Arthur H. Vandenberg of Michigan¹

Majority Leader: Wallace H. White, Jr., of Maine

Minority Leader: Alben W. Barkley of Kentucky

State	Name	Party	Term Expires	Residence
Ala.	Hill, Lister	Dem.	1951	Montgomery
	Sparkman, John J.	Dem.	1949	Huntsville
Ariz.	McFarland, Ernest W.	Dem.	1953	Florence
	Hayden, Carl	Dem.	1951	Phoenix
Ark.	Fulbright, J. W.	Dem.	1951	Fayetteville
	McClellan, John L.	Dem.	1949	Camden
Calif.	Knowland, William F.	Rep.	1953	Oakland
	Downey, Sheridan	Dem.	1951	Laguna Beach
Colo.	Johnson, Edwin C.	Dem.	1949	Craig
	Millikin, Eugene D.	Rep.	1951	Denver
Conn.	McMahon, Brien	Dem.	1951	Norwalk
	Baldwin, Raymond E.	Rep.	1953	Stratford
Del.	Buck, C. Douglass	Rep.	1949	Wilmington
	Williams, John J.	Rep.	1953	Millsboro
Fla.	Pepper, Claude	Dem.	1951	Tallahassee
	Holland, Spessard L.	Dem.	1953	Bartow
Ga.	George, Walter F.	Dem.	1951	Vienna
	Russell, Richard B.	Dem.	1949	Winder
Ida.	Taylor, Glen H.	Dem.	1951	Pocatello
	Dworshak, Henry C.	Rep.	1949	Burley
Ill.	Brooks, C. Wayland	Rep.	1949	Chicago
	Lucas, Scott W.	Dem.	1951	Havana
Ind.	Capehart, Homer E.	Rep.	1951	Washington
	Jenner, William E.	Rep.	1953	Bedford
Iowa	Wilson, George A.	Rep.	1949	Des Moines
	Hickenlooper, Bourke B.	Rep.	1951	Cedar Rapids
Kan.	Capper, Arthur	Rep.	1949	Topeka
	Reed, Clyde M.	Rep.	1951	Parsons
Ky.	Barkley, Alben W.	Dem.	1951	Paducah
	Cooper, John S.	Rep.	1949	Somerset
La.	Overton, John H.	Dem.	1951	Alexandria
	Ellender, Allen J.	Dem.	1949	Houma
Me.	Brewster, Owen	Rep.	1953	Dexter
	White, Wallace H., Jr.	Rep.	1949	Auburn
Md.	Tydings, Millard E.	Dem.	1951	Hyvre de Grace
	O'Connor, Herbert R.	Dem.	1953	Annapolis
Mass.	Saltonstall, Leverett	Rep.	1949	Boston
	Lodge, Henry Cabot, Jr.	Rep.	1953	Beverly

¹President pro tempore of the senate in the absence of a vice-president.

State	Name	Party	Term Expires	Residence
Mich.	Vandenberg, Arthur H.	Rep.	1953	Grand Rapids
	Ferguson, Homer	Rep.	1949	Detroit
Minn.	Ball, Joseph H.	Rep.	1949	St. Paul
	Thye, Edward J.	Rep.	1953	Northfield
Miss.	Eastland, James O.	Dem.	1949	Ruleville
	Bilbo, Theodore G.	Dem.	1953	Poplarville
Mo.	Donnell, Forrest C.	Rep.	1951	Webster Groves
	Kem, James P.	Rep.	1953	Kansas City
Mont.	Murray, James E.	Dem.	1949	Butte
	Eaton, Zales N.	Rep.	1953	Manhattan
Neb.	Wherry, Kenneth S.	Rep.	1949	Pawnee City
	Butler, Hugh A.	Rep.	1953	Omaha
Nev.	McCarran, Patrick A.	Dem.	1951	Reno
	Malone, George W.	Rep.	1953	Reno
N.H.	Tobey, Charles W.	Rep.	1951	Temple
	Bridges, H. Styles	Rep.	1949	Concord
N.J.	Hawkes, Albert W.	Rep.	1949	Montclair
	Smith, H. Alexander	Rep.	1953	Princeton
N.M.	Hatch, Carl A.	Dem.	1949	Clovis
	Chavez, Dennis	Dem.	1953	Albuquerque
N.Y.	Wagner, Robert F.	Dem.	1951	New York City
	Ives, Irving M.	Rep.	1953	Norwich
N.C.	Umstead, William B. ²	Dem.	1949	Durham
	Hoey, Clyde R.	Dem.	1951	Shelby
N.D.	Langer, William	Rep.	1953	Bismarck
	Young, Milton R.	Rep.	1951	Berlin
Ohio	Taft, Robert A.	Rep.	1951	Cincinnati
	Bricker, John W.	Rep.	1953	Columbus
Okla.	Thomas, Elmer	Dem.	1951	Medicine Park
	Moore, E. H.	Rep.	1949	Tulsa
Ore.	Cordon, Guy	Rep.	1949	Roseburg
	Morse, Wayne L.	Rep.	1951	Eugene
Pa.	Myers, Francis J.	Dem.	1951	Philadelphia
	Martin, Edward	Rep.	1953	Washington
R.I.	Green, Theodore F.	Dem.	1949	Providence
	McGrath, J. Howard	Dem.	1953	Providence
S.C.	Johnston, Olin D.	Dem.	1951	Spartanburg
	Maybank, Burnet R.	Dem.	1949	Charleston
S.D.	Bushfield, Harlan J.	Rep.	1949	Miller
	Gurney, Chan	Rep.	1951	Yankton
Tenn.	McKellar, Kenneth	Dem.	1953	Memphis
	Stewart, Tom	Dem.	1949	Winchester
Tex.	O'Daniel, W. Lee	Dem.	1949	Fort Worth
	Connally, Tom	Dem.	1947	Marlin
Utah	Thomas, Elbert D.	Dem.	1951	Salt Lake City
	Watkins, Arthur V.	Rep.	1953	Orem
Vt.	Aiken, George D.	Rep.	1951	Putney
	Flanders, Ralph E.	Rep.	1953	Springfield
Va.	Byrd, Harry F.	Dem.	1953	Berryville
	Robertson, A. Willis	Dem.	1953	Lexington
Wash.	Magnuson, Warren G.	Dem.	1951	Port Blakely
	Cain, Harry P.	Rep.	1953	Tacoma
W.Va.	Revercomb, Chapman	Rep.	1949	Charleston
	Kilgore, Harley M.	Dem.	1953	Beckley
Wis.	Wiley, Alexander	Rep.	1951	Chippewa Falls
	McCarthy, Joseph R.	Rep.	1953	Appleton
Wyo.	O'Mahoney, Joseph C.	Dem.	1953	Cheyenne
	Robertson, Edward V.	Rep.	1949	Cody

²Appointed Dec. 17, 1946, to fill the vacancy caused by the death of Josiah W. Bailey, Dec. 15, 1946.

United States House of Representatives (*served in 79th congress)

Speaker: Joseph W. Martin, Jr., of Massachusetts

Majority Leader: Charles A. Halleck, of Indiana

Minority Leader: Sam Rayburn, of Texas

State	Dist.	Name	Party	Residence
Ala.	1	*Boykin, Frank W.	Dem.	Mobile
	2	*Grant, George M.	Dem.	Troy
	3	*Andrews, George W.	Dem.	Union Springs
	4	*Hobbs, Sam	Dem.	Selma
	5	*Rains, Albert	Dem.	Gadsden
	6	*Jarman, Pete	Dem.	Livingston
	7	*Manasco, Carter	Dem.	Jasper
	8	Vacancy ¹		
	9	Battle, Laurie C.	Dem.	Birmingham
Ariz.		*Harless, Richard F.	Dem.	Phoenix
		*Murdock, John R.	Dem.	Tempe
Ark.	1	*Gathings, E. C.	Dem.	West Memphis
	2	*Mills, Wilbur D.	Dem.	Kensett
	3	*Trimble, James W.	Dem.	Berryville
	4	*Cravens, Fadio	Dem.	Fort Smith

¹Vacancy caused by the resignation of John J. Sparkman, Nov. 5, 1946.

State	Dist.	Name	Party	Residence	State	Dist.	Name	Party	Residence
Ark.	5	*Hays, Brooks	Dem.	Little Rock	Ind.	7	*Landis, Gerald W.	Rep.	Linton
	6	*Norrell, W. F.	Dem.	Monticello		8	Mitchell, E. A.	Rep.	Evansville
	7	*Harris, Oren	Dem.	El Dorado		9	*Wilson, Earl	Rep.	Huron
Calif.	1	*Lea, Clarence F.	Dem.	Santa Rosa		10	*Springer, Raymond S.	Rep.	Connersville
	2	*Engle, Clair	Dem.	Red Bluff		11	*Ludlow, Louis	Dem.	Indianapolis
	3	*Johnson, J. Leroy	Rep.	Stockton	Iowa	1	*Martin, Thomas E.	Rep.	Iowa City
	4	*Havenner, Franck R.	Dem.	San Francisco		2	*Talle, Henry O.	Rep.	Decorah
	5	*Welch, Richard J.	Rep.	San Francisco		3	*Gwynne, John W.	Rep.	Waterloo
	6	*Miller, George P.	Dem.	Alameda		4	*LeCompte, Karl M.	Rep.	Corydon
	7	Allen, John J., Jr.	Rep.	Oakland		5	*Cunningham, Paul	Rep.	Des Moines
	8	*Anderson, John Z.	Rep.	San Juan Bautista		6	*Dolliver, James I.	Rep.	Fort Dodge
	9	*Gearhart, Bertrand W.	Rep.	Fresno		7	*Jensen, Ben F.	Rep.	Exira
	10	*Elliott, Alfred J.	Dem.	Tulare		8	*Hoeven, Charles B.	Rep.	Alton
	11	Bramblett, Ernest K.	Rep.	Pacific Grove	Kan.	1	*Cole, Albert M.	Rep.	Halton
	12	Nixon, Richard M.	Rep.	Whittier		2	*Scrivner, Errett P.	Rep.	Kansas City
	13	Poulson, Norris	Rep.	Los Angeles		3	Meyer, Herbert A.	Rep.	Independence
	14	*Douglas, Helen Gahagan	Dem.	Los Angeles		4	*Rees, Edward H.	Rep.	Emporia
	15	*McDonough, Gordon L.	Rep.	Los Angeles		5	*Hope, Clifford R.	Rep.	Garden City
	16	Jackson, Donald L.	Rep.	Santa Monica		6	Smith, Wint	Rep.	Mankato
	17	*King, Cecil R.	Dem.	Los Angeles	Ky.	1	*Gregory, Noble J.	Dem.	Mayfield
	18	Bradley, Willis W.	Rep.	Long Beach		2	*Clements, Earle C.	Dem.	Morganfield
	19	*Holifield, Chet	Dem.	Montebello		3	Morton, Thruston Ballard	Rep.	Glenview
	20	*Hinshaw, Carl	Rep.	Pasadena		4	*Chelf, Frank L.	Dem.	Lebanon
	21	*Sheppard, Harry R.	Dem.	Yucaipa		5	*Spence, Brent	Dem.	Fort Thomas
	22	*Phillips, John	Rep.	Banning		6	*Chapman, Virgil	Dem.	Paris
	23	Fletcher, Charles K.	Rep.	San Diego		7	Meade, W. Howes	Rep.	Paintsville
Colo.	1	Carroll, John A.	Dem.	Denver		8	*Bates, Joe B.	Dem.	Greenup
	2	*Hill, William S.	Rep.	Fort Collins		9	*Robison, John M.	Rep.	Barbourville
	3	*Chenoweth, J. Edgar	Rep.	Trinidad	La.	1	*Hebert, F. Edward	Dem.	New Orleans
	4	*Rockwell, Robert F.	Rep.	Paonia		2	Boggs, Hale	Dem.	New Orleans
Conn.	1	Miller, William J.	Rep.	Wethersfield		3	*Domengeaux, James	Dem.	Lafayette
	2	Seely-Brown, Horace, Jr.	Rep.	Pomfret Center		4	*Brooks, Overton	Dem.	Shreveport
	3	Foote, Ellsworth B.	Rep.	North Branford		5	Passman, Otto E.	Dem.	Monroe
	4	Lodge, John Davis	Rep.	Westport		6	*Morrison, James H.	Dem.	Hammond
	5	Patterson, James T.	Rep.	Naugatuck		7	*Larcade, Henry D., Jr.	Dem.	Opelousas
		Sadlak, Antoni N.	Rep.	Rockville		8	*Allen, A. Leonard	Dem.	Winnfield
Del.		Boggs, J. Caleb	Rep.	Wilmington	Me.	1	*Hale, Robert	Rep.	Portland
Fla.	1	*Peterson, J. Hardin	Dem.	Lakeland		2	*Smith, Margaret Chase	Rep.	Skowhegan
	2	*Price, Emory H.	Dem.	Jacksonville		3	*Fellows, Frank	Rep.	Bangor
	3	*Sikes, Robert L. F.	Dem.	Crestview	Md.	1	Miller, Edward T.	Rep.	Easton
	4	Smathers, George A.	Dem.	Miami		2	Meade, Hugh A.	Dem.	Baltimore
	5	*Hendricks, Joe	Dem.	De Land		3	*D'Alesandro, Thomas, Jr.	Dem.	Baltimore
	6	*Rogers, Dwight L.	Dem.	Fort Lauderdale		4	*Fallon, George H.	Dem.	Baltimore
Ga.	1	Preston, Prince H.	Dem.	Statesboro		5	*Sasser, Lansdale G.	Dem.	Upper Marlboro
	2	*Cox, Edward E.	Dem.	Camilla		6	*Beall, J. Glenn	Rep.	Frostburg
	3	*Pace, Stephen	Dem.	Americus	Mass.	1	*Heseltun, John V.	Rep.	Deerfield
	4	*Camp, A. Sidney	Dem.	Newnan		2	*Clason, Charles R.	Rep.	Springfield
	5	Davis, James C.	Dem.	Decatur		3	*Philbin, Philip J.	Dem.	Clinton
	6	*Vinson, Carl	Dem.	Milledgeville		4	Donohue, Harold D.	Dem.	Worcester
	7	Lanham, Henderson	Dem.	Rome		5	*Rogers, Edith Nourse	Rep.	Lowell
	8	Wheeler, W. M.	Dem.	Alma		6	*Bates, George J.	Rep.	Salem
	9	*Wood, John S.	Dem.	Canton		7	*Lane, Thomas J.	Dem.	Lawrence
	10	*Brown, Paul	Dem.	Elberton		8	*Goodwin, Angier L.	Rep.	Melrose
Ida.	1	Goff, Abe McGregor	Rep.	Moscow		9	*Gifford, Charles L.	Rep.	Cotuit
	2	Sanborn, John	Rep.	Hagerman		10	*Herter, Christian A.	Rep.	Boston
Ill.	1	*Dawson, William L.	Dem.	Chicago		11	Kennedy, John F.	Dem.	Boston
	2	Vail, Richard B.	Rep.	Chicago		12	*McCormack, John W.	Dem.	Dorchester
	3	Busbey, Fred E.	Rep.	Chicago		13	*Wigglesworth, Richard B.	Rep.	Milton
	4	*Gorski, Martin	Dem.	Chicago		14	*Martin, Joseph W., Jr.	Rep.	North Attleboro
	5	*Sabath, Adolph J.	Dem.	Chicago	Mich.	1	*Sadowski, George G.	Dem.	Detroit
	6	*O'Brien, Thomas J.	Dem.	Chicago		2	*Michener, Earl C.	Rep.	Adrian
	7	Owens, Thomas L.	Rep.	Chicago		3	*Shafer, Paul W.	Rep.	Battle Creek
	8	*Gordon, Thomas S.	Dem.	Chicago		4	*Hoffman, Clare E.	Rep.	Allegan
	9	Twyman, Robert J.	Rep.	Chicago		5	*Jonkman, Bartel J.	Rep.	Grand Rapids
	10	*Church, Ralph E.	Rep.	Evanston		6	*Blackney, William W.	Rep.	Flint
	11	*Reed, Chauncey W.	Rep.	West Chicago		7	*Wolcott, Jesse P.	Rep.	Port Huron
	12	*Mason, Noah M.	Rep.	Oglesby		8	*Crawford, Fred L.	Rep.	Saginaw
	13	*Allen, Leo E.	Rep.	Galena		9	*Engel, Albert J.	Rep.	Muskegon
	14	*Johnson, Anton J.	Rep.	Macomb		10	*Woodruff, Roy O.	Rep.	Bay City
	15	*Chiperfield, Robert B.	Rep.	Canton		11	*Bradley, Fred	Rep.	Rogers City
	16	*Dirksen, Everett McK.	Rep.	Pekin		12	Bennett, John B.	Rep.	Ontonagon
	17	*Arends, Leslie C.	Rep.	Melvin		13	Coffin, Howard A.	Rep.	Detroit
	18	Jenison, Edward H.	Rep.	Paris		14	Youngblood, Harold F.	Rep.	Detroit
	19	*McMillen, Rolla C.	Rep.	Decatur		15	*Dingell, John D.	Dem.	Detroit
	20	*Simpson, Sid	Rep.	Carrollton		16	*Lesinski, John	Dem.	Dearborn
	21	*Howell, Evan	Rep.	Springfield		17	*Dondero, George A.	Rep.	Royal Oak
	22	*Price, Melvin	Dem.	East St. Louis	Minn.	1	*Andresen, August H.	Rep.	Red Wing
	23	*Vursell, Charles W.	Rep.	Salem		2	*O'Hara, Joseph P.	Rep.	Glencoe
	24	*Clippinger, Roy	Rep.	Carmi		3	MacKinnon, George	Rep.	Minneapolis
	25	*Bishop, C. W.	Rep.	Cartersville		4	Devitt, Edward J.	Rep.	St. Paul
		Stratton, William G.	Rep.	Morris		5	*Judd, Walter H.	Rep.	Minneapolis
Ind.	1	*Madden, Ray J.	Dem.	Gary		6	*Knutson, Harold	Rep.	Manhattan Beach
	2	*Halleck, Charles A.	Rep.	Rensselaer		7	*Andersen, H. Carl	Rep.	Tyler
	3	*Grant, Robert A.	Rep.	South Bend		8	Blatnik, John A.	Dem.	Chisholm
	4	*Gillie, George W.	Rep.	Fort Wayne		9	*Hagen, Harold C.	Rep.	Crookston
	5	*Harness, Forest A.	Rep.	Kokomo	Miss.	1	*Rankin, John E.	Dem.	Tupelo
	6	*Johnson, Noble J.	Rep.	Terre Haute		2	*Whitten, Jamie L.	Dem.	Charleston
						3	*Whittington, William M.	Dem.	Greenwood

State	Dist.	Name	Party	Residence	State	Dist.	Name	Party	Residence
Miss.	4	*Abernethy, Thomas G.	Dem.	Okolona	N.C.	1	*Bonner, Herbert C.	Dem.	Washington
	5	*Winstead, Arthur	Dem.	Philadelphia		2	*Kerr, John H.	Dem.	Warrenton
	6	*Comer, William M.	Dem.	Pascagoula		3	*Barden, Graham	Dem.	New Bern
	7	*Williams, John Bell	Dem.	Raymond		4	*Cooley, Harold D.	Dem.	Nashville
Mo.	1	*Arnold, Wat	Rep.	Kirksville		5	*Folger, John H.	Dem.	Mount Airy
	2	*Schwabe, Max	Rep.	Columbia		6	*Durham, Carl T.	Dem.	Chapel Hill
	3	*Cole, William C.	Rep.	St. Joseph		7	*Clark, J. Bayard	Dem.	Fayetteville
	4	*Bell, C. Jasper	Dem.	Blue Springs		8	*Deane, Charles B.	Dem.	Rockingham
	5	*Reeves, Albert L., Jr.	Rep.	Kansas City		9	*Doughton, Robert L.	Dem.	Laurel Springs
	6	*Bennett, Marion T.	Rep.	Springfield		10	*Jones, Hamilton C.	Dem.	Charlotte
	7	*Short, Dewey	Rep.	Galena		11	*Bulwinkle, Alfred L.	Dem.	Gastonia
	8	*Banta, Parke M.	Rep.	Arcadia		12	*Redden, Monroe M.	Dem.	Hendersonville
	9	*Cannon, Clarence	Dem.	Elsberry	N.D.		*Lemke, William	Rep.	Fargo
	10	*Zimmerman, Orville	Dem.	Kennett			*Robertson, Charles R.	Rep.	Bismarck
	11	*Bakewell, Claude I.	Rep.	St. Louis	Ohio	1	*Elston, Charles H.	Rep.	Cincinnati
	12	*Ploeser, Walter C.	Rep.	Chesterfield (R.F.D.)		2	*Hess, William E.	Rep.	Cincinnati
	13	*Karsten, Frank M.	Dem.	St. Louis		3	*Burke, Raymond H.	Rep.	Hamilton
Mont.	1	*Mansfield, Mike	Dem.	Missoula		4	*Jones, Robert F.	Rep.	Lima
	2	*D'Ewart, Wesley A.	Rep.	Wilsall		5	*Clevenger, Cliff	Rep.	Bryan
Neb.	1	*Curtis, Carl T.	Rep.	Minden		6	*McCowen, Edward O.	Rep.	Wheelerburg
	2	*Buffett, Howard H.	Rep.	Omaha		7	*Brown, Clarence J.	Rep.	Blanchester
	3	*Stefan, Karl	Rep.	Norfolk		8	*Smith, Frederick C.	Rep.	Marion
	4	*Miller, A. L.	Rep.	Kimball		9	*Ramey, Homer A.	Rep.	Toledo
Nev.		Russell, Charles H.	Rep.	Ely		10	*Jenkins, Thomas A.	Rep.	Ironton
N.H.	1	*Morrow, Chester E.	Rep.	Center Ossipee		11	*Brehm, Walter E.	Rep.	Logan
	2	*Cotton, Norris	Rep.	Lebanon		12	*Vorys, John M.	Rep.	Columbus
N.J.	1	*Wolverton, Charles A.	Rep.	Merchantville		13	*Weichel, Alvin F.	Rep.	Sandusky
	2	*Hand, T. Millet	Rep.	Cape May City		14	*Huber, Walter B.	Dem.	Akron
	3	*Auchincloss, James C.	Rep.	Rumson		15	*Griffiths, P. W.	Rep.	Marietta
	4	*Mathews, Frank A., Jr.	Rep.	Riverton		16	*Carson, Henderson H.	Rep.	Canton
	5	*Eaton, Charles A.	Rep.	Watchung		17	*McGregor, J. Harry	Rep.	West Lafayette
	6	*Case, Clifford P.	Rep.	Rahway		18	*Lewis, Earl R.	Rep.	St. Clairsville
	7	*Thomas, J. Parnell	Rep.	Allendale		19	*Kirwan, Michael J.	Dem.	Youngstown
	8	*Canfield, Gordon	Rep.	Paterson		20	*Feighan, Michael A.	Dem.	Cleveland
	9	*Towe, Harry L.	Rep.	Rutherford		21	*Crosner, Robert	Dem.	Cleveland
	10	*Hartley, Fred A., Jr.	Rep.	Kearny		22	*Bolton, Frances P.	Rep.	Lyndhurst
	11	*Sundstrom, Frank L.	Rep.	East Orange			*Bender, George H.	Rep.	Cleveland Heights
	12	*Kean, Robert W.	Rep.	Livingston	Okla.	1	*Schwabe, George B.	Rep.	Tulsa
	13	*Norton, Mary T.	Dem.	Jersey City		2	*Stigler, William G.	Dem.	Stigler
	14	*Hart, Edward J.	Dem.	Jersey City		3	*Albert, Carl	Dem.	McAlester
N.M.		*Fernandez, Antonio M.	Dem.	Santa Fe		4	*Johnson, Glen D.	Dem.	Okemah
		Lusk, Georgia L.	Dem.	Santa Fe		5	*Monroney, A. S. Mike	Dem.	Oklahoma City
N.Y.	1	*Macy, W. Kingsland	Rep.	Islip		6	*Morris, Toby	Dem.	Lawton
	2	*Hall, Leonard W.	Rep.	Oyster Bay		7	*Peden, Preston E.	Dem.	Altus
	3	*Latham, Henry J.	Rep.	Queens Village		8	*Rizley, Ross	Rep.	Guymon
	4	*McMahon, Gregory	Rep.	Ozone Park	Ore.	1	*Norblad, Walter	Rep.	Astoria
	5	*Ross, Robert Tripp	Rep.	Jackson Heights		2	*Stockman, Lowell	Rep.	Pendleton
	6	*Nadar, Robert, Jr.	Rep.	Maspeth		3	*Angell, Homer D.	Rep.	Portland
	7	*Delaney, John J.	Dem.	Brooklyn		4	*Ellsworth, Harris	Rep.	Roseburg
	8	*Pfeifer, Joseph L.	Dem.	Brooklyn	Penn.	1	*Gallagher, James	Rep.	Philadelphia
	9	*Keogh, Eugene J.	Dem.	Brooklyn		2	*McGarvey, Robert N.	Rep.	Philadelphia
	10	*Somers, Andrew L.	Dem.	Brooklyn		3	*Scott, Hardie	Rep.	Philadelphia
	11	*Heffernan, James J.	Dem.	Brooklyn		4	*Maloney, Franklin J.	Rep.	Philadelphia
	12	*Rooney, John J.	Dem.	Brooklyn		5	*Sarbacher, George W., Jr.	Rep.	Philadelphia
	13	*O'Toole, Donald L.	Dem.	Brooklyn		6	*Scott, Hugh D., Jr.	Rep.	Philadelphia
	14	*Rayfiel, Leo F.	Dem.	Brooklyn		7	*Chadwick, E. Wallace	Rep.	Maylan
	15	*Celler, Emanuel	Dem.	Brooklyn		8	*Gerlach, Charles L.	Rep.	Allentown
	16	*Buck, Ellsworth B.	Rep.	Staten Island		9	*Dague, Paul B.	Rep.	Downingtown
	17	*Coudert, Frederic R., Jr.	Rep.	New York city		10	*Scoblick, James P.	Rep.	Archbald
	18	*Marcantonio, Vito	Am.	New York city		11	*Jenkins, Mitchell	Rep.	Trucksville
	19	*Klein, Arthur G.	Dem.	New York city		12	*Fenton, Ivor D.	Rep.	Mahanoy City
	20	*Bloom, Sol	Dem.	New York city		13	*Muhlenberg, Frederick A.	Rep.	Wernersville
	21	*Javits, Jacob K.	Rep.	New York city		14	*Gillette, Wilson D.	Rep.	Towanda
	22	*Powell, Adam C., Jr.	Dem.	New York city		15	*Rich, Robert F.	Rep.	Woolrich
	23	*Lynch, Walter A.	Dem.	New York city		16	*McConnell, Samuel K., Jr.	Rep.	Penn Wynne
	24	*Rabin, Benjamin J.	Dem.	New York city		17	*Simpson, Richard M.	Rep.	Huntingdon
	25	*Buckley, Charles A.	Dem.	New York city		18	*Kunkel, John C.	Rep.	Harrisburg
	26	*Potts, David M.	Rep.	New York city		19	*Gavin, Leon H.	Rep.	Oil City
	27	*Gwinn, Ralph W.	Rep.	Bronxville		20	*Walter, Francis E.	Dem.	Easton
	28	*Gamble, Ralph A.	Rep.	Larchmont		21	*Gross, Chester H.	Rep.	Manchester (R.F.D.)
	29	*St. George, Katharine	Rep.	Tuxedo Park		22	*Van Zandt, James E.	Rep.	Altoona
	30	*LeFevre, Jay	Rep.	New Paltz		23	*Crow, William J.	Rep.	Uniontown
	31	*Kearney, Bernard W.	Rep.	Gloversville		24	*Morgan, Thomas E.	Dem.	Fredericktown
	32	*Byrne, William T.	Dem.	Loudonville		25	*Graham, Louis E.	Rep.	Beaver
	33	*Taylor, Dean P.	Rep.	Troy		26	*Tibbott, Harve	Rep.	Ebensburg
	34	*Kilburn, Clarence E.	Rep.	Malone		27	*Kelley, Augustine B.	Dem.	Greensburg
	35	*Fuller, Hadwen C.	Rep.	Parish		28	*Kearns, Carroll D.	Rep.	Farrell
	36	*Riehlman, R. Walter	Rep.	Tully		29	*McDowell, John	Rep.	Wilkinsburg
	37	*Hall, Edwin Arthur	Rep.	Binghamton		30	*Corbett, Robert J.	Rep.	Bellevue
	38	*Taber, John	Rep.	Auburn		31	*Fulton, James G.	Rep.	Dormont (Pittsburgh)
	39	*Cole, W. Sterling	Rep.	Bath		32	*Eberhart, Herman P.	Dem.	Pittsburgh
	40	*Keating, Kenneth B.	Rep.	Rochester	R.I.		*Buchanan, Frank	Dem.	McKeesport
	41	*Wadsworth, James W.	Rep.	Geneseo		1	*Forand, Aime J.	Dem.	Cumberland
	42	*Andrews, Walter G.	Rep.	Buffalo	S.C.	2	*Fogarty, John E.	Dem.	Harmony
	43	*Elsaesser, Edward J.	Rep.	Buffalo		1	*Rivers, L. Mendel	Dem.	Charleston
	44	*Butler, John C.	Rep.	Buffalo		2	*Riley, John J.	Dem.	Sumter
	45	*Reed, Daniel A.	Rep.	Dunkirk		3	*Dorn, W. J. Bryan	Dem.	Greenwood
						4	*Bryson, Joseph R.	Dem.	Greenville

State	Dist.	Name	Party	Residence
S.C.	5	*Richards, James P.	Dem.	Lancaster
	6	*McMillan, John L.	Dem.	Florence
S.D.	1	*Mundt, Karl E.	Rep.	Madison
	2	*Case, Francis	Rep.	Custer
Tenn.	1	Phillips, Dayton E.	Rep.	Elizabethton
	2	*Jennings, John E., Jr.	Rep.	Knoxville
	3	*Kefauver, Estes	Dem.	Chattanooga
	4	*Gore, Albert	Dem.	Carthage
	5	Evens, Joe L.	Dem.	Smithville
	6	*Priest, J. Percy	Dem.	Nashville
	7	*Courtney, Wirt	Dem.	Franklin
	8	*Murray, Tom	Dem.	Jackson
	9	*Cooper, Jere	Dem.	Dyersburg
	10	*Davis, Clifford	Dem.	Memphis
Texas	1	*Patman, Wright	Dem.	Texarkana
	2	*Combs, J. M.	Dem.	Beaumont
	3	*Beckworth, Lindley	Dem.	Gladwater (R.F.D.)
	4	*Rayburn, Sam	Dem.	Bonham
	5	*Wilson, J. Frank	Dem.	Dallas
	6	Teague, Olin E.	Dem.	College Station
	7	*Pickett, Tom	Dem.	Palestine
	8	*Thomas, Albert	Dem.	Houston
	9	*Mansfield, Joseph J.	Dem.	Columbus
	10	*Johnson, Lyndon B.	Dem.	Johnson City
	11	*Poage, William R.	Dem.	Waco
	12	Lucas, Wingate H.	Dem.	Grapevine
	13	*Gossett, Ed	Dem.	Wichita Falls
	14	*Lyle, John E.	Dem.	Corpus Christi
	15	*West, Milton H.	Dem.	Brownsville
	16	*Thomason, R. Ewing	Dem.	El Paso
	17	Burleson, Omar	Dem.	Anson
	18	*Worley, Eugene	Dem.	Shamrock
	19	*Mahon, George H.	Dem.	Colorado City
	20	*Kilday, Paul J.	Dem.	San Antonio
	21	*Fisher, O. C.	Dem.	San Angelo
Utah	1	*Granger, Walter K.	Dem.	Cedar City
Vt.	2	Dawson, William A.	Rep.	Layton
		*Plumley, Charles A.	Rep.	Northfield
Va.	1	*Bland, Schuyler Otis	Dem.	Newport News
	2	Hardy, Porter, Jr.	Dem.	Norfolk
	3	*Gary, J. Vaughan	Dem.	Richmond
	4	*Drewry, Patrick H.	Dem.	Petersburg
	5	Stanley, Thomas B.	Dem.	Stanleytown
	6	Almond, J. Lindsay, Jr.	Dem.	Roanoke
	7	Harrison, Burr P.	Dem.	Winchester
	8	*Smith, Howard W.	Dem.	Alexandria
	9	*Flannagan, John W., Jr.	Dem.	Bristol
	10	Jones, Homer R.	Rep.	Bremerton
Wash.	1	*Jackson, Henry M.	Dem.	Everett
	2	Norman, Fred	Rep.	Raymond
	3	*Holmes, Hal	Rep.	Ellensburg
	4	*Horan, Walter F.	Rep.	Wenatchee
	5	Tollefson, Thor C.	Rep.	Tacoma
	6	Love, Francis J.	Rep.	Wheeling
W.Va.	1	Snyder, Melvin C.	Rep.	Kingwood
	2	Rohrbough, Edward G.	Rep.	Glenville
	3	*Ellis, Hubert S.	Rep.	Huntington
	4	*Kee, John	Dem.	Bluefield
Wis.	5	*Hedrick, E. H.	Dem.	Beckley
	6	*Smith, Lawrence H.	Rep.	Racine
	1	Vacancy ¹		
Wyo.	2	*Stevenson, William H.	Rep.	La Crosse
	3	Brophy, John C.	Rep.	Milwaukee
	4	Kersten, Charles J.	Rep.	Milwaukee
	5	*Keefe, Frank B.	Rep.	Oshkosh
	6	*Murray, Reid F.	Rep.	Ogdensburg
	7	*Byrnes, John W.	Rep.	Green Bay
	8	*Hull, Merlin	Rep.	Black River Falls
	9	*O'Konski, Alvin E.	Rep.	Mercer
	10	*Barrett, Frank A.	Rep.	Lusk

¹Vacancy caused by the death of Robert K. Henry, Nov. 20, 1946.

Congress of Industrial Organizations. In 1946 the C.I.O. welcomed home more than 2,000,000 of its 6,300,000 members who had served in the armed forces during World War II. The returnees played a prominent part in advancing the C.I.O. wage and full employment programs.

The leadership given by the C.I.O. in the drive for prompt reconversion of industry to peacetime production was a chief factor in maintaining 58,000,000 jobs for U.S. workers during the year. In addition to furthering its formulas for full production, full employment and full consumption, the C.I.O. consolidated its existing membership and renewed its drive to extend

organization of the unorganized workers. The C.I.O. Organizing committee in the south established headquarters in Atlanta, Ga. There were 250 veteran organizers assigned to the 12 southern states. More than \$2,000,000 was subscribed and pledged by all 40 C.I.O. International unions to carry on the work in the south.

The C.I.O. resumed its practice of holding annual conventions and assembled in Atlantic City, N.J., Nov. 18 to 23. In view of the abandonment of price control by the federal government and a consequent sharp increase in the cost of living, the convention declared that substantial wage increases were necessary to provide necessities, to sustain purchasing power, and ultimately to prevent another depression.

An outstanding contribution to economic history was made by Robert R. Nathan Associates, Inc., in an analysis of factual data on wages and living costs compiled by all C.I.O. International unions. The Nathan analysis received extensive publicity that brought huge corporate profits into focus.

The C.I.O. sent three representatives to the meeting of the World Federation of Trade Unions executive bureau in Moscow in June. The C.I.O. insisted that the W.F.T.U. again request recognition by the Economic and Social Council of the United Nations. Subsequently the request was granted in part.

National C.I.O. headquarters were at 718 Jackson Place, N.W., Washington 6, D.C. National officers were Philip Murray, president; James B. Carey, secretary-treasurer.

(See also AMERICAN FEDERATION OF LABOR; LABOUR UNIONS; STRIKES AND LOCK-OUTS; UNITED STATES.) (P. My.)

Connally, Tom (Thomas Terry) (1877-), U.S. politician and statesman, was born Aug. 19, in McLennan county, Tex. He was graduated from Baylor university (1896) and from the University of Texas (1898) with an LL.B. degree. He served with the army in the Spanish-American War and World War I. He was elected to the U.S. senate in 1928, after having served in the house. In the early days of the Roosevelt presidency, Senator Connally gave qualified support to the domestic measures of the administration, but on foreign policy, his support of the administration was wholehearted. He became chairman of the senate's foreign relations committee in 1941.

Connally was one of the U.S. delegates to the United Nations conference in San Francisco in April-June 1945 and he was also a member of the U.S. delegation to the U.N. general assembly sessions in London (Jan.-Feb. 1946). The senator also accompanied Secretary James F. Byrnes to the Allied Council of Foreign Ministers that opened April 25, 1946, in Paris. He was again appointed July 18, 1946, as a member of the U.S. delegation to the U.N. and on Aug. 2, he was appointed to the permanent joint congressional committee on atomic energy.

Connally was re-elected to the senate, Nov. 5, 1946.

Connecticut. Next to the smallest of the New England states and one of the 13 original states, Connecticut is variously known as the "Nutmeg state," "Constitution state," or the "Land of Steady Habits." It is bounded on the north by Massachusetts, on the east by Rhode Island, on the south by Long Island sound, and on the west by New York. It is 5,009 sq.mi. in area of which 110 are water. The population, according to the 1940 census, was 1,709,242. The state registrar of vital statistics est. that as at July 1, 1946, this fig. had increased to 1,773,204. The same official reported for Hartford, capital and largest city, 167,636; New Haven 160,605; Bridgeport, 147,478; Waterbury, 99,314; New Britain, 69,035; and Stamford, 64,096.

History.—A special session of the legislature was held from May 7 to May 17, 1946. Ten public and nine special acts were

passed. Among these were several relating to veterans' housing. Five million dollars was appropriated from the Postwar Purposes fund, and the State Housing act was amended to permit the state to receive federal aid. A department of aeronautics was established in anticipation of the return to the state of several airfields which had been leased to the federal government during the war. An appropriation was made for salary and wage increases to state employees.

The November election resulted in a Republican landslide. A complete Republican state ticket, including U.S. senator, governor, lieutenant governor, secretary of the state, treasurer, comptroller, and all six congressmen was elected. In addition, Republicans gained control of the general assembly by electing 28 senators to the Democrats' 8, and by electing 231 Republicans in the house to the Democrats' 41.

The elective state officers for 1947 were: governor, James L. McConaughy (Rep.); lieutenant governor, James C. Shannon (Rep.); secretary of state, Mrs. Frances B. Redick (Rep.); treasurer, Joseph A. Adorno (Rep.); comptroller, Fred R. Zeller (Rep.); attorney general, Wm. C. Hadden (Rep.).

Education.—For the year 1945-46 there were 792 public elementary schools with 177,657 pupils and 4,759 teachers; 32 junior high schools with 17,008 pupils and 651 teachers; 93 high schools with 66,520 scholars and 2,398 teachers. The local expenditure for education was \$37,297,610 compared with \$34,694,300 the year before. The state maintained 4 teachers colleges with an enrolment of 1,156 students and a faculty of 115.

Veterans raised enrolment at the state university at Storrs to a 50% increase over any previous figure. The state leased the U.S. maritime school at Fort Trumbull, New London, which had accommodations for 2,000, and there were branches at Hartford and Waterbury for freshmen and sophomores.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state welfare department reported that the total of all types receiving public assistance in June 1946 was 44,930 persons compared with 39,581 in June 1945, and that the cost in 1946 was \$1,536,505 compared with \$1,250,688 in 1945, both considerable increases. Types and numbers of persons receiving assistance were: general local relief, 8,999; old-age assistance, 14,689; in state institutions, 6,532; aid to dependent children, 9,464; county wards (6-18 years), 3,217; state wards (under 6 years), 1,837; aid to the blind, 192.

Communications.—For the first ten months of 1946 the commissioner of motor vehicles reported a total of 542,194 motor vehicles registered and 618,683 operators' licenses issued including 72,216 free licenses to ex-service men. Although no figures for highway construction were available, more than 20 contracts for new construction had been let including the last link in the Wilbur Cross highway on which work was being concentrated.

There were 12 broadcasting stations in the state, an increase of one over 1945. There were 107 newspapers and periodicals being published. The state was served by 3 railway companies and 1 street railway company, 48 bus companies and 111 taxicab companies. There were 501,583 telephone outlets compared with 468,177 in 1945.

Banking and Finance.—The treasurer's report for the fiscal year ending June 30, 1946, shows the following: cash balance, July 1, 1945, \$35,431,571.87, cash receipts \$176,857,408.62, total \$212,288,980.49; disbursements \$188,644,470.10; cash balance, June 30, 1946, \$23,644,510.39.

The state's bonded debt was \$22,835,000, of which \$12,837,000 was funding and building bonds. There was in the Bond Retirement fund \$13,717,342. The balance of the bonded debt, \$9,998,000, represented bonds for bridge and dormitories.

Almost \$4,000,000 was added to the Postwar Purposes fund which amounted to \$16,231,831. The Unemployment Compensation fund deposited with the secretary of the U.S. treasury was \$171,111,916.

As at Sept. 30, 1946, the bank commissioner reported that the assets of the 72 mutual savings banks were \$1,343,986,227; that the assets of 62 state banks and trust companies were \$795,162,354.

The 50 national banks reported to the comptroller of currency that their assets as at June 30, 1946, were \$798,087,000. Thirty-three building and loan associations had assets of \$45,019,255.

Agriculture.—The cash farm income for 1945 was very satisfactory, the total being more than \$20,000,000 higher than in 1944, or \$122,966,000 as compared with \$101,140,000. The 1945 total was made up of income from crops, \$45,073,000, and income from livestock and



JAMES L. McCONAUGHY, elected governor of Connecticut on Nov. 5, 1946, on the Republican ticket

livestock products, \$77,893,000.

Manufacturing.—The cessation of the war and resulting cancellation of war contracts were a heavy blow to such a highly industrialized state as Connecticut. In June 1945, 585,278 persons were employed in 13,668 establishments in the state. In the first quarter of 1946 the corresponding figs. were 540,875 and 13,008. In Oct. 1945 the index of business activity was 118.4 and in Sept. 1946 it had risen to 148.3. The treasurer's report shows that the state revenue from the corporation tax yielded \$11,434,000 for the year ending June 30, 1945, and \$8,766,000 for the year ending June 30, 1946. In general it may be said that the shortages of material and skilled labour were the main retarding factors, and that strikes and shortages of housing aggravated the situation. (J. B.)

Conscientious Objectors: see FRIENDS, RELIGIOUS SOCIETY OF; PACIFISM.

Conscription: see SELECTIVE SERVICE, U.S.

Conservation, Soil: see SOIL EROSION AND SOIL CONSERVATION.

Conservative Party, Great Britain.

Winston Churchill and Lord Woolton (who joined the party only on the day of its defeat at the polls) were acclaimed, at the first conference of the party held out of London after 1939, leaders of a nation-wide campaign to retrieve its political fortunes. The conference was held at Blackpool on Oct. 3-5, 1946, and was attended by 2,700 delegates. Before it took place much interest had been roused by speeches in which Harold Macmillan and others had urged the formation of a united front by all opponents of the Socialist government and suggested that this might best be achieved if the name of the party were changed from Conservative to "Democratic." At the conference all resolutions to change the name were ruled out of order, but strong feelings were expressed against it. A motion urging party headquarters to take early steps for uniting all opposed to the Socialist government was overwhelmingly rejected in favour of an amendment to ensure that any steps to attract anti-Socialists into the party should be "consistent with the basic principles of Conservatism." Those principles were restated by Churchill in a speech in which, after declaring the political situation so grave that he was resolved to go forward in the Conservative leadership, he enumerated eight "main objectives": the upholding of the Christian religion; defense of the monarchical parliamentary constitution; security against external aggression and safety for sea-borne trade; maintenance of law and order; sound finance; development of empire trade; improvement of social conditions, and support of free enterprise and initiative against state trading and nationalization of industries.

It was Churchill who on July 1 had appointed Lord Woolton to succeed Ralph Asheton (resigned) as chairman of the party organization. Other changes in accordance with practice were made at the council meeting of the National Union of Conservative and Unionist associations in London in March. Oliver Stanley was then elected president in succession to Lord Courthope; Major R. G. Proby became chairman, replacing R. A. Butler, M.P., who was appointed chairman of a new central committee

Leading Agricultural Products of Connecticut, 1944 and 1945

Product	1944	1945
Apples	\$3,109,000	\$2,651,000
Truck Crops	5,618,000	5,558,000
Potatoes	6,245,000	5,346,000
Tobacco	5,489,000	22,725,000
Dairy products, including cattle and calves	32,169,000	33,751,000
Poultry, including eggs	32,469,000	37,064,000

on policy and political education. Mrs. Lorne Sayers was made chairman of a Women's Advisory council and Lieut. Colonel S. B. H. Oliver organizing secretary of the junior movement. It was reported at Blackpool that the number of branches of Young Conservatives had grown from 51 at the time of the general election to 834. New appointments at party headquarters were of Herbert Brabin as local government officer to assist candidates at local elections when these were fought on party lines; and of H. L. d'Aubigné Hopkinson, deputy British high commissioner in Italy from 1944-46, as head of the parliamentary secretariat. Tory Reform committee officers were Colonel C. G. Lancaster, chairman; Lieutenant Colonel D. Heathcoat-Amory, secretary; Major E. Gates, treasurer. Sir Arnold Gridley was chairman of the Conservative and Unionist Members (1922) committee. There was also set up a new central board of finance with Lord Llewellyn as chairman and Air Marshal F. H. M. Maynard as manager. It worked in collaboration with the party treasurer and the 12 regional area organizations co-ordinating and extending money-raising efforts above constituency level. A Conservative political centre with a bookshop attached was opened during the year at 58, Victoria St., London.

In the municipal elections of November, the Conservative party slightly increased its strength, but the Labour party took the majority of votes. The successes of both parties were at the expense of the Independents. (*See also* PARLIAMENT, HOUSES OF.) (L. DU.)

Consumer Credit. The year 1946 in the field of consumer credit in the U.S. was one of great expansion. In January the total consumer credit outstanding was estimated at \$6,448,000,000. Each month thereafter, this figure climbed and in October the figure was \$8,694,000,000. Indications were that the year-end total would be in excess of \$10,000,000,000.

This great increase can be attributed to numerous factors. Some of the most important are these:

The large volume of cash in the hands of the middle income groups decreased in volume. As more consumer goods came on the market and the nation converted from war to peacetime production, consumers began to open charge and instalment accounts rapidly. An even more important factor was the increased production of durable consumer goods, such as automobiles, refrigerators, household appliances, etc. These items normally purchased on instalment contracts helped to swell the total volume of consumer credit outstanding.

Buying had not yet become selective in the early months of 1946. In the sellers market that prevailed, many retail firms offered scarce goods as an inducement to secure new charge customers. The competition in the field of consumer credit extension became increasingly keen during 1946, and a number of institutions and businesses, not formerly interested in credit extension, began to engage in this activity.

Banks, for example, expanded their loan services to customers. The bank-agent auto plan is a case in point. Through the operation of this system, the banks financed automobile purchases directly in co-operation with independent insurance agents.

Other plans being evaluated at the year's end included such innovations as charge loan accounts and proposals for financing vacations, etc. The railroads, at the close of the year, were contemplating the establishment of a passenger credit service whereby travel could be billed on a monthly basis. The airlines already had such a system in operation and were actively promoting it.

Retail firms faced with the necessity of replacing the credit accounts lost during World War II were aggressively seeking

new credit customers. By the year's end, trained crews were soliciting new charge account business door-to-door in many cities. Scarce merchandise was offered as an inducement to establish charge accounts. Heavy advertising campaigns were directed at focusing consumers' attention to the conveniences of instalment and charge account buying.

Thousands of new family units were formed during the war through the increased marriage rate. These families, because of wartime shortages, had been unable to purchase the normal requirements for housekeeping. The heads of these families, normally servicemen, returned from the armed forces without large accumulations of cash. They were, therefore, immediately in the market for goods and were forced to seek credit accommodations in order to make their purchases.

To these factors must be added the lifting of restrictions of Regulation W, the war-time control measure defining how charge accounts and instalment credit would be paid. The extension of charge account credit was substantially freed from government control on Dec. 1, 1946. The extension of credit was made the responsibility of the individual firms and institutions concerned.

It is not to be inferred from this increase in the volume of credit outstanding and from the increasing promotional activities that the U.S. was embarked on an uncontrolled period of promiscuous credit extension. There was every indication that due care was being used in the selection of new credit accounts.

The principles of sound credit extension were made mandatory through the provisions of Regulation W. Credit granters had an opportunity to observe the advantages accruing from a conservative policy.

The Associated Credit Bureaus of America, a trade organization composed of more than 1,300 credit reporting offices throughout North America, indicated that the volume of credit inquiries received by its member affiliates was as much as 100% over the war years and 35% to 50% over a previous year, 1940.

The credit reports furnished by the various credit bureaus were used to disclose the paying habits of individuals applying for credit. It was apparent, therefore, that credit granters were interested in the financial responsibility, the character, the capital, and the capacity of the individual seeking credit. The desire for sales volume did not distort judgment in most cases.

Credit granters indicated that the dangers of uncontrolled credit extension were recognized. The general policies of retailers in the merchandising field indicates a cognizance of the dangers and an appreciation of their responsibilities.

(H. A. WE.)

Great Britain.—Consumer credit during 1946 did not reach prewar dimensions, owing to the fact that the amount of consumer goods being produced was still limited, and a considerable proportion of that production was appropriated to export. There had been abundance of cash in the country during the year, so that purchasers were quite prepared to pay cash for what they could obtain, and sellers were inclined to favour the cash purchaser rather than the hire purchaser. Furthermore, the government repealed only in a small way the control of prices legislation which during the war years made it practically impossible for consumer goods to be obtained on hire purchase.

Notwithstanding all this, the companies specializing in consumer credit finance were recovering from the war depression, although their investments were for the most part in contractors' plant, machine tools and other types of factory equipment.

Unlike the position among companies operating in the U.S.A. there had been until 1946 very little co-operation in Great

Britain among what were known as finance companies, *i.e.*, companies specializing in consumer credit finance. The result was that in this important group of companies, where the capital and borrowing capacity reached very considerable figures, there was no means by which they could speak with one voice, neither was there any particular organization to which the government could look for guidance and advice on any legislation which they contemplated in connection with hire purchase; and on the other hand the companies were not able to show a united front to the government when legislation was proposed which might react to their detriment. During the year the Finance Houses Association, Ltd., was formed; it comprised all the larger finance companies doing a business embracing all types of goods to which consumer credit finance could be applied. This new association under the presidency of J. Gibson Jarvie, the chairman of United Dominions Trust, Ltd., and with a very strong committee of hire-purchase experts, was warmly welcomed by banks, by the government and by every institution in the country which recognized the importance of this type of finance in the postwar reconstruction period. The association would be able to talk to the government with complete authority as the mouthpiece of every company in the country doing a general hire-purchase business on a large scale; in due course it would probably be able to furnish information and statistics of assistance in the study of consumer credit, and might in the future be the means of bringing some sort of uniformity to the system as regards methods, rates and terms. (D. CL.)

Contract Bridge. The most widely-played card game in the world, contract bridge, retained its popularity undiminished during 1946 and (judging by pertinent evidence) even increased its hold upon card players. Sales of playing cards designed for bridge use were even greater than in 1945, when they had reached a higher point than ever before. The same was true of sales of bridge instruction books.

Attendance at bridge tournaments, in which the more serious players compete, increased above 1945 or any previous year. In the U.S. and Canada, championship tournaments are conducted by the American Contract Bridge League. More than 15,000 players competed in sectional and national championship contests, and nearly 200,000 players per week played in local and club tournaments.

The standard of skill among U.S. bridge players showed improvement at the rapid rate which had been discernible during the past decade. No new systems of bidding became popular, most players using the Culbertson system as in former years.

During the war *The Bridge World*, published in New York, had been the only magazine devoted to the game, but during 1946 magazines were published also in England, Belgium, The Netherlands, Denmark and Sweden. During the 1930s there were at least 13 such magazines, not counting a dozen or more periodicals issued for their members by bridge-players' associations.

The winners of the principal championship tournaments played in the U.S. were:

Masters' Individual Championship.—Won by Robert McPherran, New York, N.Y.; second, Morrie Elis, New York, N.Y.; third, Ambrose Casner, New York, N.Y.

Masters' Pair Championship.—Won by Charles J. Solomon and Sidney Silodor, Philadelphia, Pa.

Masters' Team-of-four Championship.—Won by William Christian, Montgomery, Ala.; Capt. Mark Hodges, Dallas, Tex.; Mrs. Wilkinson Wagar, Atlanta, Ga.; Sol Mogal, New York, N.Y.

Open Team-of-four Championship.—Won by Howard Schenken, George Rapee and Samuel M. Stayman, New York, N.Y.; Oswald Jacoby, Dallas, Tex.; John Crawford, Philadelphia, Pa. The winners of this tournament receive also the Harold S. Vanderbilt cup.

Open Pair Championship.—Won by B. Jay Becker, New York, N.Y., and Sidney Silodor, Philadelphia, Pa.

Open Team-of-four Championship.—Won by Mrs. Erwin Seligman and

Alvin Roth, New York, N.Y.; John Crawford, Philadelphia, Pa., and A. Mitchell Barnes, Atlanta, Ga.

Men's Pair Championship.—Won by Waldemar von Zedtwitz, New York, N.Y., and A. Mitchell Barnes, Atlanta, Ga.

Women's Pair Championship.—Won by Mrs. Ralph C. Young, Philadelphia, Pa. and Mrs. Erwin Seligman, New York, N.Y.

Men's Team-of-four Championship.—Won by Arthur Glatt, Jules Bank, Albert Weiss, William McGhee and Maynard D. Adams, Chicago, Ill.

Women's Team-of-four Championship.—Won by Mrs. Helen Sobel, New York, N.Y.; Mrs. Ralph C. Young, Philadelphia, Pa.; Mrs. Emily Folline, Richmond, Va.; Mrs. Wilkinson Wagar, Atlanta, Ga.

The William E. McKenney trophy for the best tournament record of the year was won by Sidney Silodor of Philadelphia, Pa. (E. CUL.)

Great Britain and Europe.—Dormant throughout the war years, tournament bridge was more popular in Great Britain in 1946 than ever before. There was a record number of congresses (tournaments), eight having been held, and newspapers, despite the acute shortage of newsprint, gave space to reports of tournaments, weekly articles and problems. These appeared in *The Times*, the *London Star*, the *Daily Mail* and most of the more important provincial papers.

A new monthly bridge magazine, *Contract Bridge Journal*, came into being in September; it is the official organ of the English Bridge union.

Tournament bridge is governed by the British Bridge league, to which are affiliated the five self-governing unions: England, Scotland, Wales, Ireland and Northern Ireland.

The International Bridge league was re-established with a view to resumption of international contests in 1947. None had been held after 1937, when 11 countries competed. Unofficial team matches were played in Brussels between an English team and the champion team of the Belgium league (the English winning by a narrow margin), and in England between an English team and a Czech team three of whose members had tasted the horrors of a German concentration camp during the war.

The international championship in which England, Scotland, Wales, Ireland and Northern Ireland play 100 boards each against the others was won by England with three wins; Northern Ireland was second.

Capt. Ewart Kempson led the English team in its three victories.

The annual contest between North and South (of England) was won by the South team of Col. G. G. J. Walshe, M. Harrison Gray, S. J. Simon, J. Marx and N. Furse. Each team had won five times in this series, founded in 1932.

The Gold cup contest was won by Leo Baron's team, consisting of Baron, N. Squire, N. Goldinger, P. Juan, B. Shapiro and H. Leist.

The most popular bidding systems were Acol and the Two Club variation of the Culbertson system. The standard of play was no higher than it was before the war. (E. KN.)

Contract Terminations. Early in World War II, changes in terrain and tactics and the invention of new matériel necessitated the termination of war contracts for the government's convenience. Moreover, the cessation of hostilities in 1945 brought the termination of a vast majority of war contracts then outstanding. The far-reaching extent of the termination settlement program which resulted is made apparent from the fact that by Nov. 30, 1946, in the U.S. 319,000 contracts, involving cancelled commitments of \$65,400,000,000 which the government had entered into for war production purposes, had been terminated. At that date, 315,000 (99%) of these contracts, with cancelled commitments of \$60,300,000,000 (92%), had been settled for gross allowances of \$6,200,000,000.

Robert H. Hinckley, a vice-president of the Sperry Corp. and former assistant secretary of commerce for air, was appointed director of Office of Contract Settlement and assumed

his duties on July 28, 1944. On his retirement in the early part of 1946, Col. H. Chapman Rose, deputy director, became director. On Oct. 1, 1946, Roger L. Putnam, wartime deputy director of the OCS, assumed the duties of director. Executive order 9809 issued Dec. 12, 1946, transferred the functions of the OCS to the treasury department, and the functions of the director to the secretary of the treasury.

Prior to 1946, the OCS issued 20 regulations dealing with such matters as interim financing, plant clearance, pretermination agreements, standard settlement proposal forms, retention of records, accounting practices and other subjects. The issuance of these regulations facilitated the prompt settlement of terminated war contracts. During 1946, the OCS made three amendments to these regulations. Two of the changes dealt with the rules of practice and procedure for the appeal board of the OCS. The other amendment dealt with the termination cost memorandum on settlement expenses.

Reconversion of industry from war to peace was not hampered either by lack of adequate financing on terminated contracts or by failure of the government to clear contractors' plants. Partial payments, guaranteed loans and utilization of advance payments proved more than adequate to finance industry in transition. Partial payments were the most usual financing obtained by terminated war contractors. By Nov. 1946 more than \$3,000,000,000 had been paid out by the government in this type of financing. Plant clearance, both of termination inventories and of government-owned equipment, proceeded smoothly throughout the year. In only a small percentage of cases did government agencies require more than 50 days to clear plants. By Nov. 30, 1946, completed clearances were brought to \$7,000,000,000 or 95% of the total job.

The work growing out of the government's contract terminations and settlement during World War II was expected to be carried to completion in 1947. (R. L. PM.)

Controlled Materials Plan: see PRIORITIES AND ALLOCATIONS.

Co-operative Movement. The first postwar world congress of co-operatives called in Zurich, Switzerland, in Oct. 1946 provided the first opportunity for co-operatives to appraise the results of World War II and to map out world-wide policy for co-operative expansion.

The International Co-operative alliance, a permanent consultant of the United Nations Economic and Social council, reported a membership of 85,000,000 families in 37 countries and debated basic policy in regard to freedom of trade among the nations and on the relation of the co-operatives to the ever-growing power of the state. The congress reaffirmed its support of free trade and set forth a clear path of co-operation with state agencies but calling for complete independence of state domination.

The International Co-operative Trading agency, created in 1937, took steps to expand its operations and to facilitate the growing trade among the co-operatives of the world.

Most dramatic accomplishment of the co-operatives in Zurich was the creation of an International Co-operative Petroleum association. The I.C.P.A. was to push into the international field a growing branch of the consumer co-operative movement which had already become an important factor in the U.S. petroleum industry. The U.S. co-operatives, which in 1946 operated 10 oil refineries, 700 oil wells and 1,600 mi. of pipe lines, were expected to act as source of supply for the world oil co-operative. It was expected that the I.C.P.A. would eventually develop new petroleum sources and operate its own tankers and other facilities of international commerce. Already

in 1946 co-operative oil from consumer co-operatives in the U.S. had been shipped to co-operatives in Sweden, France, the Netherlands, South Africa, Australia and other countries.

In the European countries 1946 was a year of reconstruction. Many co-operatives had been destroyed during World War II. In some countries the nazis had taken over the co-operatives and used them for their own purposes. Co-operative leaders had been killed or thrown into concentration camps. Immediately at the close of the war steps were taken to reconstitute the co-operatives and to rebuild those which had been destroyed. In France, for example, 2,000 of the 10,000 shops owned by the co-operatives had been destroyed.

Tariff barriers, monetary control, controls over imports and exports and shortage of international exchange credits all hampered the normal regrowth of the co-operatives.

British co-operatives continued to grow. Membership passed the 9,000,000 mark. New hotels, department stores and other business enterprises were purchased and co-operative production facilities were converted to peacetime production after having played an important role in war production.

In Sweden aggressive programs of education, expansion of retail facilities, new housing projects and so forth went forward rapidly. Production facilities owned by consumer co-operatives included food and clothing production plants, lamp factories, pottery factories, cash register factories, paper mills, staple fibre production and 30 other types of industries.

U.S. co-operatives, once looked upon as the baby of the co-operative family, took their place in international co-operative trade and in world co-operative policy formation. Domestically three new national organizations were formed: the National Co-operative-Mutual Housing association; the Co-operative Health Federation of America and the North American Student Co-operative league. National Co-operatives, Inc., added publicity and education departments to its commodity business operations. The 30-year-old Co-operative League of the U.S.A. became an over-all federation of co-operative commodity organizations, housing, health, insurance, credit, utility, banking, recreation and other service co-operatives.

The consumer co-operatives by 1946 had become a \$1,000,000,000 business; credit union membership reached 3,500,000; rural electric co-operatives served 1,250,000 member families; 2,500,000 were members of commodity co-operatives—handling foodstuffs, petroleum products, farm supplies and other goods.

A survey at the close of the year indicated that co-operatives affiliated with National Co-operatives were operating 179 mills, factories, refineries and other production facilities. (W. J. CL.)

Coordinator of Inter-American Affairs: see INTER-AMERICAN AFFAIRS, THE INSTITUTE OF.

Copper. World production data for copper for the major countries during World War II was nearly complete at the close of 1946, and while there were still a number of minor countries missing, it was possible to form a good picture of the world industry, as the major countries listed account for 80%-90% of the total.

Of the countries listed only Mexico made an increase in output in 1945; the world total declined 15%, with the United States responsible for nearly half of the drop.

United States.—Mine production of copper declined consistently in the United States throughout 1945, from 70,114 tons in January to 58,174 tons in December, with the total for the year at 772,894 tons, a drop of 20% from the 1944 total. To maintain the supply, secondary recovery and imports were increased and exports were decreased, but even then metal was not too plentiful.

Table I.—World Production of Copper, 1939-45

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Belgian Congo	135.2	164.0	178.8	182.9	173.0	182.4	176.6
Canada	304.1	327.8	321.7	301.8	287.6	273.5	238.1
Chile	373.8	388.0	513.1	539.2	561.5	549.2	518.2
Mexico	48.8	41.4	53.7	56.7	54.9	45.4	67.9
Peru	39.2	48.5	40.6	38.9	38.8	35.6	31.7
No. Rhodesia	237.0	293.9	270.7	280.7	281.0	247.2	215.5
U.S.S.R.	143.8	173	?	176	?	?	?
United States	728.3	878.1	958.1	1,080.1	1,090.8	972.5	772.9
Total	2,415	2,640	2,860	2,970	3,090	2,860	2,420

Table II.—Data of Copper Industry in the U.S., 1940-45

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945
Mine output	878.1	958.1	1,080.1	1,090.8	972.5	772.9
Smelter output	909.1	966.1	1,088.0	1,092.9	1,003.4	782.7
Refinery output	1,313.6	1,395.3	1,414.6	1,379.3	1,221.2	1,108.6
Domestic ore	927.2	975.4	1,064.8	1,082.1	973.9	775.7
Foreign ore	386.3	419.9	349.8	297.2	247.3	332.9
Secondary recovery	532.0	726.4	927.8	1,086.0	950.9	1,006.5
From old scrap	333.9	412.7	427.1	427.5	456.7	559.8
From new scrap	198.2	313.7	500.6	658.5	494.2	446.7
Imports	491.3	735.5	764.4	716.7	785.4	853.2
Exports	427.7	158.9	210.5	294.5	237.5	139.6
Available for use*	1,711.1	2,384.6	2,395.6	2,229.0	2,225.8	2,382.0

*Available for use includes total refinery output, secondary from old scrap, and imports less exports; secondary from new scrap is only a turn-over of metal in process and does not add to the supply available for use.

Table III.—Mine Production of Copper in U.S., 1939-45

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Arizona	262.1	281.2	326.3	393.4	403.2	358.3	287.2
California	4.2	6.4	3.9	1.1	8.8	12.7	6.5
Colorado	13.2	12.2	6.7	1.1	1.0	1.0	1.5
Idaho	2.5	3.3	3.6	3.4	2.3	1.7	1.5
Michigan	44.0	45.2	46.4	45.7	46.8	42.4	30.4
Missouri	—	0.7	1.4	1.3	1.3	3.3	3.4
Montana	97.8	126.4	128.0	141.2	134.5	118.2	88.5
Nevada	66.6	78.5	78.9	83.7	71.1	61.2	52.6
New Mexico	46.1	69.8	73.5	80.1	76.2	69.7	56.6
Utah	171.9	231.9	266.8	306.7	324.0	282.6	226.4
Washington	9.0	9.6	8.7	8.0	7.3	6.2	5.8
Others	10.8	13.5	13.7	14.4	14.4	15.2	12.5
Total	728.3	878.1	958.1	1,080.1	1,090.8	972.5	772.9

During the first half of 1946 the downward trend that had prevailed throughout 1945 was aggravated by strikes in the industry, and mine output reached a low of 31,962 tons in April, but improved in the succeeding months as the strikes were settled; however, it was not until September that production came back to the January level. The October output was 64,928 tons, and the total for the 10 months was 474,307 tons, indicating a total for the year which could be little if any over 600,000 tons.

Canada.—Copper production in 1945 was 238,142 tons, a drop of 13% from 1944. The decline continued into 1946, with 137,816 tons in the first three quarters, 27% under the same period in 1945.

Chile.—Though the 1945 output of 518,191 short tons was only 5% below that of 1944, the total for the first five months of 1946 was down to 176,400 tons, or 17% below the average rate for 1945.

Mexico.—In spite of the fact that Mexico was the only country with a significant output to show an increase in 1945, production declined so sharply, beginning in December, that the output during the first four months of 1946 was 30% below the average rate of 1945, and back practically to the 1944 level. (See also MINERAL AND METAL PRODUCTION AND PRICES; STRATEGIC MINERAL SUPPLIES.) (G. A. Ro.)

Copra: see COCONUTS.

Copyright. The two most significant developments of 1946 in the field of copyright were a renewed interest in international copyright and a great increase in the number of copyright registrations. The changes wrought by World War II made obvious the desirability of entering into closer copyright relations with the rest of the world than formerly seemed necessary. A number of commercial and other treaties dealing

with copyright were considered and one, that with China, was signed. In addition, representatives of all the republics of the Americas met in Washington on June 1-22, 1946, and drew up a Pan American Copyright convention to replace the Buenos Aires convention of 1910. The new convention differs in a number of important respects from the copyright law in force in the United States. It does not require that any notice of copyright be attached to the work or that registration be made in any copyright office. It gives the citizens of each contracting state the same rights in every other contracting state which that state grants its citizens and, in addition, certain rights created by the convention itself. As applied to the United States the most important right granted by the convention is the exclusive right to control all uses and reproductions of the work. If the convention should be ratified, a

Latin-American author, particularly a composer, would have a number of rights denied to a U.S. citizen. For example, he would be able to prevent, if he could, all public playing of his music, not merely that done for profit. He would be able to collect toll from juke-box operators and to license one record company to make recordings of his music, without thereby being obliged to permit every other company to do so upon payment of two cents a record. At the close of 1946 the convention had not yet been ratified by the United States senate.

Despite the continued paper shortage the number of works registered for copyright rose in fiscal 1946 to 202,144, a 13% increase over fiscal 1945, and the largest number ever filed. Of this total only 11,802 were bound books, a number appreciably less than the 1938 prewar figure of 14,422. Music registrations, which consisted for the most part of unpublished songs, continued the upsurge which carried them after 1936 from 31,821 to 63,367. Truly the radio is a great incentive to musical composition. The number of periodicals registered also greatly increased from 39,249 in 1938 to 48,289 in 1946. (S. B. Wr.)

Corn (MAIZE). An all-time record crop of corn was harvested in the United States in 1946 exceeding 1945 by 12% and the 10-year average by 30%. The average yield also made a new high record of 37.1 bu. per acre. The total crop was estimated at 3,287,927,000 bu. for 1946 compared with 2,880,935,000 bu. in 1945 and the 10-year average of 2,608,499,000 bu. 1935-44. The part of the crop harvested for grain, 91%, compared with 89% in 1945. Favourable weather for harvest assured high quality in almost all parts of the country, frost damage being small in contrast to 1945 when there was a large proportion of "soft" corn.

The total acreage in 1946 was 91,487,000 ac., slightly above the 91,202,000 ac. harvested in 1945 and below the average of 91,698,000 ac. 1935-44. Since the acreage was below the aver-



CORN DESTINED FOR SHIPMENT OVERSEAS being shoveled from a car at a grain elevator in New Orleans, La., in 1946

age the big crop was due to the high record yield. This was attributed to favourable weather, hybrid seed and better culture. The increase in average yield in the corn belt states was startling. Iowa, the leading corn state, had an average yield of 60 bu. per acre compared with a 10-year average of 47 bu.; Illinois, 57 bu. compared with 45 bu.; Indiana 51 bu. compared with 42.2 and Ohio 48.5 bu. compared with a 44.4 bu. average. More than 80% of the seed used in the belt was of hybrid varieties, especially suited to the localities.

The large corn crop was used in feeding hogs and other meat animals to heavy weights. By Oct. 1 stocks of the 1945 crop were reduced to only 158,300,000 bu., the lowest on that date from 1937, and only about half the 10-year average of 320,000,000 bu. When the new crop was added to the stocks the total supply was above the previous record. The rate of use of corn in the fall of 1946 was at a high level.

U.S. Corn Production by States, 1946 and 1945

State	1946 bu.	1945 bu.	State	1946 bu.	1945 bu.
Iowa . . .	661,620,000	476,417,000	North Dakota . . .	25,542,000	25,725,000
Illinois . . .	514,368,000	378,045,000	Maryland . . .	17,328,000	17,057,000
Minnesota . . .	239,888,000	216,299,000	Louisiana . . .	15,000,000	20,962,000
Indiana . . .	231,489,000	231,292,000	Colorado . . .	14,343,000	16,884,000
Nebraska . . .	231,362,000	241,880,000	West Virginia . . .	10,200,000	11,211,000
Ohio . . .	178,409,000	175,134,000	New Jersey . . .	8,505,000	8,322,000
Missouri . . .	171,976,000	104,571,000	Delaware . . .	4,536,000	4,200,000
South Dakota . . .	120,300,000	110,484,000	Montana . . .	2,520,000	2,295,000
Wisconsin . . .	111,980,000	107,160,000	Vermont . . .	2,320,000	2,331,000
Kentucky . . .	81,979,000	69,792,000	New Mexico . . .	2,256,000	2,100,000
Tennessee . . .	65,670,000	57,375,000	Connecticut . . .	2,200,000	2,150,000
Kansas . . .	63,231,000	68,563,000	California . . .	2,144,000	1,984,000
Pennsylvania . . .	59,340,000	59,421,000	Massachusetts . . .	1,634,000	1,677,000
North Carolina . . .	58,914,000	55,102,000	Oregon . . .	1,172,000	1,152,000
Texas . . .	55,012,000	54,496,000	Wyoming . . .	1,122,000	1,155,000
Michigan . . .	50,512,000	61,915,000	Idaho . . .	1,092,000	1,218,000
Georgia . . .	44,145,000	48,386,000	Washington . . .	884,000	1,040,000
Alabama . . .	42,005,000	48,081,000	Utah . . .	588,000	726,000
Mississippi . . .	36,465,000	48,580,000	New Hampshire . . .	533,000	492,000
Virginia . . .	36,368,000	39,270,000	Maine . . .	407,000	429,000
Arkansas . . .	30,912,000	28,623,000	Arizona . . .	352,000	352,000
South Carolina . . .	27,493,000	24,123,000	Rhode Island . . .	312,000	320,000
New York . . .	26,637,000	21,681,000	Nevada . . .	70,000	64,000
Oklahoma . . .	25,882,000	22,644,000			

The price of corn to producers in Jan. 1946 was at about the same level as a year earlier. Ceiling prices were fixed for corn in Jan. 1943 until the lapse of price control in June 1946. Corn was not recontrolled in August of that year. The farm price began to advance in the spring and had reached \$1.42 per bu. by June 15, 1946. In July the price rose to \$1.96 and then turned slowly downward to \$1.22 in December. The strong demand for meat-producing feeds maintained a strong market through the fall months. Never before had such record prices and such a high volume of production come at the same time. (See also VEGETABLES.) (J. C. Ms.)

Cornell University. An institution of higher learning, nonsectarian and co-educational, at Ithaca, N.Y., founded in 1865 and incorporated as a land-grant college under the Morrill act of 1862. The university comprises the endowed schools and colleges of arts and sciences, engineering, architecture, law, medicine and nursing, and the state-supported colleges of agriculture, home economics and veterinary medicine. There are also schools of education, nutrition, business and public administration and industrial and labour relations. The divisions of medicine and nursing are in New York city and are operated in conjunction with the New York hospital. Two experiment stations, at Geneva and Farmingdale, N.Y., are operated in connection with the college of agriculture. Degrees for advanced study other than professional are awarded through a graduate school.

Significant developments in 1946 included the formal opening of the school of business and public administration, the graduate school of aeronautical engineering and the department of engineering physics. A new division of modern languages, supported by a grant of \$125,000 from the General Education board, was organized. The university received as a gift from the Curtiss-Wright corporation the Cornell Aeronautical laboratory at Buffalo, which would provide excellent facilities for advanced instruction and research in aeronautics. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (E. E. D.)

Cornhusking. While almost all other sports events in the U.S. were being revived during 1946 on a grandiose scale, the National Cornhusking championship continued as a casualty of World War II. No successful effort was made to revive the 19th annual tournament, and Floyd Wise of Prairie Center, Ill., winner of the 1941 tournament witnessed by an estimated 115,000, remained champion. (M. P. W.)

Corporation Income Tax: see TAXATION.

Corundum: see ABRASIVES.

Cosmetics: see SOAP, PERFUMERY AND COSMETICS.

Cosmic Rays: see PHYSICS.

Costa Rica. A Central American republic, located between Nicaragua and Panamá. Area, approximately 23,000 sq.mi.; pop. (official est. Dec. 31, 1944) 725,149. Of the population 80% is classified as white; about 3% are Negroes who live mainly on the Caribbean coast. The major portion of the population lives on the Meseta Central, or central plateau. The capital is San José (pop. in 1944, 77,182); other urban centres are Alajuela (10,170), Cartago (12,933), Heredia (10,578), Limón (10,033), Puntarenas (8,547). Language: Spanish. President in 1946: Teodoro Picado Michalski.

History.—During 1946 the popular-front administration of President Picado maintained its majority in congress and successfully weathered vigorous opposition from rightist groups. The congressional elections, held Feb. 10, gave 11 of the 23 seats

in question to the administration's National Republican party, 2 to its ally, the Popular Vanguard, and 10 to the coalition of opposition elements. The balloting took place peacefully, but violence beforehand and especially afterwards momentarily challenged the government's victory. A "court of honour," appointed at the insistence of the opposition, found the returns valid. In an attempt to nullify the results, both old and new deputies representing the opposition parties refused to convene with the new congress on May 1, but they eventually took their seats when a quorum materialized from the pro-administration members. Another blow to the opposition came in the loss of its leader, former president of the republic León Cortés Castro, who died of a heart attack in Santa Ana on March 3. The coalition leadership was assumed provisionally by Fernando Castro Cervantes, a wealthy land-owner.

The administration's ambitious program of social legislation was impeded throughout the year by shortages of materials, rising costs, inadequate revenues, and political disturbances. In May and June local armed risings, attributed by the government to the rightist coalition, occurred in San José and Alajuela. They were quickly suppressed.

In May 1946 the social security board requested a \$2,000,000 loan from the United States to finance government construction of low-cost housing, and the ministry of finance earmarked 70% of all available foreign exchange for essential-commodity imports, but housing and consumer-goods shortages prevailed throughout the year. In September a 6% bond issue of \$2,500,000 was launched to maintain credit facilities, pay off the floating debt, and increase the amount of money in circulation. The cost of living index (100 in 1936) had risen to 205 by October of 1946.

In foreign affairs, Costa Rica remained aloof from meetings in Salvador in January and September which looked forward to reviving the old Central American union. In November the congress recommended to the United Nations a rupture of relations with the Franco government of Spain.

Education.—There were 786 primary schools in 1944 with 76,727 students; approximately 50 intermediate schools had more than 7,000 students; and a national university enrolled more than 800. The literacy rate, approximately 85%, is the highest in Central America. In 1946 the government raised the teacher salary scale 35% and increased education appropriations for 1947 by more than 3,000,000 colones.

Finance.—The monetary unit is the colón, valued on Oct. 31, 1946, at 16.81 cents U.S. The 1945 budget (expenditures: 64,691,943 colones) was carried over through June for 1946, and expenditures provided for the last half of the year were 39,000,000 colones. On Sept. 30 money in circulation amounted to 146,700,000 colones. Gold and foreign exchange reserves on April 30 totalled \$6,054,734 (U.S.).

Trade and Communication.—Exports in 1945 rose 10.3% to \$11,611,700 while imports increased 25.1% to \$26,900,000. The United States took 87% of the exports and supplied 70% of the imports. Coffee (64.5%) was the chief export, followed by bananas (19.2%) and abacá fibre (2.4%). There were about 450 mi. of railroad and 771 mi. of improved highways in 1941. On Jan. 1, 1945, there were 2,494 passenger automobiles, 1,310 trucks, and 437 buses registered. A national merchant fleet was established in 1946 to augment the maritime service.

Agriculture.—Coffee is the main commercial crop; estimated production for the 1946-47 crop year was 10,850,000 kg. (15,979,020 kg. in 1945-46). Banana exports increased about 600,000 stems in 1945 to 2,800,000, and almost equalled that total during the first five months of 1946. Abacá fibre production for 1946 was estimated at 1,134,000 lbs., and cocoa was expected to surpass previous production (9,220,795 lbs. exported in 1944).

Hemp cultivation was increased by 15,000 ac. during the year.

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Cost of Living: see BUSINESS REVIEW; PRICE ADMINISTRATION, OFFICE OF; PRICES.

Cotton. **Cotton Manufacture.**—Although cotton continued to be the dominant raw material for the world production of textiles, the threats to its leadership assumed new significance as a more normal supply-demand relationship asserted itself in the postwar period. The sharp break which occurred in the fall of 1946 in the inflated price levels of the fibre was a sharp omen.

Cotton manufacturers, in their association meetings, continued to discuss the prospects for "survival" of cotton in its fight against the synthetics, and of the United States cotton goods producing industry, in competition with countries where wages and other costs were on a lower basis.

Experiments in 100% mechanized cotton farming resulted in production of the staple at costs as low as eight cents per pound, and represented an important counteroffensive on the part of this age-old fibre.

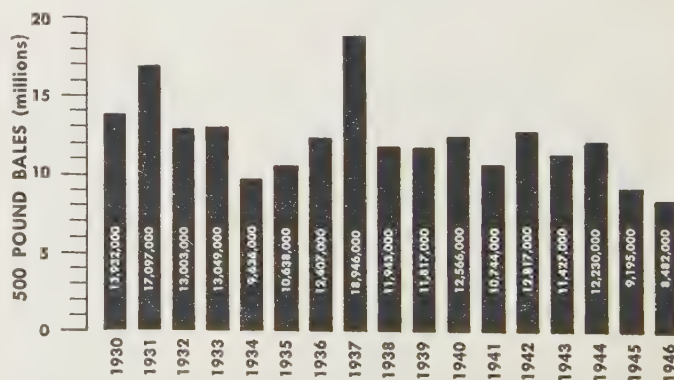
Statistically, the position of the United States cotton industry was strong in 1946. Output was approximately 5% higher than in 1945, and continued the record high level which started with the beginning of the defense program before the United States entered World War II.

Cotton manufacturers were not disposed to peg their future on the use of cotton as their sole material, nor on the blind adherence to standard manufacturing processes.

Internationally, the prospect of a prolonged world cotton-goods famine was curtailed by the results of surveys showing that a smaller per cent of textile equipment was destroyed during the war than had been generally anticipated. (See also LINEN AND FLAX; RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY; WOOL.) (D. G. Wo.)

United States Production.—The 1946 cotton crop of the United States was the smallest after 1895 except for the disastrous boll-weevil year, 1921. The December estimate by the United States department of agriculture put the 1946 crop at 8,482,000 bales (500 lb. each) compared with 9,015,000 bales in 1945 and a ten-year average of 12,553,000 bales, 1935-44. This crop was about 500,000 bales less than 1945 and 4,100,000 bales less than the average. And this small crop was produced in a period when the price of cotton was at a high level, and the carry-over was large.

The acreage of cotton in 1946 was 17,639,000 ac., slightly



COTTON CROP in the United States. The figure for 1946 is the department of agriculture's estimate of Dec. 1

above the 17,059,000 ac. harvested in 1945, which was the smallest cotton area after 1885. A larger area might have been grown in 1946 had the weather not been unfavourable at planting time. The United States department of agriculture had suggested 20,000,000 ac. as the goal for 1946. For 1947 the goal was put at 23,000,000 ac. A few states had better crops than in 1945, notably Arkansas, North and South Carolina, Tennessee and California, but the decline in Mississippi and Texas brought down the total. The average yield was estimated at 229.2 lb. per acre, was 21.8 lb. below the 251 lb. yield of 1945 and far below the all-time record of 293.5 lb. in 1944. The ten-year average yield (1935-44) was 243.2 lb. per acre. Better than average yields were reported for Arkansas, California and the Carolinas, while Texas and Mississippi had smaller than average yields. The fall weather was favourable for harvesting and by Nov. 1 69% of the crop had been ginned, which was about up to the average. The output of cottonseed was at about the average ration to lint and was about 5.5% below 1945 and 34% below average, estimated at 3,455,000 tons. The crop of American-Egyptian cotton was estimated at only 2,000 bales, compared with 4,100 bales in 1945 and an average of 33,600 bales for 1935-44. This crop is grown almost entirely in Virginia, New Mexico and Texas.

The total amount of commercial fertilizers used on cotton increased to 1,479,000 tons in 1946, being applied to 8,776,000 ac. at the average rate of 337 lb. per ac. All cotton states used fertilizers with the heaviest application being in North Carolina at the rate of 530 lb. per ac.; South Carolina 510 lb.; Alabama 425 lb. and Georgia 400 lb. In Oklahoma only 120 lb. and in Arkansas 190 lb. was used.

Cotton growing promised to undergo marked changes as a result of the introduction of new machines and seed varieties. The cotton-picker was being rapidly perfected, the flame-thrower weed eradicator was tried with considerable success and other power machines were tested for the first time. Several new cotton types resulting from plant breeding experiments gave promise of yielding a fibre of greater quality, strength and spinning ability than anything raised in the past.

The price of cotton to producers which had advanced slowly through 1945 from a stable level of around 20 cents per pound since 1942, jumped in July to over 30 cents per pound and then advanced rapidly to an average of 37.69 cents in October. From this peak of prices a decline of about 10 cents followed quickly to about 29 cents through November and 29.98 cents in December. The highest price reached was the highest after 1920 and only about 5 cents below the highest point during World War I. The sudden decline in cotton created great excitement in the trade and caused the markets to close three times in two weeks. The break in the market was attributed to speculation by many small operators in the cotton belt as well as to the operations of some large scale dealers in the central markets. The price was very high in relation to competing fibres, about 18 cents above rayon, 13 cents above parity and 15 cents above the government loan level. The secretary of agriculture conducted an investigation into the causes of the decline.

This advance following the end of World War II was in contrast to the sharp drop in prices that followed the end of World War I. The principal causes of the sharp rise in 1946 was the high rate of domestic consumption, the two small crops of 1945 and 1946, the increase in exports and the general advance of all prices. The average prices to farmers through the year brought the total value of the crop above the prewar level, even with the very low production.

Foreign trade in U.S. cotton was about 50% of the world's total in 1939 and then dropped to 27% in 1940-44 increasing to 41% in 1945. In bales this change represented a decline from

6,500,000 bales exported in 1939 to a 1,376,000 bales average during the war years and a return to 3,678,000 bales in 1945 and about the same in 1946. The United States had regained about half of its foreign markets by the end of 1946.

U. S. Cotton Production by States, 1946 and 1945

(In 500-lb. bales)					
State	1946*	1945	State	1946*	1945
Texas	1,650,000	1,794,000	Missouri	305,000	180,000
Arkansas . . .	1,240,000	1,042,000	Oklahoma	260,000	285,000
Mississippi . .	1,040,000	1,560,000	Louisiana	250,000	387,000
Alabama	800,000	931,000	New Mexico . . .	145,000	106,000
South Carolina .	695,000	664,000	Arizona	143,000	117,000
Georgia	555,000	669,000	Virginia	16,000	16,000
Tennessee . . .	510,000	466,000	Florida	5,000	8,000
California . . .	435,000	353,000	All Others	13,000	9,000
North Carolina .	420,000	428,000			

*December estimate.

World Cotton Production.—Estimates of the world's cotton crop of 1946 were about 21,000,000 bales compared with 19,228,000 bales in 1945 and an average of 29,600,000 bales in 1935-39. The reduction in the United States crop was a large factor in lowering the world's total. Preliminary estimates placed the world supplies of cotton at 42,000,000 bales in Sept. 1946 which was about 5,000,000 bales below the prewar average and 2,300,000 bales less than a year earlier. World consumption was put at about 27,000,000 bales, compared with 23,200,000 bales in 1945. This would mean a reduction of about 6,000,000 bales in the carryover on Aug. 1, 1947, to almost 15,000,000 bales.

The cotton crop was reduced in India and Egypt in 1944 and 1945 to grow more food crops and increased production in 1946 only slightly. Brazil increased cotton acreage in 1945-46 and expected a crop of over 2,000,000 bales. Plantings for 1946-47 were expected to reach the wartime peak of 6,200,000 ac. grown in 1943-44. Egypt was expecting a crop of about 1,250,000 bales in 1946-47 compared with 1,100,000 bales a year earlier. India, which is usually the biggest exporter next to the United States, exported only 820,000 bales in 1945-46 which was only 37% of the 1939 volume. Production was less than consumption during the past two years which resulted in government embargoes on exports of the better grades in 1946.

Foreign countries were returning to cotton production as rapidly as the food supply became more normal due to the high price. While consumption was also increasing there was a large area of suitable land and plenty of labour in India, Egypt, China and other countries to expand the crop. The high price was expected to stimulate production in foreign countries more than in the United States, since large consuming countries such as Great Britain were likely to reduce purchases of United States cotton in favour of cheaper cotton of other countries.

The International Cotton Advisory committee continued its studies of proposals for a world cotton agreement to handle surpluses, share the world's export trade, stabilize international prices, to foster economical production and expand cotton consumption. All of the important cotton producing countries participated except the soviet union which was represented only by observers.

FILMS.—*Cotton* (Encyclopædia Britannica Films Inc.) (J. C. Ms.)

Cottonseed Oil: see VEGETABLE OILS AND ANIMAL FATS.

Council of Foreign Ministers. The Council of Foreign Ministers was created by a decision of the Big Three conference at Potsdam (July 1945), which empowered it to begin its work by preparing draft treaties of peace with Italy, Rumania, Bulgaria, Hungary and Finland and also to settle any outstanding territorial questions in Europe. France and China, invited to join in establishing the council, gave their consent. According to the



THE BIG FOUR OF 1946 are shown leaving the Foreign Ministry in Paris, July 1, 1946, after having agreed on a date for the peace conference. Left to right are soviet Foreign Minister Vyacheslav Molotov, French President and Foreign Minister Georges Bidault, U.S. Secretary of State James F. Byrnes and British Foreign Minister Ernest Bevin

Potsdam arrangements each of the five treaties was to be drafted by those governments which had signed the relevant armistice, with France, for this purpose, considered as one of the signatories to the Italian armistice. This meant that the Italian treaty would be drafted by four powers, those with Rumania, Bulgaria and Hungary by three, and the Finnish treaty by the soviet union and the United Kingdom. The council was instructed to meet in London on Sept. 1; after an initial review of the treaty problems the ministers would leave their deputies to continue the drafting of the treaties.

The Potsdam conference had also taken up a number of issues which later played an important part in the negotiation of the treaties. The soviet delegation had expressed an unmistakable interest in the future assignment of trusteeships over the Italian colonies; its claim to Italian reparation had led to a lengthy discussion of Italy's capacity to pay. Certain concessions were promised, to meet U.S. and British complaints against soviet control of Rumania, Bulgaria and Hungary, against the exclusion of correspondents from soviet-dominated areas, and against the seizure of British and U.S. property in soviet-occupied areas for reparation purposes. There was also a pointed exchange of views on the question of restoring freedom of commercial navigation on the Danube.

At the first meeting of the council, on Sept. 11—a postponement had been necessary because of the Japanese surrender—it was agreed that the French and Chinese representatives would participate in all discussions while decisions on the draft treaties would be taken on the basis of the "four-three-two" formula. Draft treaties or draft directives were presented by the delegations principally concerned, and the other Allied governments were invited to express their views in writing on the making of the treaties.

During approximately ten days the main problems relating to the Italian, Rumanian and Bulgarian treaties were reviewed. Vyacheslav Molotov proposed a soviet trusteeship for Tripolitania, while Georges Bidault urged that the former colonies of Italy be placed under Italian trusteeship. James F. Byrnes advanced a program for establishing international trusteeships under control of the trusteeship council of the United Nations, with early independence for Libya and Eritrea as the goal. After pressing British and Senussi claims briefly, Ernest Bevin rallied to the U.S. proposal, reserving his opinion concerning the period which would be required to equip these peoples for independence.

In the review of Italian territorial problems the French delegation presented a general statement of its claim to frontier modifications. This problem, together with the question of possible minor rectifications in the Italo-Austrian frontier, was referred to the deputies. Views concerning the future boundary between Yugoslavia and Italy were presented by the two governments, as well as by Australia, New Zealand and the Union of South Africa. Within the council the U.S. delegation urged that the Wilson line of 1919, corrected in Yugoslavia's favour in accordance with ethnic considerations, be taken as a basis for study, while Molotov supported the full Yugoslav claim to most of Venezia Giulia, including Trieste and Gorizia, and to part of Udine province. On Sept. 19 the council adopted a U.S. draft directive instructing the deputies, after arranging for an investigation to be made on the spot, to "report on a line which will in the main be the ethnic line leaving a minimum under alien rule."

In the consideration of the satellite treaties the soviet delegation showed great unwillingness to discuss any modification in the pre-1940 Rumanian-Hungarian frontier. The soviet and U.S. representatives fore-

saw no necessity for a change in the Bulgarian-Greek frontier, while the British and U.S. delegations wished to give a hearing to Greek claims. Molotov maintained that it would be an infringement of sovereignty to obligate Rumania, Bulgaria and Hungary to apply the principles of equality and nondiscrimination to the navigation of the Danube. The governments which had been established in Rumania and Bulgaria were defended by the soviet representative, while U.S. and British insistence on the fulfilment of the Yalta agreements implied a doubt as to whether those two Balkan regimes were qualified to represent their peoples in the making of peace. Hungary, where elections had been held in conformity with the Yalta Declaration on Liberated Europe, received U.S. recognition during the course of the London session.

Other questions not directly concerned with treaty-drafting were considered. The soviet delegation interjected complaints and allegations of the Polish government concerning repatriation of Polish troops and the transfer of property of the former Polish government-in-exile. Molotov also attacked the U.S. and British refusal to compel the transfer to soviet territory of persons who had been domiciled before the war in territory annexed in 1939-40 to the soviet union. The French delegation pressed for a discussion of the future of the Rhineland and Ruhr, but finally agreed to take up this question with each government separately. When the soviet delegation raised pointed queries about the control of Japan, the U.S. delegation, not having brought far eastern experts to London, asked to have the consideration of this question continued through diplomatic channels. After a discussion of the presence of Allied troops in Iran, in which Secretary Byrnes announced an early date for the withdrawal of the remaining U.S. troops, the British and soviet foreign ministers informed the council of an exchange of letters by which their governments agreed to withdraw all their forces by March 2, 1946.

After about ten days of discussions Molotov unexpectedly reopened the question of the council's procedure. He now maintained that the decision of Sept. 11 constituted a "violation of the Potsdam decisions" and an "attack on Allied unity" and insisted that both the discussions and the decisions on each treaty must be conducted on the "four-three-two" formula; in other words, China must withdraw from all further discussion of the five treaties and France could participate only in discussions of the Italian treaty. Since the original decision to invite France and China to join the council had been in large measure due to U.S. support, this new demand represented a rebuff to the U.S. position. However, after lengthy debate and in order to advance the drafting of the treaties, Byrnes offered to accept the new soviet interpretation, provided the council would at the same time define more fully the membership and functions of the future peace conference. Molotov continued to insist that his own proposal be adopted before he would even consider the U.S. proposal. Finally, when the soviet minister further insisted that all day-to-day records of the council made since Sept. 11, be rewritten in order to delete all references to the "illegal" participation of France and China in its meetings, the London session adjourned on Oct. 2 without agreeing on a protocol of its decisions or issuing a communiqué.

The Potsdam conference had provided for the continuance of the periodic meetings of the three foreign ministers, in addition to the meetings of the council. By Byrnes' initiative a meeting of the Big Three ministers was called at Moscow (Dec. 16-26, 1945), at which the U.S. combined proposal, rejected at London by the soviet delegation, was accepted in substance. Membership in the future conference was extended to "all members of the United Nations which actively waged war with substantial military forces against European enemy states," while the council of ministers was to operate under the soviet interpretation of the "four-three-two" formula. The reinterpreted arrangements were accepted by China, which reserved its right to participate in the drafting of the German and Japanese treaties, and by France,—by the latter after an exchange of letters between Bidault and Byrnes, in which the latter, acting for all three ministers, gave full assurances that the peace conference would be free to examine every aspect of the treaties and to make recommendations concerning them.

The deputies of the four foreign ministers now began their work at London on Jan. 18, 1946, taking as a basis the day-to-day record of

decisions of the previous September, as well as numerous proposals circulated by the participating delegations and memoranda presented by Allied and former axis states. Through their own work and that of expert committees the deputies conducted a detailed discussion of the treaty drafts. They succeeded in agreeing on a substantial number of provisions and in clarifying a wide range of issues. In particular the military, naval and air clauses were brought close to complete agreement. Since the soviet delegation was not empowered to diverge from the positions taken in September no major decisions could be reached. The deputies also appointed a commission for the investigation of the Yugoslav-Italian boundary, which, after a four weeks' study on the spot, presented to the council on April 29 a detailed report on the ethnic and economic factors involved, without, however, being able to recommend an agreed settlement.

From April 25 to May 16 the four ministers met again, in Paris. The whole range of issues was reargued, but only a few minor questions were settled. A special commission made an investigation of the Tenda-Briga area, the only important territory claimed by France from Italy, and a thoroughgoing relaxation of the Italian armistice was approved. The council agreed to leave the Rumanian-Hungarian frontier unchanged. When the soviet delegation raised numerous complaints about U.S. and British policy in Germany, Secretary Byrnes took a decisive step in U.S. policy by making public the United States offer to conclude a four-power treaty guaranteeing the disarmament and demilitarization of Germany for 25 years, later for 40 years; he also urged, without success, an immediate four-power investigation of the status of the military and industrial disarmament of Germany. The U.S. delegation met with a further rebuff in its attempt to persuade the soviet representative to agree on a date for beginning the negotiation of a settlement with Austria. The question of setting a new date for the peace conference, to replace the original date of May 1, was also hotly debated, the U.S. delegation pressing for it to be called for July 1 or 15.

After a recess the ministers resumed their labours on June 15. During the third session, which lasted until July 12, several conclusions were reached. Between June 20 and July 3 it was agreed to postpone the decision concerning the future status of the Italian colonies until the year following the coming into force of the treaty; if no decision were then reached, the matter would be referred to the general assembly of the United Nations. An impasse over the Yugoslav-Italian frontier was broken on July 3, when the "French line," which denied Gorizia, Trieste and northwestern Istria to Yugoslavia, was adopted, along with the decision to create an international "Free Territory of Trieste" under the protection of the security council. A commission appointed to work out the draft statute of Trieste in mid-August reported four divergent drafts to the peace conference.

In addition, the soviet delegation agreed on June 27 to the proposed modifications in the Franco-Italian boundary and to the transfer of the Dodecanese Islands to Greece, while on June 24 the council had adopted the soviet proposal to leave the Austro-Italian boundary unchanged. On July 4 the council assigned \$100,000,000 in Italian reparation to the soviet union; deliveries were to begin two years after the treaty came into force and the soviet union was to supply such raw materials required for reparation production as were normally imported by Italy. Numerous other questions, among them, freedom of commercial navigation on the Danube, compensation for damage to United Nations property in former axis countries, interpretation of the treaties, and others, were unresolved, but the council agreed on July 4 to convoke the conference for July 29. Several days were then spent in reaching agreement on the procedure of the conference (see PARIS PEACE CONFERENCE). With these issues disposed of, the council went on to discuss German and Austrian questions. On July 9-10 Molotov made important statements of soviet policy toward Germany, reviving the soviet demand for \$10,000,000,000 in reparation and opposing all suggestions of further territorial detachments, political decentralization or de-industrialization.

It was at first hoped that, as fast as the Paris conference (July 29-Oct. 15, 1946) presented its recommendations, the council of ministers could complete its work on the final drafts of the treaties, but this schedule could not be met. On Oct. 14 the four ministers agreed to hold a fourth session, beginning Nov. 4, at New York, where the twice-postponed general assembly of the United Nations was about to open.

As the council again reviewed the numerous unsettled issues, it was recognized that the conference's recommendations had no binding force. Indeed, one additional question was injected on Nov. 12, when Bevin urged minor revisions of the Bulgarian frontier in favour of Greece. Prospects for a settlement improved in the third week of the session, when important progress was made toward agreement on the Trieste statute. After an interview, on Nov. 25, between Molotov and Secretary Byrnes, the work of reaching final compromises was further speeded.

In this last period of work the council agreed on a statute for Trieste which set forth explicitly the responsibilities of the governor, as the representative of the Security council, for the enforcement of the statute, the protection of the citizens and the maintenance of order and security. The governor could suspend administrative acts which ran counter to his own responsibilities, and he was empowered to determine whether conditions were suitable for the withdrawal of the British, U.S. and Yugoslav troops. The council also approved a draft convention of the Free Port of Trieste which recognized the international importance of the port and guaranteed rights of free access to it by the countries of central Europe. It provided for joint Italian-Triestino-Yugoslav control of the railroads of the Free Territory.

In a final compromise on Italian reparation the council agreed on an allotment of \$5,000,000 to Albania and an increase of \$25,000,000 in the allotment to Yugoslavia. Italy's reparation obligations thus totalled \$360,000,000: \$125,000,000 to Yugoslavia, \$105,000,000 to Greece, \$100,000,000 to the soviet union, \$25,000,000 to Ethiopia and \$5,000,000 to Albania. From Italian and Bulgarian reparation combined Greece and Yugoslavia were to receive \$150,000,000 each, with Bulgaria furnishing \$25,000,000 to Yugoslavia and \$45,000,000 to Greece. The long dispute over compensation for damage to United Nations property in former axis countries was settled by providing for two-thirds' compensation, instead of the 25% favoured by the U.S. and soviet delegations or the 75%

urged by the British and French representatives.

The council also agreed on procedures for settling any disputes over the interpretation of the treaty with Italy. The conference had recommended that such disputes be referred to mixed arbitral tribunals, composed of two national members and a third member to be appointed by agreement between the disputing governments or by the president of the International Court of Justice, whereas the soviet delegation had felt that appointment of an outside umpire would be an "infringement of national sovereignty." For the Italian treaty it was agreed that ultimate recourse could be had by either party to an umpire appointed by the secretary general of the United Nations. The council also adopted the conference's recommendation that any state which failed to ratify the Italian treaty should not be allowed to claim any benefits under it; this was a safeguard against Yugoslavia's threatened refusal to accept the treaty.

Another major compromise was reached in the question of the Danube. Rumania, Bulgaria and Hungary were now obligated to observe the principle of free and nondiscriminatory international navigation, and on Dec. 12 the council issued a declaration announcing its intention of calling a conference on Danubian navigation, attended by the four powers and the riparian states, to meet six months after the coming into force of the Danubian treaties.

In concluding the first phase of its work the council set Paris and Feb. 10, 1947, as the place and date for signature of the treaties, and transmitted to the Security council the Trieste statute and Free Port convention, asking the Security council to accept the responsibilities outlined for it in the Statute. It also sent a special commission to study the financial problems of the Free Territory, and agreed to appoint a special commission to study on the spot the question of the future status of the former Italian colonies. It was agreed that the council would meet again on March 10, 1947, at Moscow, to begin negotiations on the German and Austrian settlements; meanwhile, deputies for German and Austrian questions were to begin their sessions in London on Jan. 14. (P. E. M.)

Countries of the World, Areas and Populations of the: see AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

Courts, Civil: see LAW.

Courts, Military: see LAW.

Cowles, Gardner (1861-1946), U.S. publisher, was born on Feb. 28 at Oskaloosa, Ia. After studying at the University of Pennsylvania, and Grinnell and Iowa Wesleyan colleges he went into the investment banking business. In 1903, at the behest of a friend, he bought a majority interest in the *Upper Des Moines*, a newspaper. This action launched him into the newspaper business. A few years later he purchased the *Des Moines Tribune*, and in 1924 he bought the *Des Moines News* from the Scripps-Howard syndicate. Later his sons, Gardner, Jr., and John, also entered the publishing business. Gardner, Jr., became president of the Register and Tribune Co., *Look* magazine and the Iowa Broadcasting company, and John became president of the Minneapolis Star-Journal and Tribune Co. Mr. Cowles was a member of the Iowa house of representatives for two terms (1899-1903) and was a delegate to the Republican National convention in 1916. In 1932 he was named by President Hoover as director of the Reconstruction Finance corporation. He left this post in April 1933 to return to Des Moines. He died there on Feb. 28.

CPA: see CIVILIAN PRODUCTION ADMINISTRATION.

Cranberries: see FRUIT.

Credit, Consumer: see CONSUMER CREDIT.

Cricket. The 1946 season in England was one of the most inclement within memory. Wherever the sun offered encouragement county grounds were thronged, and in many instances membership exceeded prewar figures, but a measure of the weather can be found in the fact that on only 11 days of their long tour did the Indian team play cricket without any interference from rain. Naturally the touring team provided the chief feature of the season; though they never really consolidated into a team, their fielding was enthusiastic and agile, and in Amarnath and Mankad they had a pair of bowlers who, at their best, could compare favourably with any in England. Merchant was a great batsman and Hazare played some long and brilliant innings, while the general strength of their batting

may be gauged from the fact that early in their tour their last two batsmen each made 100 at the Oval and broke the record for the last cricket partnership. For a time in the first test match at Lord's they fairly held their own with England, but lost ultimately by 10 wickets. At Old Trafford they were rather outplayed but staved off defeat, while the Oval match, though ruined by rain, saw Merchant at his very best (129) and the best English batsmen pinned down by most accurate bowling. The general verdict was that in their own country they would have pressed England's full strength very hard.

In Hammond, Hutton, Compton and Washbrook England had some outstanding batsmen. Bedser bowled well to take 11 wickets in each of his first 2 test matches, and Wright was always a dangerous potentiality, but there was no bowler of real force in England and the two best bowlers in length and flight, Clay of Glamorgan and Goddard of Gloucester, were too old for representative cricket. The English team fielded splendidly, and Evans showed great promise as a wicket-keeper.

The Gentlemen were badly beaten by the Players. In the university match Oxford beat Cambridge.

Once again Yorkshire won the championship, their fourth consecutive success; Middlesex was second. The champions' batting was by no means secure, but their bowling was accurate and hostile and their fielding the "tightest" in the country; Sellers was a grand captain. Middlesex was the strongest batting side in the land, but their bowling lacked consistency. The western counties, Gloucester, Somerset and Glamorgan, staged a notable revival. Sides went out for a definite finish wherever possible. In late summer the Marylebone Cricket Club sent a representative eleven to meet Australia. At the end of the year Australia had won the first two test matches. (H. S. A.)

Crime. **United States.**—The year 1946 was featured by a marked rise in the number of reported crimes, each category of reportable offenses showing some increase. The totals for U.S. cities in the first six months of 1946 as compared with the same half of 1945 are shown in Table I.

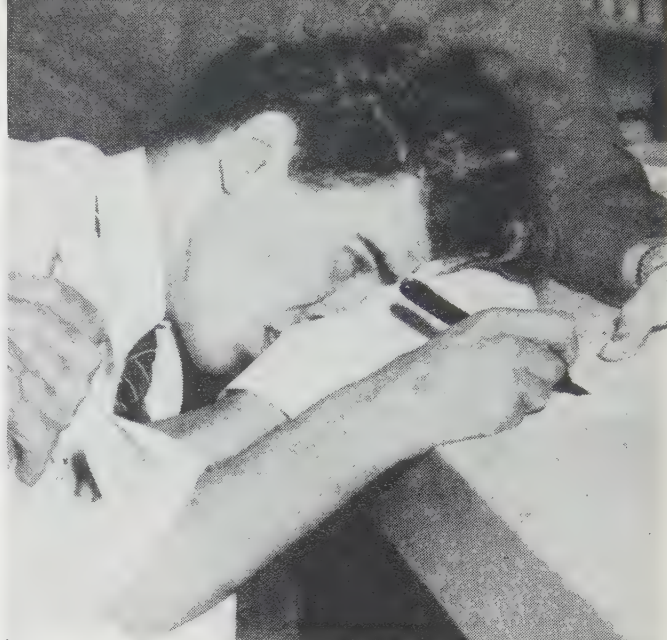
Table I.—Crime in 1945 and 1946 in 1,997 U.S. Cities
(Total population 66,045,773)

Offense classification	January to June		Per cent change in 1946
	1945	1946	
Murder and non-negligent manslaughter	1,608	2,066	+28.5
Manslaughter by negligence	1,251	1,491	+19.2
Rape	3,786	3,845	+1.6
Robbery	15,236	20,085	+31.8
Aggravated assault	19,248	21,176	+10.0
Burglary	100,960	118,120	+17.0
Larceny (except auto theft)	247,745	272,126	+9.8
Auto theft	70,469	81,398	+15.5
Totals	460,303	520,307	+13.0

While a total of major offenses running well in excess of 1,000,000 annually provided no grounds for congratulation, the fact remained that the new postwar levels of crime were no more disturbing than those of the prewar period, since the nation was merely in process of returning to its more or less normal condition. Nevertheless, the especially rapid upsurge of murder and robbery provided some cause for concern lest they presage a break-through in the old peacetime ceilings for these crimes.

Table II.—Crime Rates in Rural Areas, 1945–46
(Combined population 35,164,657)

Offense classification	Crime rates January to June		Per cent change in 1946
	1945	1946	
Murder and non-negligent manslaughter	2.49	3.01	+20.9
Manslaughter by negligence	1.70	2.09	+22.9
Rape	5.07	5.49	+8.3
Robbery	6.4	9.5	+48.4
Aggravated assault	14.3	17.7	+23.8
Burglary (breaking or entering)	52.0	61.3	+17.9
Larceny (theft)	75.5	85.3	+13.0
Auto theft	26.8	36.0	+34.3
Totals	184.3	220.4	+19.6



WILLIAM HEIRENS, 17-year-old Chicago youth, signing his name in the county jail on July 5, 1946, after his arraignment on numerous charges of assault and burglary and questioning about the murder of six-year-old Suzanne Degnan. He later confessed that murder and two others, and was sentenced to three consecutive life terms

Even more pronounced were the crime increases in rural areas, with robbery, aggravated assault, auto theft and rape leading the urban rate by substantial margins.

Cities distributed among the various geographic divisions of the country showed generally comparable increases in each region. Especially marked, however, were the increases in murder and assault rates for the cities of the west north central states. Larcenies also increased most in these states and in the mountain region. By contrast there was a moderate decline in murders and aggravated assaults in the New England states, while the latter crime alone also declined in the south Atlantic area. Elsewhere in the nation the record, crime by crime, showed considerable consistency, thus emphasizing the fact that although crime rates vary widely from city to city and region to region, they respond to the same influences and rise and fall in nearly identical patterns.

Among the rapidly increasing robberies those directed against the operators of chain stores showed the greatest rise, while bank robberies declined by 52.6%. Here, however, it was to be noted that the preceding year had recorded an extraordinary percentage rise in bank robberies. As to both types of crime the number of actual offenses was so small as to provide no guide to significant trends. But when the relatively numerous commercial robberies increased by more than 90% in 1946, it justified the conclusion that here indeed was a major change in criminal *modus operandi*. Larcenies higher than \$50 increased more than twice as rapidly as those of lesser amounts, perhaps only because of marked-up values of property during the period of extreme shortage in commodities.

Average increase in value of property stolen—for all offenses involving theft—was 12.1% in 1946. Greatest increase, of course, was for robbery, which had experienced an extraordinary rise in the number of offenses.

In 64 cities having more than 100,000 inhabitants and a combined population in excess of 22,000,000 the record for property recoveries (including automobiles) fell off somewhat during 1946. In the first 6 months of 1945 such recoveries were 66.8%, but in the corresponding period of 1946 this had dropped to 62.3%. Of cars reported stolen (most of them driven away and abandoned within a few hours) 96.1% were recovered in 1946, a slight reduction from 1945. Recoveries of other types of property were much lower—at the rate of

21.1% during the first six months of 1945 and 18.3% for the first half of 1946. Such declines hold some significance because they were coincident with a 23% rise in the value of stolen property other than automobiles. Most likely explanation for the divergence is that the sudden rise in crime from its wartime low, coupled with the redeployment of police from specialized wartime duties, produced a temporarily unfavourable record. There was always the possibility, however, that police efficiency was undergoing a general decline, in which event the foregoing records, both as to cleared cases and property recoveries, would invite closer analysis.

Extent of the reporting area covered by the Uniform Crime reports reached a new high with 5,531 police agencies contributing to the nation-wide system of criminal statistics maintained by the Federal Bureau of Investigation. (See also CHILD WELFARE; FEDERAL BUREAU OF INVESTIGATION; KIDNAPPING; LAW; POLICE; SECRET SERVICE, U.S.).

BIBLIOGRAPHY.—*Uniform Crime Reports* (semi-annual bulletins) for 1945 and for the first half of 1946, Federal Bureau of Investigation, Washington. Also *Judicial Criminal Statistics* (1944) and *Prisoners* (1943), both published by the U.S. Bureau of the Census. (BR. S.)

Great Britain.—The official return of crime statistics in Britain for 1946 was to be made in April 1947. Periodical waves of notorious crime suggested an unprecedented rising of its incidence. The 1945 figure for persons dealt with by magistrates was 503,214 as against 723,578 in 1939, but the 17,569 sentenced to imprisonment by magistrates in 1939 stood against 19,710 in 1945. There were 541 penal servitude sentences in 1939 and 741 in 1945. The higher courts' sentences to imprisonment apart from penal servitude rose from 3,486 to 6,397. Youths under 21 sent to prison rose from 1,297 to 3,495 and those sent to Borstal institutions from 997 in 1939 to 1,864 in 1945.

The figures suggested considerable increase in serious crime. Indictable crime did indeed grow in London during and after World War II, though the first nine months of 1945, with its 12,000 serious and petty crimes, was thought to be the peak. In the same period of 1946 the total dropped to 11,000. Before the war the comparative level was 9,000.

An outstanding crime in 1946 was the entry of Ednam lodge, Sunningdale, at dusk one evening in October by a person who clambered up a rainpipe and entered by an open window the boudoir of the duchess of Windsor, from which jewellery valued at between £20,000 and £25,000 was stolen. The jewels were yet to be recovered at the end of the year.

Owing to the rise in the general level of wages, police forces in Britain found difficulty in 1946 in attracting the customary flow of new recruits. Special appeals were made, especially in London, where a policeman's normal beat was three times the prewar length. Special efforts were also made to encourage the public to telephone the police number in emergency, and to increase the mobility of the police through more motorization. In Nov. 1946 it was decided to re-establish the prewar special constabulary at a strength of 6,000 men.

There was little change in legislation concerning criminals. Because of pressure of other legislation, the Criminal Justice bill, a measure in which the abolition of flogging as a punishment was anticipated, was left out of the program for the 1946 parliamentary session. (See also PRISONS.) (P. BN.)

Cripps, Sir (Richard) Stafford (1889—), British statesman and lawyer, was born on April 24, the youngest son of the 1st baron of Parmoor. Educated at Winchester and University college, London, he was admitted to the bar in 1913. Sir Stafford was solicitor general in the MacDonald government in 1930 and was

elected to the house of commons as Labourite member for East Bristol. He refused to join the National Government in 1932 and sat with the opposition. For a while, Cripps was put in "coventry" by the Labourites because of his insistence in advocating a "united front" with the British Communists. In 1937, he dropped his campaign and his return to his party's good graces was reflected in his election to the party executive. In June 1940, Prime Minister Churchill named Cripps ambassador to Moscow; the appointment of the Labour leader whose long advocacy of friendship with the soviet union was a matter of record, was regarded as the first step in a new government effort to rally the Kremlin against Adolf Hitler. Cripps was successful in recementing some of the broken strands of Anglo-soviet "understanding." In Feb. 1942, he was recalled to London and made lord privy seal in the government. The following month, he was dispatched to India with the British "freedom proposals," which the Congress party leaders subsequently rejected as inadequate. In November of 1942, he was named minister for aircraft production. After the Labourite victory in the summer of 1945, Cripps was appointed president of the board of trade in the Attlee government (July 27, 1945). On Feb. 19, 1946, he was named to a three-man cabinet mission and set forth on another trip to India to discuss new measures for granting India self-government. This effort also ended in failure.

Croatia: see YUGOSLAVIA.

Crude-oil: see PETROLEUM.

Cruisers: see NAVIES OF THE WORLD.

Crushed Stone: see STONE.

Cryolite. Imports of natural cryolite from Greenland into the United States increased from 17,562 short tons in 1944 to 20,106 tons in 1945. Exports rose from 1,064 tons in 1944 to 1,901 tons in 1945. Just to what extent artificial cryolite was produced and substituted for the natural mineral was not known, but practically a complete substitution could be made if it were necessary. One plant for making artificial cryolite was known to have been in operation in 1944 and 1945 and two other plants, completed in 1943, were not used, since supplies of the natural mineral were maintained. Adequate supplies and stocks, coupled with a heavy reduction in aluminum output permitted the removal of all restrictions on the use of cryolite in Oct. 1944. (G. A. Ro.)

Cuba. A West Indian republic, including the island of the same name, the Isle of Pines, and other minor islands and keys. The area of the main island is 44,217 sq.mi. Pop. (1943 census), 4,778,583; the density is 108.07 per sq.mi. Racial distribution is officially estimated at 75% white (of which about one-third is mulatto), 24% Negro and 1% Mongoloid (mostly Chinese). Almost 200,000 Spaniards reside in Cuba. The capital and chief port is Havana (officially, La Habana) with a pop. (1943 census) of 659,883. Other important cities (with 1943 census pop. unless otherwise indicated) are Santiago de Cuba (1946 est., 152,000), Marianao (a Havana suburb, 120,163), Camagüey (1946 est., 87,009), Matanzas (54,844), Cienfuegos (52,910), Guantánamo (42,423), Cárdenas (37,059), Holguín (35,865), Manzanillo (36,295), Ciego de Ávila (23,802), Santa Clara (27,925), Pinar del Rio (1946 est., 63,461), Regla (23,037), Güines (22,669), Guanabacoa (30,287), and Placetas (20,375). President in 1946: Dr. Ramón Grau San Martín.

History.—The year opened with President Grau's Auténtico party finally in control of the senate through the election of Miguel Suárez Fernández as senate president on Dec. 12, 1945; Juan Marinello, Communist, was elected vice-president. The

United States on Jan. 3, 1946, returned the naval air base at San Julián to Cuban control; on May 20, anniversary of Cuban independence, other wartime bases, including the \$20,000,000 military air base at San Antonio de los Baños, were turned over by the United States to Cuba. The government suppressed a small-scale revolt at Camp Columbia, near Havana, on May 17. The Auténtico party won general victories in legislative and municipal elections June 2; the mayorship of Havana, the second most important position in the island, went to Dr. Manuel Fernández Supervielle, the government coalition candidate. Communists won numerous local posts because of their election alliance with the Auténticos. Havana food workers began a brief strike Aug. 9, demanding higher wages; lower-class protests against black market conditions and prices assumed menacing proportions in Santa Clara province at the same time. Cane planters were strongly aroused in September over the government's announced intention to sequester any favourable sugar price differential which might accrue from sale of the crop to the United States. A serious hurricane on Oct. 7 caused damage estimated at several million dollars in western Cuba.

Education and Religion.—Schools numbered about 5,400 in 1946, enrolling some 520,000 pupils. Literacy was estimated at close to 70%. The government late in the year announced plans to construct 1,500 rural school buildings at a cost of 12,750,000 pesos; the funds would be taken from the government seizure of the differential on increased sugar prices.

Finance.—The monetary unit is the peso, officially pegged at par with the U.S. dollar. The preliminary estimate of the 1947 budget, regular and extraordinary, was 190,000,000 pesos, the highest in Cuban history. The original 1946 budget, then the highest, had been calculated at 163,880,000 pesos, subsequently increased to 173,400,000. The congress, however, failed to pass the 1946 budget. Regular and extraordinary revenues in 1945 were 177,126,189 pesos (1944: 162,622,834 pesos). Budgetary and extraordinary receipts in the early months of 1946 were running well ahead of those of the corresponding period of 1945. Paper money outstanding Nov. 30, 1945, was 305,708,912 pesos. The public debt Aug. 31, 1944, totalled 178,547,600 pesos. Economic difficulties helped in part to raise extrabudgetary expenditures in the first 10 months of 1946 to more than 50,000,000 pesos; the situation was the more extraordinary because of the government's need to raise its funds by decree due to the failure of congress to approve the 1946 budget. The council of ministers on Feb. 15 approved a presidential decision to buy from cane planters an extra 250,000 long tons of Cuban sugar at the U.S.-contracted price of 3.675 cents a pound and sell it at the prevailing world price of 8.5 to 9 cents a pound, covering the profit, estimated at 20,000,000 pesos, into the treasury; the profit would be used primarily for an expanded school construction program, he stated. Grau later antagonized the planters further by deciding to retain for the treasury an increased price which the United States might pay under its sugar-purchase contract. During the year the government pledged to U.N.R.R.A. a contribution of 20,000 metric tons of sugar from the 1945 crop and a similar amount from the 1946 crop in payment of a commitment of \$1,000,000 for purchase of other foods. By Feb. 1946 sugar workers' wages had increased about 29% in proportion to the higher price of sugar. Total commitments of the U.S. Export-Import bank June 30, 1946, were \$20,200,000, of which \$12,900,000 was the amount outstanding and \$7,300,000 the undisbursed balance. The official cost-of-living index at the beginning of 1946 was 182 as against 100 for the second half of 1937.

Trade and Communication.—Exports for 1945 were valued at 409,900,000 pesos (1944: 427,000,000 pesos) and imports at 238,900,000 pesos (1944: 208,600,000 pesos), leaving an active

visible trade balance for 1945 of 171,000,000 pesos, a decrease of 47,400,000 pesos. Sugar exports for 1945 included 2,456,195 long tons of raw to the United States, 502,417 tons to the United Kingdom, and 67,842 tons to Canada; 294,558 tons of refined to the United States and 54,799 tons to the U.S.S.R. Exports of tobacco to the United States in 1945 were estimated at 13,229 long tons. Exports of industrial alcohol in 1945 to the United States totalled 16,515,841 gal. Exports of bananas in 1945 (all to the United States) were 2,410,000 stems (1944: 2,058,000) valued at 1,815,000 pesos (1944: 1,629,000 pesos). Coal imports in the first four months of 1946 were 58,297 long tons; fuel oil imports in the same period were 402,499 metric tons and crude oil imports were 46,281 metric tons (fuel and crude oil imports, respectively, in the same period of 1945 were 433,944 and 20,565 tons). Imports of the chief edible fats and oils in the first four months of 1946 were 1,642,317 lb. (same period in 1945: 1,705,483 lb.); lard imports in the same period were 24,520,745 lb. (1945: 17,384,808 lb.). Raw cotton imports for the first seven months of 1946 were 6,700,000 lb. (same period in 1945: 6,100,000 lb.); of the amount in 1946, 38% came from Peru, 34% from Brazil, and 27% from the United States. Lumber imports for the first six months of 1946 were 16,400,000 bd. ft. (1945: 20,000,000 ft.), mostly U.S. yellow pine. The most important commercial agreement con-

LINE OF BUSES at Havana, Cuba, stopped for eight hours on June 27, 1946, as part of a nation-wide protest against the importation of American-built buses



cluded during the year was the contract for sale of 1946 and 1947 sugar crops to the United States. A provisional price of 3.675 cents a pound was agreed upon early in the year but definitive negotiations were not concluded until July 22, after 10 months of discussions. The terms involved the U.S. purchase of the 1946 crop (less retained quotas), estimated at 4,500,000 short tons, at the provisional price of 3.675 cents a pound; this would be subject to a proportionate increase in price if the indices of food or cost-of-living increased above predetermined levels. The United States also contracted to buy the 1947 crop (less retained quotas), estimated at 5,000,000 to 5,500,000 tons, at a price equal to the highest paid for any of the 1946 crop; details of the agreement admitted the possibility of other price increases. The United States further agreed to buy 40,000,000 gal. of industrial alcohol in the two years ending June 30, 1948, at a price of 65 cents a gal., and 115,000,000 gal. of blackstrap in 1946 and 165,000,000 gal. in 1947 at 13.6 cents a gal. The agreement further pledged the United States not to adopt any legislation which might be construed as harmful to the Cuban sugar industry. Cuba concluded agreements in March with about 10 Central and South American governments for sale of the reserved quotas of 250,000 tons of sugar at prices several cents above the U.S. base price. The government later negotiated an agreement with Mexico by which the latter country contracted to buy 100,000 metric tons of raw sugar annually for three years and to sell to Cuba 20,000 metric tons of chick-peas annually; Mexico also agreed to admit 3,000,000 Cuban cigars duty free annually.

First-line railway trackage totalled 2,959.11 mi. (2,445.49 mi. of main line and 513.62 mi. of branch lines); yard and switch trackage added 611.83 mi. Nine principal railroads had 94.5% of the public service trackage; total sugar-mill trackage was 6,907.03 mi. Aviation developments were most important in the communications field in 1946. Braniff Airways was tentatively authorized to fly a Mexico City-Havana run. A new local air line, with headquarters at Santiago, was formed. Flights from Havana to Miami, Florida, increased to 20 daily during 1946. The first half of 1946 saw 45,000 tourists going to Cuba as against 34,000 during the entire year 1945.

Agriculture.—The estimate of sugar production in 1946 was 4,476,000 short tons of raw sugar and 245,000,000 gal. of blackstrap. The estimate of rice production for 1946 was 51,000,000 lb. of milled rice, but this was only about 10% of consumption. The 1944-45 tobacco crop totalled 69,000,000 lb. of unstemmed leaf; the crop for 1945-46 increased about 30% over that figure. The estimate of 1946 henequen production was 30,000,000 lb. (1945: 29,100,000 lb.). The estimate of coffee production in the 1945-46 crop year (Oct. 1-Sept. 30) was 383,403 bags of 60 kg. (1944-45: 438,145 bags). Corn production in 1945 was estimated at 292,000,000 lb. (1944: 350,000,000 lb.); the considerable decrease was due primarily to drought and lack of adequate seed. The 1945-46 potato crop estimate was 160,000,000 lb., a gain of 30% over the preceding year. Production of beans in 1945 was 95,000,000 lb., an increase of 20% over 1944. The estimate of pineapple production for 1946 was 3,300,000 crates of 73 lb. (1945: 2,813,000 crates). It was considered that the citrus fruit industry had little chance of regaining its prewar position, although domestic markets improved somewhat in 1946. A 1945 livestock estimate of 3,884,158 head of cattle and 669,373 of hogs was thought by some authorities to be too low; a separate estimate of cattle, made the following year, was 5,334,813. A serious shortage in dairy products occurred in the 1945-46 season. Production of canned milk in 1945 was 22,000,000 lb. (1944: 31,000,000 lb.); consumption in 1945 was 25,000,000 lb. Cheese production in 1945 was 6,000,000 lb. (1944: 5,000,000 lb.). Production of com-

mercial milk in 1945 was 900,000,000 lb., a decrease of about 35% from the record 1941 production. Butter production in 1945 was about 2,000,000 lb. The government in early October announced a \$3,000,000 program of agricultural improvement, designed to improve stock breeds, introduce more machinery, better seed, refrigerating warehouses, etc.; funds for the program were intended to be derived from governmental profits on the sugar differential.

Manufacturing and Mining.—Plans were announced in Jan. 1946, for the early opening of plants to manufacture concrete re-enforced tubing, plastics, rayons and woollens. The rayon project was scheduled to begin operations in mid-1947. Cotton consumption in the marketing year ending July 31, 1946, was 35,953 bales of 500 lb. (1944-45: 31,600 bales). Cement production in 1945 was 1,059,800 bbl. of 376 lb., an increase of 37,740 bbl. The estimated volume of fruits and vegetables processed in 1946 was 50,000 short tons, of which canned pineapple accounted for 40%. Electric power consumption in 1945 was 415,000,000 kw.hr. (1944: 336,000,000 kw.hr.).

Production of various minerals in 1945 (with 1944 figures in parentheses) included: copper, 26,610 long tons (21,830 tons); refractory chromite, 178,456 long tons (170,484 tons); metallurgical chromite, 8,797 long tons (18,612 tons); manganese, 64,639 long tons (120,295 tons); manganese nodules, 130,236 long tons (133,496 tons); nickel oxide, 9,984 long tons (6,163 tons). (See also WEST INDIES.)

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(R. H. FN.)

Curaçao. An island off the Venezuelan coast near the mouth of Lake Maracaibo. The same name is applied to the six West Indian islands which form the Netherlands colony of Curaçao. The three islands in the Leeward group, about 40 mi. north of Venezuela, include Curaçao (210 sq.mi.; est. pop. in 1944, 78,587), Bonaire (95 sq.mi.; pop., 1945 est., 5,796) and Aruba (69 sq.mi.; pop., 1943 est., 35,933). The three small islands in the Windward group, about 500 mi. northeast, include the southern part of St. Martin (17 sq.mi.; pop., 1943 est., 2,337; the remainder of St. Martin belongs to France), St. Eustatius (7 sq.mi.; pop., 1945 est., 1,119) and Saba (5 sq.mi.; pop., 1945 est., 1,238). The only important town is the colonial capital, Willemstad (pop., 1945 est., 36,000), on Curaçao. Principal racial elements, aside from native Curaçaoans, are English, Dutch and Venezuelans; the natives are predominantly Negro, their percentages varying from 65 to 95 on the various islands. Dutch is the official language but many of the inhabitants speak a patois known as Papiamentu, composed of Spanish, Dutch, English, Portuguese, Carib and native African words. The predominant religion is the Roman Catholic. Administrative officials include the crown-appointed governor, an elective council, and, for the outlying islands, underlying officials called *gezaghebbers*. Governor in 1946: Dr. Pieter A. Kasteel.

History.—The legislature early in 1946 took steps to achieve the greater governmental maturity which Queen Wilhelmina had promised the various parts of the Netherlands colonial empire in her speech of Dec. 6, 1942. The legislature appointed a six-man commission to prepare a petition to the queen asking for autonomy, proposing "complete competence" in financial affairs, the maintenance of order, enforcement of the laws, etc. A committee, accompanied by a similar one from Surinam, left for the Netherlands June 11 to present the petition. The Netherlands government subsequently proposed a bill to modify the constitutions of the two American colonies, presumptively to involve decentralization of territorial administration for both

and a greater degree of autonomy for the component islands of Curaçao. It was anticipated that the suffrage would be broadened and that the status of the territorial governors, budgets and legislation would be modified. Netherlands officials late in the year made it known that Curaçao was to be considered as a province of a metropolitan country. A popular subscription in Curaçao during the year purchased a new home for the U.S. consulate general as a memorial to U.S. troops who had been stationed in the colony during the war; the building, it was announced, would be known as the Franklin Delano Roosevelt house. The legislature during the year considered a bill to regulate operations of foreign firms in Curaçao.

Education.—The colony's 60 schools enrolled 17,700 pupils in 1946.

Finance.—The monetary unit is the guilder or florin of 100 cents. Curaçao currency was detached from Netherlands currency in 1943; a new coinage went into circulation in that year. The colonial government announced in 1945 that Netherlands standard coins would be accepted until Jan. 17, 1946, but would not be legal tender thereafter.

Production.—The vast petroleum refining interests in Aruba and Curaçao were somewhat concerned in 1946 over the prospect that Venezuela, from which practically all oil for refining is imported, would more aggressively undertake development of its own refining industry.

BIBLIOGRAPHY.—*West Indies Year Book, 1945; Foreign Commerce Weekly; Netherlands News Letter* (semi-monthly). (R. H. FN.)

Curling. After a six-year absence, the Gordon International medal was returned to the United States as a result of its victory over Canada in the annual bonspiel. The U.S. outpointed the Canadians, 398 to 273, winning 20 matches to 9 losses and 3 ties. Medals for team competition in the U.S. were well distributed. The New York Caledonians repeated as Gordon medal winners with a 21-13 victory over Utica No. 1. The No. 1 team of Brookline, Mass., won the Douglas medal with a 17-11 decision over St. Andrews of New York. Utica No. 2 scored a double, winning the Griffith and R. S. Emmet Memorial medals. (M. P. W.)

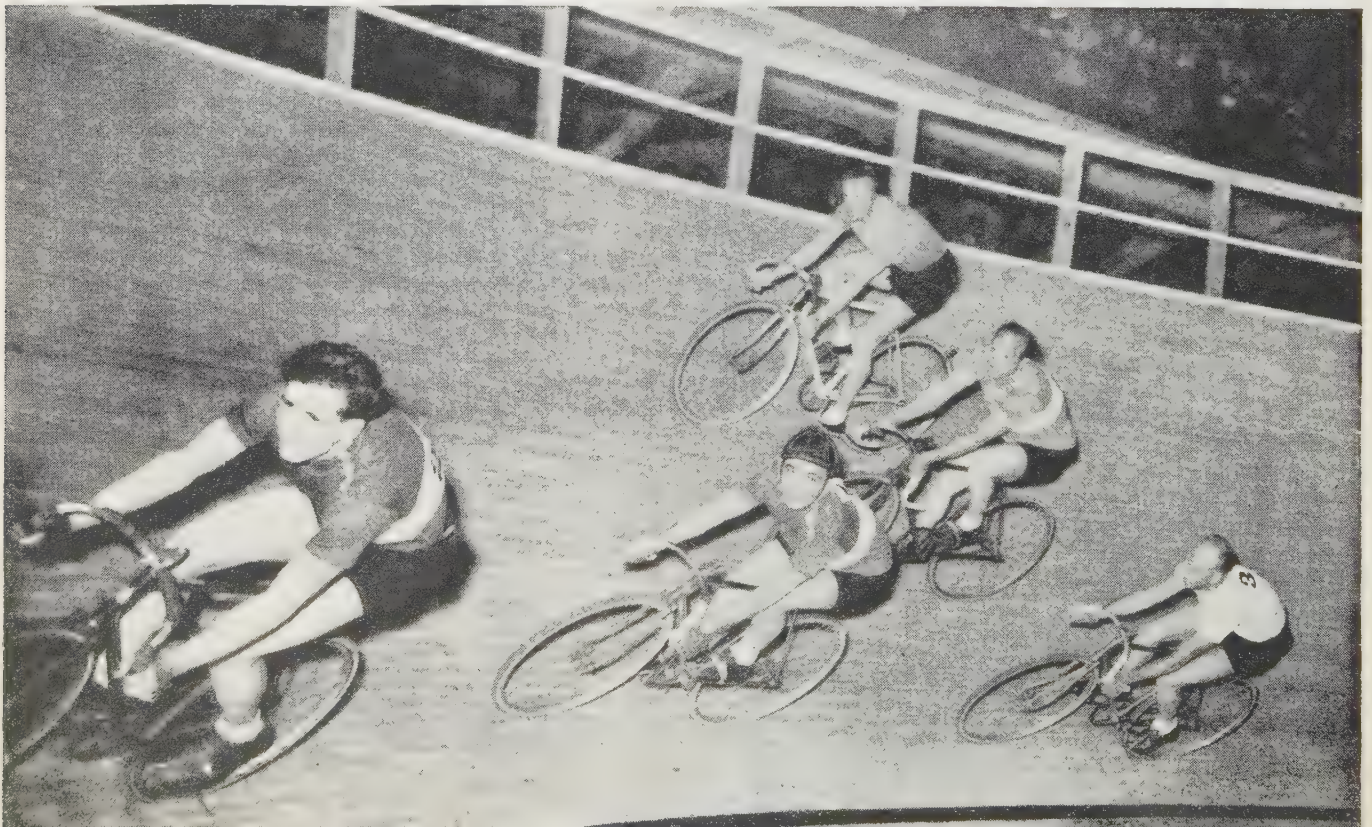
Currency: see COINAGE; EXCHANGE CONTROL AND EXCHANGE RATES. See also under various countries.

Curry, John Stewart (1897-1946), U.S. artist, was born on Nov. 14 at Dunavant, Kan. He studied at the Art Institute of Chicago, at Geneva college (Beaver Falls, Pa.) and subsequently at the Russian academy, Paris. A member of the famous "Midwestern Triumvirate," which included Thomas Hart Benton and Grant Wood, Curry brought into his oil and water colour canvasses the romance of his native farmlands. Through his pictures of rural life, circuses (he had trouped with the circus in his youth) and historical events, there was the impress of his native Kansas. The work he considered his best, though it remained unfinished and unsigned, was the murals for the state capitol at Topeka, Kan., which included the famous panel, "John Brown." He was never able to finish this monumental task because the state objected to removal of a few slabs of marble necessary for its completion. His early paintings, "Tornado," "Roadmenders' Camp" and "Tank Baptism," won professional as well as lay appreciation, and in 1934 the Metropolitan museum in New York city acquired "The Flying Codonas," "To the Train" and "Storm Over Stone City." His "Wisconsin Landscape" won a first prize at the Artists for Victory exhibition in 1942 and his war-bond drive poster, "Our Good Earth—Keep it Ours," became familiar to millions of Americans. He was elected an academician of the National academy in 1943 and was artist in residence at the University of Wisconsin from 1936 until his death. He died at Madison, Wis., on Aug. 29.

Cycling. The outstanding news in the world of cycling for 1946 was the re-establishment of the six-day bike race which had been tabled during World War II. The classic international championship was won by the team of Tino Reboli with Erwin Pesek and Rene Cyr and Mike Abt, second. It was held in the Chicago coliseum.

On the amateur side of the picture John Auerbach, chief

ENTRANTS in the first postwar six-day bicycle race in Chicago shown shortly after the starting gun on April 28, 1946



executive of the Bicycle Institute of America, announced plans for a greatly expanded program of activities to resume cycling interest.

While the running of the 43rd annual international six-day race put the cyclists back on the sports map, there was little further revival during 1946 and the records on the books as of the last active year, 1941, still stood in other events. They were the following:

National Cycling association: sprint championship, Tom Saetta of Brooklyn, N.Y.; paced title, Mike DeFilipo, Newark, N.J. American Bicycling league: senior road championship, Marvin Thompson of Chicago; junior class, Andrew Bernadsky of San Francisco; girls' championship, Miss Jean Michels of Chicago. The same A.B.L. all-American cycling group named in 1941 still stood. No new such ranking was announced for 1946. (T. J. D.)

Cyclotron: see ATOMIC ENERGY; PHYSICS.

C.Y.O.: see CATHOLIC ORGANIZATIONS FOR YOUTH.

Cyprus: see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

Czechoslovakia. Czechoslovakia, a republic in central Europe, established in 1918, was dismembered in 1938-39 as the result of German aggression. Before the dismemberment the area of Czechoslovakia was 50,244 sq.mi., the pop. (1930 census) 14,729,536. In 1945 the republic of Czechoslovakia was reconstituted, but its eastern province (Carpatho-Ukraine) was ceded to the soviet union. The remaining area was 49,321 sq.mi., the pop. (1930 census) 14,001,200. Capital: Praha (pop. 848,823). Other important cities: Brno (pop. 264,925), Moravská Ostrava (pop. 125,347), Bratislava (pop. 123,852), Plzeň (pop. 114,704). President Dr. Eduard Beneš; prime minister (1946), Klement Gottwald.

History.—Elections for the National assembly were held on May 26, 1946. Of the 300 seats in the parliament 150 were assigned to Bohemia, 81 to Moravia and Silesia and 69 to Slovakia, according to the number of registered voters. In the elections the Communists emerged as the strongest single party with 2,695,915 votes and 114 seats (of which 21 were from Slovakia). The Social Democrats received 36 seats and the corresponding Slovak Labour party 3 seats. Thus the various socialist parties received 153 seats or a slight majority in the assembly. Of the nonsocialist parties the Czech National Social party received 54 seats, the Czech Catholic People's party 48, the Slovak Democrats 42 and the Slovak Freedom party 3 seats. While in Bohemia the Communists were the strongest party, in Slovakia the democratic elements carried the day.

The assembly gathered in June and unanimously re-elected Dr. Beneš president of the republic. In a close contest Antonín Zápotocký, the Communist president of the trade union federation, was elected speaker of the parliament. As the result of the leftist victory a Communist, Klement Gottwald, formed the government. The Communist party received the most important key ministries, the interior, the foreign affairs (where Jan Masaryk remained minister but with a Communist as undersecretary), information and national defense. All the economic ministries were divided between the Communists and the Social Democrats except the ministry of foreign trade which like the ministries of education and justice was held by members of the Czech National Social party, the party of President Beneš.

The nationalization law of Oct. 1945 had transformed Czechoslovakia into a highly socialistic nation. The economic conditions in the country were aggravated by the problem of labour shortage, partly caused by the expulsion of many highly skilled German workers from the Sudetenland. On Oct. 28 a two-year plan was adopted to raise the standard of living to the 1938 level and perhaps achieve a standard of living which would compare with

that in the western democratic countries. It is significant that bills presented in Nov. 1946 by the government for the regulation of the press and of the journalistic profession aroused much opposition and criticism as possible weapons of the government against democratic liberties.

The Czech government was determined to create a country which would be an exclusive national state for Czechs and Slovaks where no national minorities would be tolerated and all members of other nationalities be barred from voting and participation in the government. As the result of this policy, the whole German minority of Czechoslovakia was compelled to leave the country. The expulsion of these more than 3,000,000 former citizens was accomplished by Oct. 28. Negotiations with the Hungarian government about the exchange of the Slovak minority in Hungary for the Hungarian minority in Slovakia and about the fate of the remaining excess Hungarian minority in Slovakia went on throughout the year but the process was not completed by the end of 1946.

The People's court especially set up to try collaborators sentenced the leading Sudeten German official, Karl Hermann Frank, to death for war crimes in May 1946. Three months later Dr. Bela Tuka, formerly a university professor and prime minister in the Slovak government, was executed. Five leading members of the Bohemian-Moravian protectorate established by the Germans in 1939 were sentenced in the same month by the People's court to various terms of imprisonment. Though the People's court was instituted under decisive Communist influence and three of the four lay judges were Marxists, the Communists demanded a retrial and refused to recognize the verdict which they regarded as too lenient. The Czech democrats were, however, able to resist the demand and to maintain the independence of the courts and thus to prevent a complete departure not only from western but from established Czech concepts of justice.

Relations with the United States underwent some strain toward the end of the year. The United States had provided very substantial relief to Czechoslovakia, both through U.N.R.R.A. and through other agencies, and had granted a number of credits to ease the Czechoslovak economic situation. Some of the leftist papers in Czechoslovakia, however, followed the general anti-U.S. line of the Communist parties. The state department suspended in October the remaining \$40,000,000 of a \$50,000,000 credit to Czechoslovakia, extended in the spring for the purchase of U.S. surplus army equipment. The Export-Import bank suspended negotiations for another \$50,000,000 credit. The state department pointed out that Czechoslovakia misinterpreted the U.S. motives in extending economic assistance to European countries. A British credit for \$10,000,000 to Czechoslovakia for the purchase of surplus war supplies was, however, granted.

With the end of 1946 the relations between the United States and Czechoslovakia improved. An accord on trade policies was reached. Both countries expressed a desire to eliminate all forms of discriminatory treatment in international commerce and to reduce tariffs. The Czechoslovaks agreed that bilateral barter and clearing agreements, as entered into by the U.S.S.R. and its neighbours, were not compatible with such desires. They promised to seek a return to multilateral trading at the earliest possible date, and meanwhile to issue import licences on an equal basis among foreign supply sources dependent upon possession of sufficient foreign exchange. Both governments declared that they would negotiate as soon as possible a comprehensive treaty of friendship and commerce and would keep each other informed on the details of economic agreements with other nations.

At the end of the year Czechoslovakia had made by far the greatest progress in economic reconstruction of all the countries in the soviet sphere of influence. It also had preserved most of the democratic liberties which Masaryk's leadership had firmly established as an integral part of the Czech tradition. The Communists showed a greater

moderation than in any other country where they formed the government, and the democratic parties kept up a constant vigilance against governmental encroachment upon liberty. Full cultural contact with the democratic nations and their civilization was maintained. Thus, under very difficult circumstances, the democratic tradition survived in the country which in the period between World Wars I and II was the only one, east of the Rhine and of the Alps, which knew an unbroken democratic constitutional life. (H. Ko.)

Education.—According to a 1946 estimate, there were 14,817 elementary schools with 1,528,081 students; 261 secondary schools, 101,730 students; 1,205 vocational schools, 284,122 pupils; 15 universities, 50,631 students.

Finance.—Estimated government revenues for 1946 were \$627,720,000; expenditures \$778,480,000; gold reserves \$30,000,000; national debt \$1,952,820,000. Exchange rate (1946): 1 koruna=two cents U.S.

Trade and Communication.—From May to Dec. 1945 the value of exports totalled \$9,670,000, including: manufactures \$5,878,000; raw materials \$3,791,000; foodstuffs \$201,000. Imports totalled \$14,764,000, including: raw materials \$9,428,000; manufactures \$2,989,000; foodstuffs \$722,000.

State-operated railroads (1945) comprised 8,197 mi.; highways 43,623 mi.; navigable waterways 912 mi.

Agriculture.—Chief items of production in 1945 were as follows: potatoes 6,747,140 short tons; fodder beets 3,538,156 tons; sugar beets 3,657,479 tons; clover 3,253,365 tons; rye 1,032,728 tons; wheat 1,121,726 tons. There were 13,785,076 poultry; 3,933,024 cattle; 2,181,284 swine; 1,306,929 goats.

Minerals.—Production in 1945 included: coal 12,593,942 short tons; lignite 16,989,316 tons; iron ore 307,897 tons; gold-bearing ore 345 tons. (X.)

Dahomey: see FRENCH COLONIAL EMPIRE.

Dairy Industry, Bureau of: see AGRICULTURAL RESEARCH ADMINISTRATION.

Dairying. The dairy industry in the United States maintained the high record attained in 1945 through most of 1946 and milk production was only about 2% below the level of 1945. This was 15% above the prewar level of 1935-39. At the beginning of the year the number of milk cows on farms was estimated at 26,785,000 head compared with 27,674,000 head in 1945. The number of cows kept through 1946 was about 4% below the number of a year earlier. This decline in numbers was offset to some extent by the larger production of milk per cow which was about 4,850 lb. in 1946 compared with 4,789 lb. in 1945 and a prewar average of 4,403 lb.

The labour shortage on dairy farms was relieved somewhat in 1946 by the return of men from the military services but wages continued high. The number of milking machines on dairy farms doubled from 1942 to 1946, reducing the milking labour requirements 50% on the farms using them.

The prices of dairy products, which had been fairly stable through 1945, followed the same general trend, with slight increases until July 1946. With the lapse of price control prices advanced at once to compensate for the loss of price support payments which had been equivalent to 18% of the price of milk and 30% of the price of butterfat during the second half of 1945. The price of butterfat paid farmers advanced from 52.1 cents per pound in June to 70.8 cents in August and to 90 cents in October. Milk at the same time advanced from \$3.39 per 100 lb. in June to \$4.11 in August and \$4.73 in October.

The advance was checked however and by December butterfat was stable at 87 cents and milk at \$5.15 per cwt. The retail price of butter rose more rapidly but began to decline when consumers refused to pay the extremely high prices and butter production began to increase.

The United States department of agriculture forecast a continuation of heavy production in 1947 in its annual outlook report issued in the fall of 1946. The income of dairymen reached a new high record of \$348,000,000 in October, which was more than double the prewar income. Total milk production per capita was also about 430 lb. compared with 438 lb. in 1945 and a prewar average of 340 lb. 1935-39. (See also BUTTER; CHEESE; MILK.) (J. C. Ms.)

Dalai Lama: see TIBET.

Dalton, Hugh (1887-), British politician, was born Aug. 26 at Neath, Glamorgan county, Wales, the son of a British cleric who was at one time tutor to King George V. He was educated at Eton and Cambridge and studied at the London School of Economics (1911-13). He served with the British expeditionary forces on both the French and Italian fronts during World War I, and after the armistice, he began practicing law. Although a Tory by birth and heritage, Dalton joined the newly formed Labour party, and in 1924 he was elected to the house of commons as Labour candidate for the Peckham division. He lost his seat in commons during the 1931 elections but was returned in 1935. When Winston Churchill formed his coalition cabinet in May 1940, he appointed Dalton minister of economic warfare, and in Feb. 1942 Dalton was made president of the board of trade. After the Labour party's overwhelming victory at the polls in 1945, Prime Minister Clement R. Attlee named Dalton, July 27, chancellor of the exchequer. Politically, Dalton was a firm adherent of the party program and had expressed himself in favour of gradual socialization of Britain's economy.

In presenting his budget to commons April 9, 1946, Dalton said that while receipts were 3% lower than the 1945-46 fiscal period, expenditures were reduced by 31%. On May 2 Dalton was named to a governorship on the International Monetary fund and the Bank for Reconstruction and Development, and on Oct. 3 he was elected board chairman of both the fund and the bank.

Dams. Throughout the world construction was resumed in 1946 on dams halted during World War II because of shortages of materials and manpower. Despite continuing shortages, work was pushed on dams needed for power and irrigation projects.

In the United States, at Anderson Ranch dam, world's highest

Chief Dams Under Construction During 1946

Name of Dam	River	Place	Type	Maximum Height, Ft.	Crest Length, Ft.	Volume (Cu. yd.)	Purpose*	Built by
Anderson Ranch	Boise, S. Fork	Idaho, U.S.	Earthfill†	456	1,350	9,600,000	I, F, P	U.S. Reclamation Bureau
Bluestone	New	West Virginia, U.S.	Concrete, gravity	180	2,060	950,000	F, P	U.S. Army Engineers
Claerwen	Elan	South Wales, Eng.	Concrete, curved gravity	182	1,066	—	W	City of Birmingham Water Com-mittee
Davis	Colorado	Arizona, U.S.	Earth and rockfill	138	1,600	4,230,000	P	U.S. Reclamation Bureau
Garrison	Missouri	North Dakota, U.S.	Earthfill	210	12,000	75,000,000	I, F, N, P	U.S. Army Engineers
Génissiat	Rhône	France	Concrete, gravity	340	650	720,000	N, P	—
Hermosillo	Sonora	Sonora, Mexico	Earthfill	80	4,500	4,000,000	I	Mexican National Commission of Irrigation
Kanopolis	Smoky Hill	Kansas, U.S.	Earthfill	120	15,400	14,700,000	F	U.S. Army Engineers
Kaprun	Salzach	Salzburg, Austria	Concrete, arch	393	1,024	—	—	—
Loch Sloy	Loch Sloy	Scotland	Concrete, buttress	165	1,160	—	P	North of Scotland Hydroelectric Board
Merriman	Rondout	New York, U.S.	Earthfill	200	2,500	6,600,000	W	N.Y. Board of Water Supply
Orto-Tokoi	Chu	Kirghiz, U.S.S.R.	Earthfill	185	1,030	3,000,000	I	Kirghiz Republic
Ross	Skagit	Washington, U.S.	Concrete, arch	545	—	—	P	Seattle Department of Lighting
St. Mary's	St. Mary's	Alberta, Canada	Earthfill	185	—	5,000,000	I	Dominion of Canada
Wolf Creek	Cumberland	Kentucky, U.S.	Earthfill and concrete, gravity	242	5,730	11,500,000 (earth) 1,250,000 (concrete)	F, P	U.S. Army Engineers

*F—Flood Control, I—Irrigation, N—Navigation, P—Power, W—Water Supply.

†Highest in world.

earthfill dam, a total of 2,890,000 cu.yd. of fill was placed during the year 1946, with a record high of 422,500 cu.yd. placed during September. The diversion tunnel was closed early in 1946 providing 80,000 ac.ft. of storage during the year.

At the Davis dam on the Colorado river more than half of the 3,250,000 cu.yd. of excavation for the diversion channel was completed during 1946.

In the Missouri valley work was started during 1946 on several of the projects of the joint army engineer and reclamation bureau program for the development of the Missouri basin. Site preparation was commenced at the Garrison dam which would be the second largest dam in the world. This dam was to contain 75,000,000 cu.yd. of rolled-earth fill and was to be located on the Missouri river downstream from Fort Peck, world's largest dam, completed in 1940 and containing 122,700,000 cu.yd. of hydraulic fill.

In the Ohio river basin work was resumed during 1946 on three large dams of the U.S. army engineers. At Bluestone dam on the New river the concrete in the base of the main dam was practically complete up to high-water levels at the end of the year. Concrete pouring was under way at Center Hill dam on the Caney Fork river, and more than two-thirds of the rolled fill had been placed by the end of 1946. At Wolf Creek dam on the Cumberland river erection of a 370-ft.-high tail tower was under way to support two 2,300-ft.-long cableways for placing the 1,400,000 cu.yd. of concrete.

During 1946 construction was started on the St. Mary's river dam, largest and highest earth dam in Canada.

The largest concrete dam in the southern hemisphere was begun during 1946 in the Warragamba gorge in New South Wales, Australia, about 70 mi. from Sydney.

Construction of the Génissiat dam, on the upper Rhône river in France, continued during 1946. This dam, second largest concrete dam in Europe, was started in 1938. Work was undertaken by the Germans but was eventually stopped and finally resumed by the French in Sept. 1945. The dam was to create a reservoir 14 mi. long, making the Rhône navigable from Lyon to Geneva for 1,000-1,500-ton capacity barges and making available ultimately an additional 1,600,000,000 kw.-hr.

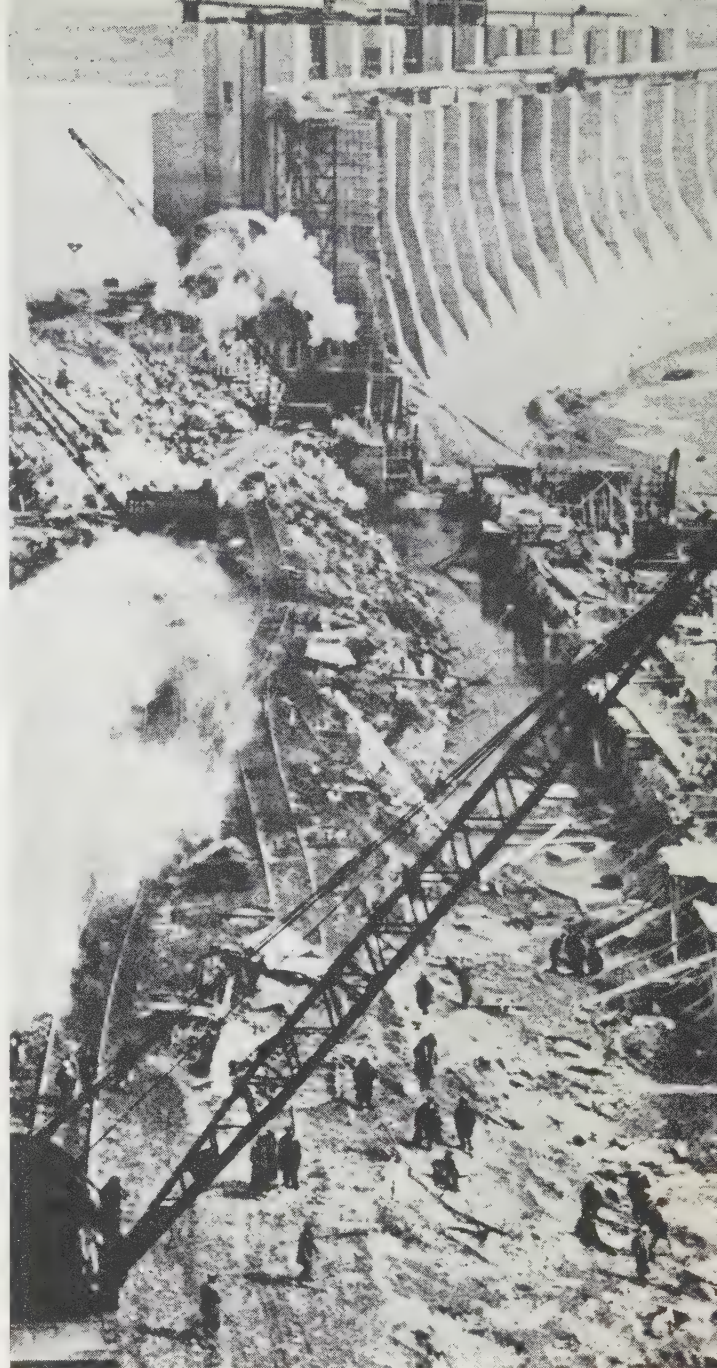
Repairs were completed in 1946 on the Dnieprostroi dam on the Dnieper river in the U.S.S.R. This dam, largest concrete dam in Europe, was partially destroyed by the soviet people in 1941 in an effort to thwart the advance of the German armies.

Foundation explorations were under way for a proposed dam in the Yangtze river gorge in China. The dam, 750 ft. high, would be the highest in the world. It would contain 15,000,000 cu.yd. of concrete and would be the largest masonry structure in the world. A reservoir of 50,000,000 ac.ft. capacity would be created for the irrigation of 10,000,000 ac. and the production of more than 10,000,000 kw. of hydroelectric power.

The table herewith lists 15 important dams of the world under construction during 1946. (See also AQUEDUCTS; IRRIGATION; TENNESSEE VALLEY AUTHORITY.) (B. O. M.)

Dance. In England Sadler's Wells Ballet company returned to Covent Garden in February after six years' absence, during which time the building had been used as a dance hall for troops. The house was almost immediately sold out. Later in the year Sadler's Wells launched a second company to meet demands.

There was an imposing array of new ballets and revivals: Sadler's Wells' new production of *Giselle*, a new and extended presentation of the classic *Sleeping Beauty* and *Coppelia* in its entirety. The International ballet revived *The Masque of Comus* in an extravagant performance with words, songs and luxurious scenic effects.



HUGE DAM on the Dnieper river, destroyed by the Russians before the advance of the German armies in 1941, is shown under reconstruction in 1946

Remarkable for its ingenious scenic and dramatic effects was Robert Helpmann's *Adam Zero*, a ballet of man's life on earth—birth, love, giving birth, work and death. Helpmann also did a dance version of *Hamlet*. Frederick Ashton created two new ballets, *Les Sirenes*, a burlesque of the smart set of the Riviera of 1904, and *Symphonic Variations*, a plastic interpretation of César Franck's variation for piano and orchestra. Andrée Howard also contributed two premieres: *Assembly Hall*, a light plot staged at a formal ball and having for its purpose a delightful atmospheric movement interlude interpreting the musical forms of Georges Bizet's music; *Mardi Gras* was given in November. *The Catch*, a first ballet by Alan Carter, was a charming romp with wit and freshness to its choreography. Walter Gore's new ballet *Concerto Burlesco* presented by Ballet Rambert was a satire on the musical folk to music by Béla Bartók. *The Vagabonds* by Anthony Burke was suggested by Thomas Hardy's *A Tramp Woman's Tragedy* to John Ireland's music. This is a colourful and robust ballet of love, passion, murder and resurrection set in a gypsy camp.

The Ballets Negres had a successful debut in the spring with a repertoire of four ballets: *De Prophet*, *They Came*, *Aggrey* and *Market Day*. They toured the provinces and the continent and played two seasons in London.

The Anglo-Polish ballet toured India and the east. Irina Baronova and Leonide Massine appeared in the stage version of *Ballet in the Ballet*. Ben Hecht's movie, *Spectre de la Rose*, starring Viola Essen was popular but the balletomanes were not enthusiastic. The London Royal academy celebrated its silver jubilee; and *Ballet Today*, a new periodical, appeared on the London news stands.

The New Monte Carlo Ballet company appearing in France, in England and on tour featured Serge Lifar as dancer and choreographer.

In France Les Ballet des Champ Elysées created a furor by its ballet *The Young Man and Death*, libretto by Jean Cocteau and choreography by Roland Petit.

At the Paris opera the Wednesday evening ballet was becoming more and more popular. Lycette Darsouval, prima ballerina, paid a visit to the U.S. and there was talk of exchange of dance artists. George Balanchine was engaged at the end of the year as choreographer for 1947 for the Paris Opera ballet.

In the U.S.S.R. the Kirov Theatre of Opera and Ballet at Leningrad, fully restored, celebrated the 15th anniversary of the first performance of *Swan Lake* with an extended and beautifully mounted version.

Ballet master F. V. Lopukhov continued to add athletic and acrobatic movements to the classical and celebrate the folk vocabulary of movement in his ballets. In the repertoire for 1946 *The Serf*, *Red Poppy*, *Taras Bulba* were examples of social studies in dance form; *The Flames of Paris*, *Guerrilla Days*, *Laurencia*, examples of revolutionary themes, and *Heart of the Mountains* based on Georgian folklore showed excellent use of folk movements and rhythms.

At the Moscow Bolshoi Opera theatre L. M. Lavrovsky featured the dramatic libretto in a setting of classical choreography—for instance, *Romeo and Juliet*. R. V. Zakharov's *The Fountain of Bakhchisarai* was based on Alexander Pushkin's poem and *Lost Illusions* on Honoré de Balzac's story.

The leading ballerina of the soviet continued to be the gracious and poetic Galina Ulanova of the stupendous technique. Natalie Dudinskaya and Kirillova were almost equally popular. Leaders among the male dancers were Chabukiana Sergeyev and N. A. Zubkovsky.

Ballerina Olga Lepeshinskaya toured eastern Europe and was highly acclaimed. There were rumours that the whole Leningrad State ballet would be permitted to appear outside the soviet union.

Lunacharsky State Institute of Theatrical Arts, Moscow, opened a school for dance choreographers—the first such school in ballet history. The first volume of the soviet's *History of the Arts* to be published was titled *The Ballet of the Pushkin Period*.

In Italy La Scala, historic home of the Italian ballet, was destroyed in World War II but was rebuilt in 1946 with Italian fidelity to tradition. Wanda Sciccaluga, ballerina, appeared with success in Vincenzo Tomassini's *Sartine* to music by Jacques Offenbach. *La Taglioni*, a premiere, was a nine-scene ballet choreographed by Rosa Piovella Ansaldo, music by Vittadini, décor by Nicolas Benois. Maurice Ravel's *Mother Goose Suite* ballet remained a popular feature of the repertoire.

In Poland dance continued to exist despite political troubles. The Wielki theatre, home of the ballet, was destroyed but the dance found a theatre even in the ruins of Warsaw and held forth. However, many of these artists had to earn their living by dancing in night clubs.

The Helene Kirsova Ballet company in Melbourne, Australia, with native dancers and collaborating artists choreographed *Waltzing Matilda*, drawing all the characters from the song.

In South America several new dance projects had strong patriotic motivation. *Ballet da Juventude*, sponsored by Brazil's Student Athletic federation and Student's National union, toured with success. A ballet on Brazilian folk themes was particularly popular.

In Peru the Association of Allied Artists presented an all-Peruvian ballet celebrating the country's rich folklore and featuring native dancers.

In Shanghai, China, the Shanghai Ballet Russe gave performances using some Chinese dancers but chiefly the residents of the soviet colony there. It was interesting that the Japanese invasion did not disturb the group when they took Shanghai.

In the U.S., Ballet theatre decided to break with Solomon Hurok and reorganize its company and policy. Lucia Chase, who backed the company financially from the start, became its director with Oliver Smith and an art board consisting of Lucia Chase, Henry Clifford, Aaron Copland, Agnes de Mille, Jerome Robbins, Oliver Smith and Anthony Tudor.

After an uneventful spring season in New York the company left for its first season in London. It was well received there and returned in time to open at the Broadway theatre for a fall season in New York. Igor Youskevitch, mustered out of the navy, became the company's first dancer with Hugh Laing, John Kriza, Michael Kidd and Dimitri Romanoff as the leading male dancers. The ballerinas included prima ballerina Nora Kaye and leading dancers Alicia Alonso and Muriel Bentley.

The new ballets offered by Ballet theatre were the U.S. premiere of Frederick Ashton's *Les Patineurs* to music by Giacoma Meyerbeer (a pleasant, light ballet in which the dancers pretended they were skaters) and Jerome Robbins' *Facsimile* (a modern treatment of the eternal triangle) to music by Leonard Bernstein. The ballet was danced well by Kaye, Robbins and Kriza, but was far from epoch-making.

Hurok first started to build a ballet around Anton Dolin and Alicia Markova whom he had under contract and was lending to Ballet theatre as guest artists. The advent of Col. W. de Basil into the United States, however, resulted in a new combine, and Hurok opened his regular New York season at the Metropolitan with Col. de Basil's Original Ballet Russe plus Markova and Dolin.

The spring season of Ballet Russe de Monte Carlo presented a revival of *Raymonda*, 19th-century classical ballet to Alexander Glazunov's music. *Night Shadow* with choreography by George Balanchine was set at a masked ball. The poet enjoys a flirtation with Coquette. Later his host's wife appears to him as she is sleep-walking. He falls in love with her. Coquette in pique tells the husband who stabs and kills the poet. But in the final death scene the sleepwalker appears and leads the poet away with her.

The fall season of the Ballet Russe de Monte Carlo presented Ruth Page's ballet based on Edgar Allan Poe's poem, "The Bells," to Darius Milhaud's music. The ballet, sumptuously set, did not do justice to its famous literary inspiration.

Ballet Russe de Monte Carlo personnel remained virtually the same with prima ballerina Alexandra Danilova and Frederic Franklin heading the company, Nathalie Krassovska and Leon Danielian second in rank and Ruthanna Boris, Maria Tallchief, Nicolas Magallanes as soloists. Ballerina Maria-Jeanne was the only important addition to the company.

Something really new in ballet came about before the end of the year in the formation of Ballets for America organized by Yurek Shabelevski, Yurek Lazowski and Tatiana Grantzeva.



BALLET RUSSE in a scene from Liszt's "Cercle Vicioux" at the Salle Pleyel in Paris in 1946, its first appearance there after 1939

With Nana Gollner as prima ballerina and Tatiana Grantzeva, Kathryn Lee and Bettina Rosay as first soloists plus a company of excellent dancers the company set a new precedent in doing away with the traditional corps de ballet and specializing in short ballets designed to show off the talent of the individual dancers. Two pianists took the place of the traditional orchestra.

The company had an auspicious opening in Bridgeport, Conn., on Sept. 1946 which many notables from the ballet and theatrical world attended.

Three famous pas de deux from *Don Quichotte*, from *The Nutcracker* and from *The Sleeping Beauty*, supplied the traditional part of the repertory. Starting out on tour, the company seemed slated for success because it filled a demand for a popular evening of good dancing by a small well-integrated company with minimum overhead. However, its audiences were not large enough to support its overhead and it soon folded up from lack of funds.

The dance as a whole continued to become more and more a part of life. Ballroom and folk dancing increased noticeably in popularity. National contests were revived in France and England. The United States added to the ones already established.

The Atlanta Civic ballet among other accomplishments raised \$700 at one of its performances for its civic symphony orchestra. Particularly active were Volkoff's Canadian ballet, the Winnipeg ballet, Bernice Holmes' Chicago ballet, New Jersey's Young People's Dance theatre, Lillian Cushing's Dancers of Colorado, Thelma Biracree's Rochester ballet, San Francisco Dance league, Jan Veen's Dance group of Boston, San Francisco Ballet company and Havana Sociedad Pro-Arte Musical.

The motion picture industry continued to sign up all possible celebrities in the dance, choreographers as well as dancers, but produced very little. Tilly Losch appeared in *Duel in the Sun* from the Selznick studios; Viola Essen starred in *Spectre de la Rose* produced by Ben Hecht.

The modern group was active in solo recitals and concert groups and continued its invasion of Broadway as soloists and choreographers and the conquest of the provinces by touring companies. Pearl Primus was a sensation in the revival of *Showboat*, Valerie Bettis was working on a ballet for one of the leading ballet companies. Martha Graham's new work *Serpent Heart*, a sort of modern Medea, met with success. The return of the young moderns from the armed forces enabled prewar teams and groups to get together again. Barton Mumaw gave a series of recitals at Carnegie hall; Jose Limon organized a company with Doris Humphrey as artistic director.

Both on ice and roller skates the ballet continued to flourish in arenas, theatres and hotels. The arena shows vied with each other in extravagant scenery, costumes and lighting.

Catherine Littlefield, choreographer for the ice show at Center theatre, put the classic *Nutcracker Ballet* on ice.

Two new inventions in roller skating were significant in the profession's artistic future. The first was a plastic floor which made a smooth surface free from dust or direction, that looked very deep, shiny and inviting. The other was the space skate, suspended on rubber under tension so it responded instantly and completely to the skater's intent. (L. M.H.)

Ballroom.—During 1946 ballroom dancing continued to retain the high peak of popularity that it had reached during the years of World War II. This was true despite the lack of anything new in either partnership or participation group dances. The fox trot remained the best-known dance. The rumba showed marked growth but the samba had no increase in public favour. The tango was completely dormant and there was a decrease of interest in the waltz.

Popular dancing style can be measured most quickly by the best-known dance tunes. There were no noteworthy, new waltzes during 1946, no well-known tangos and only a few popular sambas, but there were many new rumbas written in various tempos.

Some of the outstanding fox trots were played in a very slow tempo accompanied by sentimental lyrics. To such tunes as "Rumors Are Flying," "To Each His Own" and Irving Berlin's "The Girl That I Marry," dancers used very little variety in steps. Basic slow fox trot is the easiest ballroom dance; therefore, the floors were too crowded to permit intricate turns and balances by expert dancers. Instead, there was a uniformity of slow walking and side steps.

During the year the fox trot tunes that became most popular everywhere were those written in a medium, syncopated tempo. To such music dancers could use either conventional fox trot patterns or jitterbug steps. The titles of the best-known compositions were comic—for example, "Hey! Ba Ba Re Bop," "My Sugar Is So Refined" and "Shoo-Fly Pie and Apple Pan Dowdy." The livelier music attracted the better dancers. (A. Mu.)

Dartmouth College. During 1946 Dartmouth reverted entirely to a civilian student status with termination of the active-duty phase of the naval reserve officers training corps and V-12 navy programs on June 30. The summer term was attended by about 900 students and the fall semester saw all facilities in Hanover crowded to the limit with a total enrolment of about 2,850 as compared with the prewar 2,400. Dartmouth relies largely upon college dining halls to provide eating facilities which in the small village of Hanover could not be expanded beyond a total of 3,000 students—a figure which it was thought might be reached with the return of many more veterans in the Feb. (1947) semester. Other than eating, the major bottleneck was classroom facilities. Instruction for the overcapacity enrolment was being handled by the faculty through heavier teaching loads. More than 300 undergraduates were married and were provided housing in apartments constructed both by the college and the government. A unit of the Naval Reserve Officer Training Corps continued at Dartmouth on an inactive-duty basis. President John Sloan Dickey assumed the post of acting director of the new senior course in "Great Issues," which was to begin in the fall of 1947 and which would be required of all seniors. The course would be a new and major feature of Dartmouth's revised postwar curriculum and would provide instruction for all seniors in problems of the contemporary world. There would be group discussions of great issues led by visiting lecturers pre-eminent in their fields. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(S. C. HA.)

Dates: see FRUIT.

Daughters of the American Revolution, National Society of: see SOCIETIES AND ASSOCIATIONS.

DDT: see ENTOMOLOGY.

Deafness. Deafened people were rehabilitated in 1946 by the electroacoustical hearing aid, by lip reading and by the fenestration or window operation. Manual systems of communication for the deafened were not promoted extensively because reading of lips seemed more satisfactory.

Significant progress was made for the amelioration of hearing loss by surgery. Through clinical research otologists learned to diagnose the type of hearing defect for which the fenestration operation was most apt to give a successful result. This operation should be done by a capable otologist. It is relevant to point out that the improvement, no matter how well the operation is performed, does not re-establish normal hearing.

Most of the hard-of-hearing persons were rehabilitated by hearing aids or by lip reading or a combination of the two. The modern vacuum tube or valve hearing aid consisted of these basic parts—crystal microphone (transmitter), amplifier, two or more midget vacuum tubes, condensers, resistors, on-and-off switch, volume control, receiver and batteries. The receiver might be either of the air-conduction or bone-conduction type. For air conduction a fitted ear mould must be worn in the external auditory canal. For bone conduction the receiver must be held firmly in contact with the mastoid by means of a head band. Two batteries were required—A battery of 1½ volts and B battery of from 22½ to 45 volts. An acceptable hearing aid gave a gain of at least 30 decibels in speech reception.

The so-called "single unit" hearing aid was widely accepted. All component parts were enclosed in a single case with the exception of the receiver and its connecting wire. In 1946 hearing aids, complete with A and B batteries, weighed approximately 8–12 oz. The cost of hearing aids ranged from \$40 to \$190.

The properly fitting, comfortable ear mould was essential for satisfactory performance of an air-conduction hearing aid. A hearing loss of 30–35 decibels in the speech frequency range was regarded a handicapping loss. The hard-of-hearing person was advised to have his ears examined by a physician before considering the purchase of a hearing aid. He was also advised to have an ear mould made before attempting to make a selection of a hearing aid. A few civilian hearing-aid clinics were established in several large cities. A complete otological examination and a fitting of a hearing aid were a part of the service rendered.

A "deaf" person has defective hearing to the extent of being incapable of instruction by speech shouted loudly into the ear. A "hard-of-hearing" or "deafened" person has defective hearing in any degree short of total loss of hearing for speech.

In 1946 the number of people in the United States hard of hearing, impaired in one or both ears, was estimated to be 10,000,000–13,000,000. Of this number, possibly 4,000,000 were seriously handicapped and at least 3,000,000 required aids or the use of lip reading. Probably no more than 600,000 actually used hearing aids. The Volta Bureau for the Deaf, Washington, D.C., estimated 95,000 deaf enough to require specialized instruction in schools for the deaf.

The American Hearing society, formerly called the American Society for the Hard of Hearing, Washington, D.C., and its component societies in many cities, provided information and arranged for instruction in lip reading. In some of the component societies hearing-aid bureaus were in operation. The bureaus provided an opportunity for a deafened individual to try out hearing aids and select the one that helped him the most.

A list of acceptable hearing aids and requirements on which acceptance is based may be obtained from the Council on Physical Medicine, American Medical association, 535 N. Dearborn St., Chicago 10, Ill.

(H. A. C.)

Deaths (of prominent persons in 1946): see OBITUARIES.

Death Statistics. There was a small improvement in mortality in the United States during 1946 as compared with 1945, according to provisional reports covering the first 11 months of both years; the decrease in the death rate from the first period to the second amounted to 3%. The record for Jan. 1946 was behind that of Jan. 1945, while February of both years was at the same level; for each following month through November (the latest of record until 1947) the death rate in 1946 was lower than in 1945. There were altogether 1,401,719 deaths reported during all of 1945, the death rate being 10.6 per 1,000 population. In contrast to the somewhat more favourable mortality indicated for the United States in 1946 as against 1945, provisional reports for Canada and for England and Wales pointed to slight setbacks during 1946. Canadian reports from cities of 10,000 or more inhabitants for the first 10 months of 1946 showed a 3% increase in deaths over the corresponding period of the previous year, 1945. A total of 112,966 deaths was reported for all of Canada for the whole of 1945 and a death rate of 9.3 per 1,000 population. Reports from London and the great towns of England and Wales also showed a 4% increase in deaths for the first 11 months of 1946 as compared with the like period of 1945. For England and Wales as a whole 488,112 deaths were reported during 1945 with a death rate of 11.4 per 1,000 population.

For the entire year 1945 the death rates per 100,000 population in the United States from the more important causes according to rank were: diseases of the heart 321.5, cancer 134.5, intracranial lesions of vascular origin 97.9, total accidents 72.7 (of which automobile accidents were 21.3), nephritis 66.7,

pneumonia 44.1, tuberculosis 40.1, diabetes mellitus 26.6, syphilis 10.7, diarrhoea and enteritis 8.7, influenza 7.7, appendicitis 5.1, whooping cough 1.3 and cerebrospinal meningitis 1.3.

The ranking of the leading causes of death according to age for white persons in the United States and their death rates per 100,000 population at those ages were as follows during 1944, this being the latest year for which these data were available in 1946: ages 1 to 4 years, all causes 209, pneumonia and influenza 38, accidents (excluding motor vehicle) 36, diarrhoea and enteritis 12, congenital malformations 12, motor vehicle accidents 11; ages 5 to 14, all causes 87, accidents (excluding motor vehicle) 20, motor vehicle accidents 10, pneumonia and influenza 6, diseases of the heart 6, appendicitis 4; ages 15 to 24, all causes 174, accidents (excluding motor vehicle) 49, motor vehicle accidents 22, tuberculosis 20, diseases of the heart 12, pneumonia and influenza 7; ages 25 to 44, all causes 310; diseases of the heart 52, cancer 39, tuberculosis 38, accidents (excluding motor vehicle) 31, pneumonia and influenza 14; ages 45 to 64, all causes 1,343, diseases of the heart 452, cancer 252, intracranial lesions of vascular origin 110, nephritis 75, tuberculosis 57; ages 65 and over, all causes 6,809, diseases of the heart 2,668, cancer 858, intracranial lesions of vascular origin 833, nephritis 557, pneumonia and influenza 346.

After the end of World War II there was a sharp rise in motor vehicle fatalities. According to the experience of white industrial policyholders of the Metropolitan Life Insurance company covering the first half of 1946 and of 1945, all but the school ages 5 to 14 years showed increases from one year to the next. The rise was particularly rapid at ages 20 to 24 years, especially among females. The rise was attributed not only to an increased desire to drive after wartime gas rationing was removed, but also to the use of dilapidated cars and to the possibility that drivers may have lost some of their competence. Following its decline in the first years of World War II the death rate from motor vehicle accidents in the United States began to mount in 1944, when it resumed its first place as a cause of fatality with a rate of 18.3 per 100,000 population; it was followed in turn by fatal injury from fall 17.0, air transport accidents 5.0, drowning 4.2, burns (except conflagration) 4.0 and railway accidents (except collisions with motor vehicles) 2.6.

There were several outstanding catastrophes within the United States during 1946. Those resulting in 25 or more deaths were: Jan. 4, a tornado in east Texas, 33 deaths; March 3, a plane crash in California 27 deaths; March 19, a C-47 army transport plane crash in California 26 deaths; April 25, a railroad train collision in Illinois 46 deaths; May 10, collision of two navy planes in Florida 28 deaths; May 16, crash of a chartered plane in Virginia 27 deaths; June 5, La Salle hotel fire in Chicago 61 deaths; July 9, crash of a converted bomber in Massachusetts 25 deaths; Dec. 7, Winecoff hotel fire in Atlanta, Ga. 119 deaths; Dec. 10, disappearance of a marine corps plane 32 deaths; Dec. 12, collapse of a New York tenement 38 deaths.

Maternal mortality in the United States reached a record low of 2.1 per 1,000 live births in 1945 with only 5,668 deaths from this cause; the rate for the year before was 2.3 per 1,000 live births. Canada, in 1945, had 663 deaths from puerperal causes and a corresponding maternal mortality rate of 2.3 per 1,000 live births (to be compared with 2.7 in 1944). In England and Wales there were 1,025 puerperal deaths (exclusive of deaths from abortion) during 1945 with a rate of 1.5 per 1,000 live births (the rate in 1944 was 1.6). Maternal mortality within the United States during 1944, the latest year with complete data by areas, varied from a low of 1.7 per 1,000 live births in the Pacific states, to a high of 3.2 per 1,000 in the east south central states. Within each geographic division of the country

maternal mortality was lower in the white population than in the Negro; for the country as a whole the rate was 1.9 per 1,000 live births in the white population and 5.0 per 1,000 in the Negro population. For both races combined, the maternal mortality rate showed a decline from 4.2 per 1,000 live births at ages 10 to 14 years, to a low of 1.4 per 1,000 at ages 20 to 24 years, and thence mounted to a high of 9.0 per 1,000 at ages 45 to 49 years. Of the total puerperal deaths during 1944, 64.6% occurred during or after delivery, 14.4% were attributed to diseases or accidents of pregnancy before delivery, 15.6% to abortion and 5.4% to ectopic gestation. Septicaemia accounted for 35.7% of all puerperal deaths, puerperal toxæmia for 25.2% and haemorrhage for 18.5%. As a result of the increasing use of the sulfa drugs, the maternal mortality rate from septicaemia was decreasing more rapidly than the rate from other puerperal causes; in the brief period from 1940 to 1944 the rate for septicaemia had fallen by more than half, while the rate for toxæmia had dropped by 39% and that from other puerperal causes by 25%.

The expectation of life at birth for the general population of the United States, based upon mortality conditions in 1944, was 65.12 years for total persons, 63.55 years for white males, 68.95 years for white females, 55.30 years for Negro males and 58.99 years for Negro females. For all but white males these were the highest figures on record for the country. The poorer showing by white males is largely the result of the high mortality from accidents among those serving in the armed forces within the United States.

A notable step toward raising health standards throughout the world, and thereby lowering death rates, was taken with the signing, on July 22, 1946, of the constitution of the World Health organization, sponsored by the International Health conference, which was called by the United Nations. There participated, in addition to the 51 members of the United Nations, 10 nonmember nations. In the preamble health was defined as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Among its many functions the World Health organization undertook "to establish and maintain such administrative and technical services as may be required, including epidemiological and statistical services."

In a survey of "Some Effects of Famine On The Population of Greece" (*Milbank Memorial Fund Quarterly*, July 1946) V. G. Valaoras pointed out that the period of famine during its occupation by German forces covered the 2 years from May 1941 to April 1943, and that in this interval about 450,000 lives were lost from a lack of essential foods. The famine did not affect children and women so much as adult males, possibly because the children and women were the better protected and possibly because of conserved energy on the part of mature women in the absence of menstruation resulting from reduced food intake. The author did not find evidence of severe epidemic or nonepidemic diseases accompanying the famine. However, he did find evidence of great increases in deaths when temperature fell. (See also ACCIDENTS; CENSUS DATA, 1946; INFANT MORTALITY; SUICIDE STATISTICS.)

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Debt, National. The year 1946 marked the first downward movement of the national debt of the United States after 1930. All during the years of depression and recovery the national debt had steadily mounted from

\$16,185,000,000 in 1930 to \$42,971,000,000 in 1940. This rate of expansion was tremendously increased during the years of World War II because of the huge annual total of government war expenditures. By the end of 1945 the national debt had risen to \$278,115,000,000.

The last war bond campaign to be held in connection with World War II, the Victory Loan, was conducted between Aug. 1945 and the end of that calendar year. Because government expenditures were already falling, the goal for the Victory

Table I.—National Debt of the United States, 1913–47

	June 30	(Millions of dollars)		June 30	(Millions of dollars)
1913	\$1,193		1930	\$16,185	
1914	1,188		1931	16,801	
1915	1,191		1932	19,487	
1916	1,225		1933	22,539	
1917	2,976		1934	27,053	
1918	12,244		1935	28,701	
1919	25,482		1936	33,545	
1920	24,298		1937	36,427	
1921	23,976		1938	37,167	
1922	22,964		1939	40,445	
1923	22,350		1940	42,971	
1924	21,251		1941	48,961	
1925	20,516		1942	72,422	
1926	19,643		1943	136,696	
1927	18,510		1944	201,003	
1928	17,604		1945	258,682	
1929	16,931		1946	269,422	
			1947	261,000	

Source: Data from 1913 to 1946 are from U.S. treasury department, daily treasury statement (revised); 1947 estimated.

Loan was set lower than for the Seventh War Loan at \$11,000,000,000. However, the loan was heavily oversubscribed with the total sale of securities reaching \$21,100,000,000.

The result was that the treasury began the calendar year 1946 with an exceptionally large cash balance. Since the government's expenditures were drastically curtailed after the end of World War II and taxes substantially maintained, the government's deficit was reduced to a point that made the large cash balance unnecessary. During 1946, therefore, the treasury undertook a program of scaling down the public debt by using the cash balances which had resulted from the Victory Loan drive. In the course of the year the national debt was reduced from \$278,115,000,000 to \$259,149,000,000. By the end of the year there was little possibility of further reduction of the debt by this method, further debt reduction being contingent upon a surplus of treasury receipts over expenditures. It appeared from Pres. Harry S. Truman's budget message to congress that no immediate further reduction of debt was anticipated as the national debt total at the end of the fiscal year 1947 was estimated at \$260,400,000,000.

The debt reduction program in 1946 was concentrated in short-term obligations of the government, certificates of indebtedness and treasury notes. During this period the reduction in the holdings of government obligations by commercial banks approximately equalled the decline in the total public debt. The only significant increase was in the special issues held by government agencies and trust funds.

During the year there was not a great change in the holdings of U.S. savings bonds. By the end of the final war loan drive

total savings bonds outstanding had risen to \$48,183,000,000. These securities continued to increase during 1946, showing a total of \$49,545,000,000 by the end of September. The redemptions continued at about their wartime level of a little more than \$500,000,000 a month.

Experience with the "E" bonds was very similar, although by late 1946 the total outstanding was \$500,000,000 lower than the peak at the beginning of the year. It was quite apparent that the end of World War II had brought no large change in the rate of redemption, and this continued in the neighbourhood of $1\frac{1}{2}\%$ per month of the total amount outstanding.

A significant feature of the management of the public debt during World War II was the low interest rate policy that was adopted and maintained by the government. World War II was financed at an average rate of interest of 1.8% on the securities issued, compared with an average rate of 4.25% on the securities issued to finance World War I. Interest rates during the war period rose only moderately above the level prevailing during the depression of the '30s, the highest rate for long-term market issues being 2.5%. As a special inducement to individuals to increase their savings and thus assist in the government's anti-inflation program, the interest rate on savings bonds if held to maturity was fixed at 2.9%.

For total securities outstanding the computed annual rate of interest declined steadily during the war, the average rate of 2.534% in 1939 falling to 1.935% in 1945. With the liquidation of the debt in 1946 concentrated in short-term securities the average computed annual rate of interest increased. The rate in Jan. 1946 was 1.986% but by October of that year the computed rate had risen to 2.035%. This increase was primarily the result of the change in the proportionate composition of the outstanding debt.

It was evident that the stoppage of the huge debt increase, which occurred during World War II would likewise level off the annual interest payments of the federal government. In

Table III.—Ownership of Government Interest-Bearing Securities

	(Billions of dollars)		
End of month	June 1940	June 1945	June 1946
Total amount outstanding	47.9	256.8	268.6
Total held by banks	18.6	105.9	107.1
Commercial banks	16.1	84.1	83.3
Federal reserve banks	2.5	21.8	23.8
Total held by non-bank investors	29.3	150.8	161.5
Individuals	9.7	58.5	63.0
Insurance companies	6.5	22.7	25.3
Mutual savings banks	3.1	9.6	11.5
Other corporations and associations	2.6	29.9	26.5
State and local governments . . . . .	.3	5.3	6.2
U.S. government agencies and trust funds	7.1	24.9	29.1

Source: U.S. treasury department, treasury bulletin.

his budget message the president estimated the interest charges for the fiscal year 1947 at \$4,950,000,000, while the estimate for the fiscal year 1948 was \$5,000,000,000. This was in con-

Table IV.—Debt of State and Local Governments, U.S.

(Millions of dollars)				School district and special district	
Item	1942	June 30 1945	1946	Municipal	
Direct public debt, total	\$72,422	\$258,682	\$269,422		
Interest-bearing debt, total	71,968	256,357	268,111		
Public issues:					
Bonds, total	48,777	152,734	168,965		
U.S. savings bonds	10,188	45,586	49,035		
All other	38,589	107,148	119,930		
Notes, total	9,704	33,633	24,972		
Treasury notes	6,689	23,497	18,261		
Tax and savings series	3,015	10,136	6,711		
Certificates of indebtedness	3,096	34,136	34,804		
Bills	2,508	17,041	17,039		
Special issues	7,885	18,812	22,332		
Noninterest-bearing debt	454	2,326	1,311		
Guaranteed obligations	4,568	433	476		
Total direct and guaranteed debt	76,990	259,115	269,898		

Source: Daily statement of the U.S. treasury.

*Preliminary.

Source: U.S. department of commerce.

trast to interest charges in 1940 of \$1,041,000,000.

State and Local Government Debt.—The statistics on the state and local government debt are shown in Table IV. In 1946 the downward trend of state and local debt that characterized the wartime period was continued. The total for all governmental entities was \$15,922,000,000 as compared with \$16,589,000,000 a year earlier. It may be seen that the decline in 1946 was of smaller magnitude than that of earlier years of World War II. While all categories of government units experienced some debt reduction, the decline in municipal debt accounted for the major share of the total decrease.

From 1940 to 1946 the decline in the total debt of state and local governments was slightly more than 21%. On a comparative basis the state and county governments reduced their debt more substantially than other government bodies, the percentage decline over this period being a little more than one-third. On the other hand, municipal debt, which accounted for approximately half of total state and local government debt, declined by 20%, or about the same as the total. A smaller reduction was recorded by school districts where the decline was only 10%.

Other Countries.—The changes in the national debt of the leading countries, 1935-46, are shown in Table V. It is apparent that the wartime period brought phenomenal increases in national debts throughout most of the world. Not only did the debt of all belligerent countries rise precipitously, but many of the neutral countries had to resort to borrowing to finance the unusual expenditures during this period. The only major area of the world where the debt changes were of limited magnitude during World War II was Latin America.

For all the major belligerents the outstanding debt reached unprecedented proportions. In the United Kingdom the national debt rose to £25,092,000,000 in 1946 as compared with £9,083,000,000 in 1940. While this percentage increase was less than that of the United States,

Debts, Government: see DEBT, NATIONAL.

Decorations, Medals and Badges—Military, Naval and Civil.

The United States government was embarked in 1946 on the largest medal producing program in the history of the country. Probably one of the largest procurements of any one medal design was the World War II victory medal to be issued by the war and navy departments to military and naval personnel who served honourably on active duty at any time between Dec. 7, 1941, and the date of termination of hostilities. The design was described by the U.S. war department on March 14, 1946. The design was created by Thomas Hudson Jones consisting of a medal of bronze with the figure of "Liberation" standing full length with head turned to dexter looking to the dawn of a new day, right foot resting on a war god's helmet with the hilt of a broken sword in the right hand and the broken blade in the left hand, the inscription "World War II" horizontally placed immediately below centre. The reverse has the inscriptions "freedom from fear and want" and "freedom of speech and religion" separated by a palm branch all within a circle composed of the words "United States of America—1941-1945." The ribbon was announced Oct. 25, 1945. Unlike the victory medal of World War I, this design is an exclusive design to the United States.

The U.S. war department authorized a ribbon for the army of occupation medal on April 5, 1946, for those individuals assigned, permanently attached to and present for duty with the army of occupation in Germany, Austria and/or Italy for a period of 30 consecutive days between May 9, 1945, and a terminal date to be fixed later. Credit for service in Italy was only to be given in the compartment of Venezia Giulia E Zara and the province of Udine (compartment of Veneto). In the Army of Occupation in Japan and/or Korea the 30 consecutive days' service must be between Sept. 3, 1945, and a terminal date to be fixed later. Credit would be given for service in Japan in the following islands only—main islands of Hokkaido, Honshu, Shikoku, Kyushu and surrounding small islands of Japanese homeland—Ryukyu and Bonin Islands. The medal for this service was also designed by Thomas Hudson Jones and was approved in Dec. 1946; it consists of a scene at Remagen Bridge, Germany, beneath the words "Army of Occupation." The reverse shows two Japanese junks in full sail before Fuji-yama above symbolic waves and the year "1945." On the suspension ribbon of the medal was to be a clasp marked "Germany" or "Japan" but no distinctive device was authorized for the service ribbon.

Designs for the European, African, middle eastern-Asiatic Pacific and American campaign medals had not been announced at the close of 1946. On March 15, 1946, the president designated the terminal date of service for the first medal Nov. 8, 1945, and the last two medals March 2, 1946.

The U.S. antarctic expedition medal 1939-41 authorized by congress Sept. 24, 1945, for valuable services to the nation in the field of polar exploration and science, was furnished in Dec. 1946, by the navy department to Admiral Richard E. Byrd, and the men who served on that expedition.

The design of the victory medal for World War II for the United States maritime commission service had not been announced during 1946, although authorized by congress.

The letter "V" device was authorized in 1946 by the U.S. war department for the suspension ribbon and service ribbon of the Bronze Star medal only to distinguish the award for valour rather than meritorious service.

Regulations governing the civilian award of the medal for merit were announced by the medal for merit board and ap-

Table V.—National Debt of Various Countries

Country (Unit of currency)* (in millions)	Date	Total debt (100,000)
Africa		
Egypt (pound)	1/31/45	92
Union of South Africa (pound)	3/31/46	584
America, North		
Canada (dollar)	3/31/46	16,807
Mexico (peso)	12/31/45	1,382
United States (dollar)	6/30/46	269,422
America, South		
Argentina (peso)	12/31/44	9,721
Brazil† (cruzeiro) (milreis)	12/31/44	39,536
Chile (peso)	12/31/45	6,665
Colombia (peso)	4/31/46	400
Ecuador (sucres)	5/31/45	635
Peru (sol)	6/30/45	1,524
Asia		
India (rupee)	3/31/46	19,650
Japan (yen)	7/31/46	219,075
Europe		
Belgium (franc)	6/30/46	278,868
Bulgaria (leva)	12/31/45	90,000
Czechoslovakia (koruna)	12/31/45	97,641
Denmark (krona)	3/31/45	3,831
Finland (markkaa)	5/31/46	69,939
France (franc)	5/31/46	1,999,441‡
Germany (reichsmark)	3/31/45	383,100
Greece (drachma)	3/31/40	52,746
Hungary (pengo)	12/31/43	6,501
Italy (lira)	6/31/46	1,051,153‡
Netherlands (guilder)	6/30/46	16,706
Norway (krone)	5/31/46	6,908
Poland (zloty)	3/31/39	5,318
Portugal (escudo)	12/31/43	8,761
Rumania (lev)	10/13/45	911,000
Spain (peseta)	12/31/43	34,947
Sweden (krona)	6/30/46	11,195
Switzerland (franc)	12/31/45	12,682
Turkey (pound)	12/ 8/45	1,489
United Kingdom (pound)	8/31/46	25,092
Yugoslavia (dinar)	3/31/39	24,620
Oceania		
Australia (pound-Aust.)	3/31/46	2,818
New Zealand (pound-N.Z.)	3/31/45	603

*For approximate value of various currencies see *Exchange Control and Exchange Rates* Prior to Nov. 1, 1942, the official designation of the Brazilian currency unit was the milreis.

†Includes the internal debt only.

Source: Statistical Yearbook and monthly statistical bulletins of the League of Nations, official government sources.

it must be recognized that Great Britain had a much higher debt than the United States at the beginning of World War II in comparison to the economic potential of the country. By the beginning of the war the debt of Germany and Japan was already high, because of the war preparations of the preceding years. Nonetheless, the increase during the war was many times greater. The Japanese debt was 219,075,000,000 yen in 1946, almost 10 times as large as the total in 1940, while the German debt rose from RM 47,950,000,000 in 1940 to RM 383,100,000,000 in 1945. The increase in the Italian debt during the war was more than fivefold.

The debt statistics of the occupied countries, made available after the end of World War II, gave some indication of the heavy cost of German occupation. The Belgian debt in 1946 totalled 278,868,000,000 francs as compared with 71,333,000,000 in 1940. Over the same period the French debt increased from 708,679,000,000 francs to 1,999,441,000,000. Bulgaria, Czechoslovakia, Finland, the Netherlands, Norway and Rumania had similar experiences. (See also BUDGET, NATIONAL; GREAT BRITAIN.) (M. G. T.)



TRUMAN PRESIDENTIAL MEDAL issued by the U.S. mint in June 1946. Stamped on mint bronze, the medal is three inches in diameter

proved by the president Nov. 7, 1945.

A president's certificate of merit was authorized June 6, 1946, to be awarded by the president or at his direction to any civilian who on or after Dec. 7, 1941, performed a meritorious act or service which aided the United States or any nation engaged with the United States in the prosecution of World War II and for which there is no other suitable award or recognition.

A new design of lapel button for war department meritorious civilian service award was approved during 1946.

During the year the relative sequence of wearing the Silver Star and the Legion of Merit were reversed, so that the Silver Star is now prescribed to be worn before the Legion of Merit.

(A. E. DU.)

Defense Communications Board: *see* FEDERAL COMMUNICATIONS COMMISSION.

Defense Transportation, Office of. The Office of Defense Transportation entered the year 1946 with its controls over the United States transportation operations largely limited to waterway and rail transportation services.

On Jan. 8 the ODT relinquished possession and control of the Capital Transit company of Washington, D.C., the operation of the lines—taken over in Nov. 1945 following a labour dispute—being the last holdover activity of the former ODT highway transport department.

As soon as rail passenger traffic showed signs of easing, the ODT moved to modify or revoke its wartime passenger traffic regulations. The completion and delivery of 800 new troop sleepers and reductions in the movement of troops from west coast ports of arrival made possible the revocation, late in January, of the orders which set minimum speeds for the operation of troop trains and allocated aeroplane space from the west coast to returning troops.

As of Feb. 15, the 450-mi. limitation on sleeping car runs was eased by reducing the mileage limitation to 350 mi. A further reduction to 250 mi. was made, effective March 1. The order was revoked March 15. The time limit on Pullman reservations was also revoked as of March 15.

On Feb. 6 the ODT assumed possession and control of 91 towboat companies operating in New York harbour and contiguous waters because of a strike of 3,500 tugboat workers. Following the signing of an arbitration agreement the properties were returned to private control March 3.

To expedite the movement of grain and foodstuffs for export relief, the ODT late in February and in March requested the Interstate Commerce commission to issue service orders requiring carriers to give preference in furnishing cars to certified shippers of food for export relief and to give priority to country grain elevators on orders for empty cars, and appointing an agent to pool empty boxcars for the transportation of foodstuffs

for overseas relief. These orders were suspended or revoked later in the spring as the movement of export foodstuffs improved.

On May 1 the ODT revoked its two remaining orders regulating railroad passenger traffic, general orders ODT 55, which had placed all railroad passenger day coaches, baggage and express cars at the disposal of the military authorities under ODT supervision, and ODT 56, which had established uniform occupancy standards for railroad cars in organized military movements.

In order to conserve railroad coal supplies during the 59-day bituminous coal strike, the ODT, early in May, reduced coal-burning passenger locomotive service by 25% as of May 10 and by 50% as of May 15. At the same time the ODT issued a directive to the Association of American Railroads embargoing all rail freight with the exception of commodities and supplies necessary to public health and safety, such as food, fuel, animal feed, medical supplies and printing paper and ink. Railway express shipments were later embargoed. Motor carriers were also ordered to give preference to the movement of essential commodities.

In anticipation of a strike of railroad employees the ODT was ordered by the president to assume possession and control of the nation's 337 rail carriers on May 17. Following the stoppage of rail service the ODT on May 23 issued a series of orders co-ordinating the use of air, highway and water transportation services. Preference lists of essential commodities were established for each type of carrier, joint action and equipment and service pooling arrangements were authorized and ODT officials were named to administer the emergency transportation measures. A complete and integrated organization was directing transportation of essential needs when the strike was called off on May 24. The emergency measures were rescinded shortly thereafter, possession and control of the railroads being relinquished as of 4 P.M., May 26. At the same time the ODT relinquished possession and control of the Illinois Central railroad which had been under government control as a result of a labour dispute from Aug. 23, 1945.

The ODT assumed possession and control of the Monongahela Connecting Railroad Co., on June 14, following a labour dispute. The line was returned to private operation Aug. 12 upon settlement of the differences.

Although the ODT was scheduled to liquidate its activities at the close of the fiscal year, June 30, shortages of railroad freight equipment, continued increases in freight traffic and ODT operation of several transportation services involved in labour disputes resulted in congressional authorization for continuance of the agency until April 30, 1947.

Freight car loadings, particularly boxcars and coal cars, continued to rise during June and by mid-July loadings were above their wartime peaks. To meet the demand for boxcars in the grain-growing regions, the Interstate Commerce commission at the request of the ODT ordered the movement of 1,000 empty boxcars per day into the central, western and southwestern regions.

To reduce the detention of coal cars penalty demurrage charges were imposed as of Aug. 1 in an ICC service order issued at ODT request. Coal receivers were also asked to provide for Saturday unloading and loading within the allotted free time. In an effort to increase heavier loading of freight cars, the ODT revised and reissued its less-than-carload and carload freight orders, general orders ODT 1 revised, and 18A revised, effective Aug. 11. Through arrangements made with the Interstate Commerce commission service agents of the ICC bureau of service were assigned the task of isolating and reporting non-compliance with ODT orders and of obtaining efficient and maximum utilization of railroad facilities.

Additional appeals were made to shippers and receivers of freight to speed up the loading and unloading of freight cars and the railroads were called upon to reduce the number of bad order cars and increase their orders for new equipment. The appeals resulted in a steady improvement in turn-around time and continued reductions in the number of bad order cars during the late summer and fall months. Turn-around time decreased from 14.4 days in June to 13.0 days in October. Bad order cars declined from 82,000 in July to 73,000 in November.

As predicted by Col. Johnson early in the spring, freight car loadings during October and November reached record highs, surpassing the highest loadings from 1930. For the five weeks prior to Nov. 16 loadings were running at an average of 925,000 a week, a figure considerably above wartime levels.

Several days before the year's second stoppage of bituminous mining operations the ODT ordered a 25% reduction in railroad passenger service performed by coal-burning locomotives, effective 11:59 P.M. Nov. 24. On Dec. 3 after the strike had been in effect for about two weeks, the ODT took further restrictive measures to conserve the nation's remaining stockpiles of railroad bituminous coal, and, in addition, made plans to reinstate the emergency organization setup to direct transportation of essential needs at the time of the railroad strike in May.

On Dec. 7, following the announcement that soft coal mining operations would be resumed ODT acted immediately Dec. 9 to restore normal rail passenger, domestic and export freight, express and parcel post services. (*See also* ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; RAILROADS.) (J. M. J.)

De Gaulle, Charles: *see* GAULLE, CHARLES DE.

Delaware. Delaware, on the middle Atlantic seaboard, is one of the original 13 states, known as the "First state," having been the first to ratify the federal constitution, Dec. 7, 1787. A much-used popular name is the "Diamond state." Area 2,057 sq.mi. (land 1,978; inland water 79). Popu-

lation (1940) state-wide 266,505, of which 139,432 were urban, 127,073 rural. Native white numbered 215,695; foreign-born 14,913; Negro 35,876. Wilmington, 112,504, is the one city of more than 6,000; Dover, 5,517 is the capital. The bureau of the census 1945 estimate for the state was 286,832.

History.—With almost complete demobilization by the end of 1946, 27,589 veterans of World War II were home in the state, 2,602 of whom were attending schools and colleges; 2,216 were unemployed at the end of the year. Cost of living increases in Wilmington, June to September, were: food 18.05%, clothing 7.3%, house furnishings 4.2%.

The Delaware state guard was disbanded and the Delaware national guard reorganized, with an air unit. The Delaware battalion of the United States naval reserve was established and a 180-ft. patrol craft, the PC 609, assigned to it. The Veterans' administration established a hospital at the New Castle county army air base, pending construction of a \$6,000,000, 320-bed hospital near Wilmington. Fort du Pont army air base (site and buildings) was given to the state for use as a welfare and recreation centre. Pres. Harry S. Truman signed the bill authorizing construction of the \$25,000,000 Delaware river bridge between Delaware and New Jersey.

At the general election in November, Republicans were elected to congressional and state offices. The total number of voters was highest for the office of United States senator, 113,533 out of a total of 169,703 qualified voters. Elected were: U.S. senator, John J. Williams; U.S. representative, J. Caleb Boggs; attorney-general, Albert W. James; state treasurer, Benjamin F. Johnson; state auditor, Benjamin I. Shaw; insurance commissioner, William J. Swain. Gov. Walter W. Bacon, Secy. of State William J. Storey and State Tax Commissioner Pierre S. du Pont continued in their offices. The state legislature of 52 members was composed of 35 Republicans and 17 Democrats. The first woman was elected to the state senate. One woman was elected to the house, the third after 1920.

Education.—Following the resignation of Dr. H. V. Holloway, Dr. George R. Miller, Jr., became state superintendent of schools. During the year a commission, authorized by the 1945 legislature to study the public education system and provided with an appropriation of \$25,000 for the purpose, completed its report containing the findings of competent educational specialists. Citizen participation in the problems of education was indicated by the organization of the state-wide Council for Delaware Education. The teacher shortage was acute. The state board of vocational education reported that 1947 disabled persons were earning \$1,670,356 in 1946 as the result of the board's rehabilitation service.

The 165 elementary schools had an enrolment of 25,615 pupils and a teaching staff of 934; in the 46 secondary schools, 16,635 were enrolled with a teaching staff of 726.

Social Insurance and Assistance, Public Welfare and Related Programs.—The amount of social insurance paid out for the year 1946 was \$1,746,663. Active claims on Dec. 31, 4,244. The cost of outside relief for the 5,669 cases during the year was \$175,519.42. By law this cost was shared half and half by the state and the county in which the relief was given. In June 1946, 1,187 persons were receiving old age pensions compared with 1,297 the previous June. The children's aid program cared for 850 children in their own or foster homes, state appropriation \$243,300; appropriation to Ferris school (correctional for boys) \$129,000; to Kruse school (correctional for Negro girls) \$50,400. Expenses of penal institutions (no state prison), a small jail in each of the two rural counties, and a workhouse in New Castle county, were paid by the counties. New Castle county workhouse received during the fiscal year June 30, 1945, to June 30, 1946, 1,522 prisoners and discharged 1,500; inmates on the latter date, 265.

Communications.—Mileage of highways and rural roads, all controlled by the state highway department, was 3,897.14; income for the fiscal year ending June 30, 1946, \$3,906,069.66, expenditures, \$3,819,808.56; cash balance for the 2-yr. period, \$1,700,200.56. Federal aid was \$272,183.97 compared with \$155,203.56 for 1945. Traffic increase to prewar levels brought a 29% increase in motor accidents over 1945, but a decrease of 5% from 1941. Railroad mileage was approximately 279.

Business for the calendar year at the port of Wilmington nearly doubled that of 1945. Tonnage was 419,245 compared with 217,705 in 1945. Tonnage through the Delaware and Chesapeake canal (11,730 vessels) was 3,653,258 compared with 3,645,915 (11,321 vessels) the previous year.

Chartered service was available at several of the state's 10 airfields and applications were received from 11 major air lines to operate scheduled services from the New Castle county air base (when returned to the county by the army). On Dec. 31, 1946, the state had in use 81,657 telephones.

Banking and Finance.—There were 28 state banks, mutual savings banks and trust companies with 6 branch banks and 9 branch offices, 13 national banks, 39 building and loan associations and 19 small loan companies. Total assets of banks and trust companies June 30, 1946, were \$567,963,881.80 compared with \$532,358,319.67 in 1945; deposits in all banks were \$507,740,263.89, an increase of 6.6% for the fiscal year, the smallest in 4 years. The 39 building and loan associations had assets of \$17,082,094.91, an increase of 6.66% during the year.

Total state revenue for the fiscal year ending June 30, 1946, was \$22,592,398.76; non-revenue income \$1,356,706.08; total \$23,949,104.84. Expenditures were \$20,523,569.62; balance \$3,425,535.22, added to balance at beginning of period of \$13,947,766.08 made a cash surplus for the fiscal year of \$17,373,203.30. The gross debt (serial bonds for permanent improvements) was \$4,250,000; total debt service \$809,853.75.

Agriculture.—The estimated total cash income from agricultural production for the year, \$90,000,000, was the best in 25 yrs. Income from the broiler industry was an exception. It declined 20% from \$65,174,000 in 1945 but was still the most important source of agricultural income. The total cash income (from livestock and crops only) from January to September was \$62,272,000. Of this livestock amounted to \$50,070,000; crops \$12,202,000. The Delaware peach crop for the year was 454,000 bu.

Table I.—Leading Agricultural Products of Delaware, 1946 and 1945

Crop	1946	1945
Corn, bu.	4,270,000	4,224,000
Apples, bu.	825,000	308,000
Hay, tons	99,000	109,000
Wheat, bu.	1,216,000	1,306,000
Tomatoes, tons	42,000	30,000
Strawberries, crates	66,000	44,000
Lima beans, tons shelled	8,160	9,880

Manufacturing.—Total estimated value of manufactures for comparison with the total of \$220,257,162 as of the year ending Oct. 31, 1945, was not available for 1946. The total of employees under the unemployment compensation law for the month of Sept. 1946 was 86,000; total wages for the year, \$204,000,000, compared with 66,000 in Dec. 1940 and wages of \$112,000,000 for that year. In Nov. (1946) 621 plants in the Wilmington area reported an employment total of 59,270 compared with 52,363 for Nov. 1945. Turnover for the month ending Nov. 1946 was 1,385 employed, 1,140 laid off.

Table II.—Principal Industries of Delaware 1946 and 1945

Industry	1946	1945
Chemicals	\$29,663,917	\$43,203,298
Shipbuilding	18,384,584	63,294,890
Leather	27,637,666	11,501,630
Foundries, machine shops, tools	22,603,062	33,603,377
Fibre	11,802,556	24,407,180
Textiles	43,959,969	35,603,254
Canning and packing	10,703,548	872,732

Mineral Production.—The chief products, building stone, granite, sand, brick and clay, for the year ending Nov. 1, 1946, had a total value of \$363,159 compared with \$203,705 for the previous year.

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Democracy: Democracy is not only a technique of government, based upon freely elected representative institutions, and upon an executive responsible to the people; it presupposes also the belief in the dignity of every individual and his inherent rights to freedom of thought and expression. It rejects all totalitarian forms of government and recognizes spheres of individual freedom, protected by law against government interference. Democracy demands a spirit of tolerance and compromise which emerges in the interplay of several parties, in the free discussion of various viewpoints.

Though in 1946 European countries suffered to an unprecedented degree from economic chaos and misery, elections, wherever they were held with assurance for various parties to present their conflicting points of view in freedom, resulted in a victory of democracy over totalitarian tendencies. In free elections communists polled the highest percentage in Czechoslovakia (38.6%) followed by France where they received 28.2% in the elections of Nov. 10 and 26.2% in the elections of June 2. They showed a lesser strength in Finland (23%), Italy (18.9%) and Hungary (17%). They represented only small minorities in the other countries, 12.46% in Denmark, 11.3% in Sweden, 10.4% in Belgium, 10% in both Luxembourg and the Netherlands, 9.3% in Greece, 8% in Norway, 5.5% in Austria and 0.3% in Great Britain.

In Britain, the Labour party retained its hold on the electorate. It did not lose any seats in parliamentary by-elections, and the municipal elections of Nov. 1 brought it a large gain.

Nine more boroughs in England and Wales came under labour control. The communists were completely routed. Of their 223 candidates only 1 was elected, in Willesden in northwest London, while 6 communists lost the seats they had held on various local councils.

In France and in Italy moderate socialist and Catholic democratic parties showed great strength but toward the end of the year the extreme parties both on the left and on the right gained in votes and in influence and made the formation of governments more difficult. Elections in the Netherlands and Belgium showed the strength of the conservative democratic parties in both countries. In the Scandinavian countries the social democrat parties formed the government.

In Japan, a country where democratic traditions have never existed, democracy under U.S. guidance made remarkable progress against totalitarian tendencies. On Nov. 3 Emperor Hirohito officially promulgated the new organic law which proclaimed the sovereignty of the people and renounced forever the maintenance of armed force in Japan. The formerly all-powerful throne was reduced to the status of a national symbol. In his proclamation the emperor stated: "This constitution seeks the basis of national reconstruction in the universal principles of mankind. It has been decided upon by the freely expressed will of the people. It explicitly stipulates that the people of Japan renounce war of their own accord; that . . . having constant regard for fundamental human rights, they would conduct their national affairs on the fixed line of democracy. It is my wish to join with my people in directing all our endeavours toward the building of a nation of culture tempered by sense of moderation and responsibility and dedicated to freedom and peace."

Even in Germany the trend from dictatorship and totalitarianism to democracy was apparent. The most convincing test came in the municipal elections of Berlin on Oct. 20 when the soviet-sponsored Socialist Unity party, which included the Communist party, was thoroughly defeated by the Social Democrats who were forbidden in the soviet zone. In the new municipal council the Social Democrats held 63 seats, the Christian Democratic union 29, the Socialist Unity party 26 and the Liberal Democrats 12. Even in the Russian zone in Berlin the Social Democrats received many more votes than the Socialist Unity parties. Taking all the elections throughout Germany into consideration, the results by the end of the year gave to the Christian Democratic Union 34.5%, to the Social Democratic party 23.8%, to the Socialist Unity party 16.8%, to the Liberal Democrats 12.5% and to the Communist party 4.8%. In interpreting these figures it must be taken into account that the Social Democrat party was forbidden in the Russian zone, that there existed only the Socialist Unity party under communist leadership but with a large Socialist membership, and that the Communist party itself existed only in the U.S., British and French zones.

The Chinese national assembly which met in Nanking in Dec. 1946 agreed upon a schedule to put the new Chinese constitution into effect. According to this schedule the constitution would become law in 1947, with the election of the first president under it fixed for Oct. 10, the anniversary of the proclamation of the republic by Sun Yat-sen. A nation-wide election was to be held six months after the new election laws became effective. The constitution's bill of rights would be put into effect in 1947. It was hoped these provisions would help to accelerate the transformation of Generalissimo Chiang Kai-shek's national government into a Democratic nontotalitarian regime.

The new Democratic Chinese constitution, adopted largely by the efforts of Chiang Kai-shek on Dec. 25 by the 1,486 delegates of the Chinese national assembly, was framed by most

Chinese parties but without the communists. It represents a combination of the United States presidential and the British parliamentary forms of government with certain Chinese traditional institutions. It contains a modern bill of rights and provides for a president eligible for two six-year terms and a national assembly, the supreme legislative body, which can recall the president and all officials and amend the constitution. In addition the government preserves the traditional five branches or Yuans of China. (See also COMMUNISM; EDUCATION; FASCISM; GREAT BRITAIN; UNION OF SOVIET SOCIALIST REPUBLICS; UNITED STATES.)

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Democratic Party. As 1946 closed, the Democrats were waging a desperate, defensive struggle to retain the political supremacy which they had enjoyed for so many years under the leadership of Franklin D. Roosevelt. Although they had lost control of congress in the Nov. 5 election, and had been outmanoeuvred and outvoted through most of the year, President Harry S. Truman was changing administration policies and realigning his forces for future battles, especially the 1948 presidential contest.

Truman, whose prestige had fallen so low that he took no active part in the November campaign, assumed full command of the party. He made almost a clean sweep of his economic cabinet after election day, ousting numerous New Dealish officeholders. He also scrapped the controls and forms of regimentation which they had written and enforced. He apparently felt that their program had been partially responsible for his defeat.

In effect, he reinstalled the system of private enterprise. He lifted ceilings on all foods save sugar, rice and syrups. He abolished the elaborate veterans' housing program which he had sponsored only 12 months earlier, returning the construction industry to private and unfettered builders. He lifted almost all federal reserve restrictions on the use of credit.

Truman boldly attacked another problem which had contributed to the administration's setback—labour strife. When John L. Lewis, president of the United Mine Workers, promoted a soft coal walkout in late November, the president fought him to a finish.

The mine chieftain, who had won most of his battles with Roosevelt, was brought into federal court, where a fine of \$3,500,000 was levied against his union and \$10,000 against him. Federal Justice T. Alan Goldsborough of the District of Columbia said that he would have sent Lewis to jail if the government had asked for such a stiff sentence.

Even more than his abandonment of wartime controls, which many New Dealers wanted to retain, the showdown with organized labour (both the A.F. of L. and the C.I.O. backed Lewis) reflected Truman's determination to rehabilitate the fortunes of the party and himself, if possible. It likewise revealed his recognition of the fact that both stood in need of repair.

Nor were Truman's recuperative activities devoted only to these domestic problems. Recognizing that the administration's earlier pro-Russian attitude had made enemies, he dropped the so-called "appeasement of Stalin." At United Nations sessions Secretary James F. Byrnes "talked tough" to Russian Foreign Minister Vyacheslav M. Molotov, and wrung some concessions from him.

The administration also announced that it would deny food relief to Moscow satellites which "bit the hand that fed them." or which spent money on new armaments instead of bread. At

home Truman named a special committee to rid the government of employees who could not pass a loyalty test.

In these and other ways the president responded to new needs and demands as voiced by the electorate in the November voting. Regardless of his motives, rarely has a president bowed so quickly and so completely to a ballot-box mandate. His reorientation cheered Democratic conservatives, but it disappointed "liberals" and "radicals."

His prestige soon leaped upward from its November low, when Senator J. William Fulbright, Arkansas Democrat, had urged that he resign, name a Republican as secretary of state and hand the government over to the G.O.P. Even Alfred Landon, the Republicans' 1936 presidential nominee, after visiting Truman in mid-December, conceded that "the president's stock has gone up a little."

The Democrats' difficulties and defeats in 1946, however, were not due entirely to Truman's mistakes or shortcomings. He inherited a Pandora's box of personal and ideological woes from his predecessor, and they were aggravated by the release of patriotic pressures that accompanied the end of World War II.

When a weary, wrangling but overwhelmingly Democratic congress refused to enact social welfare and labour legislation based on Roosevelt's philosophy, Truman was characterized as "weak." The prospective beneficiaries of these measures—labour, racial groups, liberals, reformers of all kinds—deserted him and the party because of his rebuffs on Capitol Hill.

Three Roosevelt cabinet members—Harold L. Ickes, Henry A. Wallace and Henry Morgenthau—resigned or were forced out under embarrassing circumstances, and their places were filled with more conservative men. The exiles immediately began to criticize the president on the ground that he had forsworn Rooseveltian ideals.

Although President Truman vetoed the Case bill, which imposed drastic curbs on labour, a threatened railroad strike led him to ask for legislation drafting into the armed forces any man who struck against an industry which had been taken over by the government. The proposal failed of passage, but union labour leaders retaliated bitterly.

Even kindly Philip Murray, C.I.O. president, denounced the chief executive as an "enemy of labour." A. F. Whitney, railroad trainmen's head, vowed to spend every cent in his treasury to defeat Truman if he sought re-election. A.F. of L. and U.M.W. spokesmen assailed the White House. It was the first major break between a Democratic administration and organized labour in 13 years.

Russia also seized this unhappy moment to break wartime agreements, and to oppress European peoples whose kindred in the United States possess millions of votes. Blaming Washington for not making a more effective protest against Moscow's policies in Poland, Germany, Austria and the Balkans, these racial blocs fell away overnight.

The continuing scarcity of commodities 15 months after V-J day, especially meats, angered consumers, middlemen, distributors and retailers. A telling campaign cry was: "Hoover promised us two chickens in every pot, but it took Truman to put them there!"

Postelection analyses demonstrated almost mathematically that it was these urban blocs—labour, racial, consumers—who turned against the Democrats in vast numbers. The party lost or barely edged out a majority vote in the great centres which Roosevelt had always swept with majorities ranging from 300,000 to 700,000—Boston, New York, Philadelphia, Pittsburgh, Chicago, Cleveland and St. Louis.

Such machines as Frank Hague's in New Jersey, Tammany's in New York, Joseph Guffey's in Pennsylvania, Edward J. Kelly's in Illinois and Thomas Pendergast's in Missouri were

shattered, at least temporarily.

The Democrats made a few changes in organizing their senate and house commands for the 80th congress. Senator Alben W. Barkley of Kentucky shifted from majority to minority leader, but Senator Lister Hill of Alabama refused to continue as whip. He was replaced by Senator Scott W. Lucas of Illinois. On the house side former Speaker Sam Rayburn of Texas moved down to become minority leader, and Representative John W. McCormack of Massachusetts was chosen as assistant minority leader.

(See also UNITED STATES.)

(R. TU.)

De Nicola, Enrico: see NICOLA, ENRICO DE.

Denmark. A monarchy of north central Europe. Area, 16,575 sq.mi.; pop. (est. 1945) 4,024,000. Capital: Copenhagen (731,707). Other principal cities: Aarhus (107,393); Odense (92,436); Aalborg (60,880). Religion: Lutheran Christian. Ruler in 1946: King Christian X (*q.v.*); prime minister, Knud Kristensen.

History.—Despite its small area and population Denmark faced a whole series of territorial problems during 1946. First was the soviet occupation of the island of Bornholm in the Baltic sea. After months of anxious concern the soviet evacuated the island completely and unconditionally on April 5. Held by the Germans during World War II and heavily bombed by the U.S.S.R. in May 1945, the island received in 1946 about 100 wooden houses from Sweden and normal life was gradually resumed. The Faroe Islands had been held by Britain during World War II. A plebiscite on Sept. 14, 1946, voted 5,650 to 5,500 for independence, but in the elections for the *lagting* (parliament) the pro-Danes won 12 seats to 8 for the independence group. Hence, negotiations were begun to work out a system of local autonomy under continued Danish rule. Complete independence of Iceland was accepted as a fact, but there too a new treaty relationship had to be established. As to Greenland the Danes were not entirely happy over the special privileges still exercised by the U.S., and Foreign Minister Gustav Rasmussen was in Washington, D.C., in December, reportedly discussing renunciation of the agreement of 1941 between Secretary Cordell Hull and Minister Henrik de Kauffmann.

Most serious of all the territorial problems was the question of Slesvig, a perennial thorn of Danish-German politics. North Slesvig had been returned to Denmark as the result of a plebiscite after World War I. The question of 1946 was what to do with south Slesvig (or Schleswig in the German spelling). In the province many people of both German and Danish blood wished to join Denmark or to set up a special administration under some form of international trusteeship. The problem was complicated by the movement of many German refugees into the area and by the fact that the nearby Kiel canal was a waterway of international importance—the most direct route between the Baltic and the North seas. The Danish government was extremely reluctant to take any steps which might increase its responsibilities and difficulties vis-à-vis Germany and other great powers.

Somewhat associated with the problem of Slesvig was that of more than 200,000 German refugees in Denmark itself. The schooling of 40,000 children and the feeding of all those people was costing Denmark 200,000,000 kr. per year, 40% of the prewar budget. Late in the year arrangements were made to repatriate 39,000 (12,000 each to the British and French zones and 15,000 to the soviet zone). Rasmussen wanted the U.S. to arrange for some in its zone and as rapidly as possible to unload the remainder.

Denmark's food problem was peculiar and ironic. Food there was in plenty, and the Danes did not go hungry. Yet there was talk of rationing meat and of reducing the rations of sugar and butter. This was because of the need of selling everything possible and saving foreign currency. Fear of rejection of a \$50,000,000 loan asked of the International Bank for Reconstruction and Development accentuated the difficulties. The Danes suffered from a trade agreement with Great Britain in which they pledged to send Britain the bulk of their butter production; soon the government subsidy to Danish farmers exceeded the price of the butter obtained from the English. In July the Danes got a 10% price increase, but were again in a losing position by fall and in December asked for a further price increase. Tea, coffee and chocolate were as short as new cars—all because of the Danish lack of foreign exchange.

Money was not the cause of the coal shortage, however. European sources were not producing in sufficient quantity and the Danes imported coal from the United States until first the shipping strike and then the coal strike in the United States cut that supply to a trickle. In Aug. 1946 Denmark got 32% of its coal from the United States; its stoppage threatened severe damage to industrial production.

Denmark was the 50th state to join the United Nations; in April 1946 it became the 38th state to join the International bank and the 39th member of the Monetary fund.

Education.—In 1940 there were 407,355 students in the elementary schools and 67,064 in the middle and secondary schools. In the 2 Danish universities 6,474 students were enrolled. Even during World War II about one-third of Denmark's famous folk high schools continued to function.

Finance.—The Danish crown (krone) was worth 20.877 U.S. cents in Sept. 1946. Some of the significant financial statistics:

	1945-46	estimates 1946-47
Ordinary account: receipts	1,304,200,000 kr.	1,230,500,000 kr.
expenditures	1,551,500,000 kr.	1,570,400,000 kr.
Capital account: receipts	12,729,700,000 kr.	1,481,500,000 kr.
expenditures	12,729,700,000 kr.	1,481,500,000 kr.

The domestic debt amounted to 3,830,500,000 kr., the foreign debt 611,900,000 kr., making a total public debt of 4,442,400,000 kr.

	1945	1946
Notes in circulation	1,561,000,000 kr.	1,487,000,000 kr. (end of Aug.)
Gold reserve	83,000,000 kr.	83,000,000 kr. (end of Aug.)
Commercial bank deposits	5,906,000,000 kr.	5,985,000,000 kr. (end of July)

Trade and Communications.—The strange distortion of Denmark's foreign trade because of World War II is shown by the statistics for 1944:

	Imports from	Exports to
Germany	908,050,000 kr.	1,090,141,000 kr.
Finland	85,748,000 kr.	64,882,000 kr.
Sweden	37,511,000 kr.	62,465,000 kr.
Norway	57,155,000 kr.	67,503,000 kr.
Irish Free State	27,977,000 kr.	.....
Switzerland	1,166,801,000 kr.	.....
Total imports	1,666,801,000 kr.	.....
Total exports . . . . .	.....	1,360,467,000 kr.

The chief imports were fuel and petroleum (281,000,000 kr.), paper, etc. (97,000,000 kr.), iron and steel (70,000,000 kr.), wood and wood products (68,000,000 kr.). Chief exports were meat and meat products (364,000,000 kr.), dairy products (295,000,000 kr.), fishery products (138,000,000 kr.), live animals for slaughter (104,000,000 kr.), raw materials and partially manufactured articles (121,000,000 kr.).

Failure to achieve trade recovery in 1946 meant that Denmark had to plan to reduce imports in 1947 by 600,000,000-800,000,000 kr. Losses in export trade forced cancellation of many orders in Britain and required a drive for new export markets.

Denmark had 1,630,000 mi. of telephone wires (1946) and 371,000 instruments (1945); 904,610 radio sets (1945); 30,290 motor vehicles (1944); 4,860 km. of railway lines (1944) of



NATIVES OF BORNHOLM, Baltic island owned by Denmark, read of the departure of Russian troops in 1946. The island had been occupied by Russian soldiers from May 1945

which almost exactly half was privately owned and half state owned.

Agriculture.—Production of the chief agricultural products in short tons:

	1944	1945 (preliminary figures)
Bread grains	758,000	636,000
Feed grains	3,329,000	3,220,000
Potatoes	1,553,000	1,731,000
Sugar beets	1,400,000	.....
Milk	4,420,000	4,519,000
Butter	141,000	146,000
Beef and veal	143,000	127,000
Pork	237,000	293,000
Eggs	51,000	55,000

The livestock census showed for 1944: 612,224 horses, 3-185,823 cattle, 1,555,176 milk cows, 2,032,623 pigs.

Manufactures.—Industrial production in 1944, from 6,717 establishments and 195,097 workers, totalled a value of 4,791,711,000 kr. (F. D. S.)

Dental Association, American: see AMERICAN DENTAL ASSOCIATION.

Dentistry. On Oct. 16, 1946, the 100th anniversary of the first successful public demonstration of ether anaesthesia, which took place in the amphitheatre of the Massachusetts General hospital, was celebrated in various medical and dental centres throughout the United States. William T. G. Morton, who gave the demonstration, was a dentist. The William T. G. Morton Centennial committee of the American Dental association presented to the trustees of the Massachusetts General hospital a bronze bas-relief of Morton to hang in the surgical suite of the hospital.

One of the public's greatest phobias, as far as dentistry is concerned, is the dental engine. This instrument used to grind out decay in a tooth and prepare it properly for a filling may

be the source of considerable pain which dentists have been eager to prevent. Injection of novocain and the use of nitrous oxide have been used quite widely. In an article by Leon Lieber, "Thermal Control Apparatus for Dental Drilling" (*J. Amer. Dental Assn.* Sept. 1946), a means of reducing pain to a minimum was outlined. The opening sentence of the article is interesting. "Seldom, *except in dentistry*, are revolving or cutting instruments generally used without a fluid lubricant." The author describes an apparatus which provides a stream of water at approximately body temperature delivered to the tooth at the point of drilling. The advantages are stated to be a marked reduction in pain (50% of patients feel none), the avoiding of over-heating of tooth which may cause pain later and a marked reduction in the time of grinding with a shorter tension period for the patient. The vibration which many patients find disagreeable, even when no pain is felt, is cushioned by the water.

Another procedure of a similar type described by a Boston dentist, Lester Cohn, and others (*Year Book of Dentistry*, 1945), who used a stream of air instead of water, received favourable attention.

The effect of the use of tobacco on the tissues of the mouth is a problem which the dentist faces constantly. In a paper on leukoplakia in its relation to the use of tobacco (*J. Amer. Med. Assn.* Nov. 2, 1946) the author, Clyde L. Cummer, called attention to the fact that practically all reported instances of papular leukoplakia have been in men almost all of whom have been smokers, especially pipe smokers. The condition has been cleared up in some cases merely by abstaining from smoking. Dentists have a great responsibility in these cases for frequently they are the first to see the lesion.

Penicillin continued to be effective in dental infections. A new development in penicillin therapy for dental infections was the injection of this product directly into the site of trouble. The prompt relief from pain and frequently the rapid recession of swelling without the development of the usual abscess approaches the miraculous. In a paper on "Penicillin in the Treatment of Dental Infections," Leroy M. S. Miner reported more than 100 cases of active infection with practically 100% successes. Very few forms of treatment in any field are as effective.

The dental aspects of federal legislation to bring about socialized medicine and compulsory health insurance were discussed actively. The American Dental association sent several of its officers to Washington to point out the fallacies in such legislation.

In a recent comment on dentistry under British health insurance it was pointed out by the president of the British Dental association that two dangers were apparent—one, that the attempt to expand the flow of service over greater areas of population would produce a serious sacrifice in quality of service and, second, red tape and the enslavement of the human personality by a machine of its own construction leads to stagnation.

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Dermatology. Excellent results were reported in the treatment of lupus vulgaris by oral administration of calciferol (vitamin D₂). The drug was first given in doses of 150,000 international units daily and in some cases caused toxic symptoms, such as nausea, vomiting, diarrhoea and headache. Such symptoms disappeared when the dosage was reduced to 100,000 or even 50,000 units daily. Results of this treatment in 38 cases were reported by G. B. Dowling and E. W. Prosser Thomas at a meeting of the dermatologic section of the Royal Society of Medicine and occupied the entire session. In the majority of the cases the disease had regressed remarkably and in some cases had completely disappeared. Many of these cases had been previously treated locally by the Finsen or Kromayer lamps or by chemical caustics. Most of the older cases showed scars of X-ray treatment. Calciferol is prepared artificially by irradiation of a vegetable sterol, ergosterol. It constitutes a much simpler, less expensive and time-consuming method than irradiation with Finsen lamps.

As a result of war, there is an invariable increase in the prevalence of pediculosis and scabies. World War II was no exception and new methods were developed for the control of these infestations. Astonishing success in the treatment of pediculosis (both body and pubic lice) was noted by the development of an insecticide commonly known as DDT. This drug, in 10% talcum powder, was dusted onto the skin and through the clothes. It not only quickly cured a distressing disease but prevented the subsequent spread of typhus fever. Although the drug had been synthesized shortly before the war by Swiss chemists, the proper mixture and technique of using it was developed by P.M. Annand and his associates in the U.S. bureau of entomology and quarantine.

Scabies was unfortunately not eliminated during World War II but became the most common disease of the skin in the U.S. army, at least in the European theatre. The method of treating the disease by sulphur ointment was slow and required hospitalization. To lessen this loss of manpower, the British and U.S. armies eventually used a solution of benzyl benzoate by means of a spray. The results were considered satisfactory.

During World War II researches were made to discover an antidote for arsenical intoxication, since it was realized that the arsenical war gas, lewisite, might be employed by the enemy. A suitable antidote was developed by British scientists (2,3-dithiopropanol), which was popularly named BAL (British-anti-lewisite). No damage to the skin resulted from application of BAL as an ointment before exposure to arsenical vesicants, and when the vesicant was applied first, damage to the skin ceased after the application of BAL within two hours. In discussing its value W. T. Longcope stated that many experiments showed that BAL could not only stop the toxic action of arsenic, but was able to extract arsenic from cells even after injury to the skin was apparent. The most promising future for this new drug was in arsenical intoxication as seen in the treatment of syphilis. It apparently was of decided value in arsenical dermatitis and especially in toxic encephalopathy, a serious and otherwise often fatal disease. It apparently had slight, if any, effect on arsenical jaundice. Its possible benefit in intoxication resulting from other heavy metals was for the future to decide.

The value of podophylin in the treatment of acuminate warts was not generally known until 1942, from the work of Isaac Kaplan and his associates. Fifty patients were treated by M. Sullivan and L. S. King with a 25% suspension in mineral oil. All except two patients were cured and these had lesions of the dry type similar to common warts. These investigators then tried the remedy in 100 cases of common warts and obtained only 15% of good results. They found that the use of mineral oil as a vehicle tended to spread upon the normal mucosa and

cause irritation. They then treated another 50 patients with 20% podophylin in alcohol and obtained cures in all and with less irritation than when mineral oil was used.

Twenty cases of the discoid type of lupus erythematosus were treated by A. B. Hyman with oxyphenarsine hydrochloride. The average duration of the disease was nine years and in many cases had not yielded to other forms of treatment. The results were considered excellent in six cases, good in eight and unsatisfactory in six cases. Treatment was not given when albuminuria was present, when the leucocyte count was below 4,000 per cubic millimetre, when the Wassermann reaction of the blood was positive or the general health was unsatisfactory. Intravenous injections were given weekly, beginning with 5 mg. and increasing 5 mg. each week to a maximum of 30 mg. When no definite improvement was observed after giving a total of 1,200 mg., the treatment was stopped. It had to be discontinued in only one case of toxic manifestations.

Since it had been shown that injections of spleen and liver extracts in animals seemed to have a beneficial action on the metabolism of cancerous tissue, it was decided by J. C. Amersbach, E. M. Walter and G. S. Sperti to test the effect of such treatment on human epitheliomas. Twenty-one patients with basal cell epithelioma were treated by injections of spleen or liver extract. In one patient treated by spleen extract, the lesion failed to regress. In 14 patients the lesions regressed completely. The remaining six patients were still under treatment, but all had shown regression. In none of the cases observed since completion of treatment had there been any evidence of recurrence during a period of one or two years.

Tyrothricin, one of the newest antibiotic drugs, was effective primarily against gram-positive bacteria with which it had to come in direct contact to be effective. Tyrothricin was used for local applications only, either in the form of an ointment or a solution. Both were stable and did not require refrigeration. This new drug was used with success in some superficial pyogenic diseases of the skin. A. G. Franks, W. L. Dobes and J. Jones found it effective in impetigo contagiosa, pyoderma and dermatitis repens, but only of limited value in sycosis vulgaris and nummular eczema. H. E. Anderson treated 20 patients with cutaneous infections by continuous wet dressings of tyrothricin. His results were good in 75% of the cases, fair in 10% and poor in 15%. The purulent infection cleared with remarkable rapidity in most of the dermatologic diseases because of gram-positive organisms. An extensive trial was made by G. M. MacKee, M. B. Sulzberger, F. Hermann and F. L. Karp of a stable 0.1% solution of tyrothricin in a vehicle capable of enhancing penetration into the skin. The solution was applied to various skin diseases either by inunction with a glass rod or by wet compresses or both. There was a favourable response in 232 skin diseases caused or complicated by pyogenic infections. Most of the diseases treated were those involving the hair follicles. Favourable results were obtained in all of 112 cases of acne vulgaris.

In discussing the management of bacterial infections of the skin D. M. Pillsbury said that the usefulness of topical penicillin therapy was seriously jeopardized by an increased incidence of contact sensitivity which was being encountered. The incidence was apparently more than 15% and might be increased as more persons were exposed to the drug. An editorial note in the *Quarterly Review of Dermatology* mentioned the inadvisability of the indiscriminate use of penicillin, which could cause contact dermatitis and the production of penicillin resistance in the bacterial flora of patients.

In a study of keratosis blennorrhagica, E. Ladany and J. D. Hughes found a total of 166 reports of cases in the literature. In discussing the conflicting opinions about the cause of this

severe disease the authors stated that the preponderance of evidence points definitely to a gonorrhoeal origin in the vast majority of cases. The most logical explanation of the nature of the disease was that, while a bacteremia of short duration develops, the protracted and serious course is because of an extreme degree of bacterial allergy to the gonococci and their endotoxins. In the classic case they reported that 5,000,000 Oxford units of penicillin were used without any beneficial result. A totally different result was obtained by R. Emmet in another classic case of keratosis blennorrhagica by intramuscular injections of penicillin (total of only 200,000 units). All symptoms disappeared within two weeks, including fever, swelling of the joints and cutaneous lesions. (See also MEDICINE.)

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Destroyers: see NAVIES OF THE WORLD.

Detroit. Fourth largest city of the United States in the 1940 census, Detroit is the centre of the large industrial area of southeastern Michigan. Area, 137.9 sq.mi.; pop. (1940) 1,623,452 of whom 320,664 were foreign born whites, British and Canadian ranking first with 110,698, and Polish second with 52,235. Pop. est. (June, 1946), 1,750,000.

Assessed value as of June 30, 1946, \$3,000,517,242 and an average blanket increase of 10% was announced for 1947; gross bonded debt, \$299,501,000; net bonded debt, including utility debt, \$273,858,123; net tax supported debt, \$216,030,157; gross city appropriations, fiscal year ending June 30, 1947, \$220,547,716 including schools and utilities; tax levy, city and school purposes, \$97.018,725; combined city and school tax rate \$32.334, the highest to that time. Late in 1946 the voters adopted a constitutional amendment sponsored by Detroit officials and designed to greatly increase state aid to local units of government (est. \$111,000,000 for Detroit) and alleviate the heavy tax on real property. Mayor, Jan. 1, 1947; Edward J. Jeffries, Jr., serving a fourth two-year term.

Although employment reached an all-time high during 1946, industrial production was much interrupted by work stoppages and by shortages of automobile parts obtained from suppliers. Ford and Chrysler avoided major strikes by the grant of pay raises early in the year based on the steel formula. In the spring the so-called "economic blockade" by the C.I.O.—U.A.W. against General Motors ended by acceptance of similar terms, concluding a strike of 113 days. The company successfully repudiated the proposal that wages be based on individual corporation profits rather than on a relationship to those paid by the industry as a whole.

As a whole, the well-being of citizens was more immediately disturbed by strikes that affected the necessities and conveniences of living, notably by milk handlers, bakers, film distributors and finally the employees of the municipally owned street railways. This last resulted in an increase in fare to a flat ten cents (without transfer charge) which increase turned an operating deficit into a reported surplus. Grocers resisted the organization efforts of the teamsters union with the result that at the close of the year a grand jury was investigating "labour racketeering" in a number of activities.

Incident to metropolitan Detroit labour difficulties, the

supreme court affirmed and amplified the "portal to portal" decision of a Detroit federal judge. At the end of the year a total of nearly 100 suits for an amount of more than \$600,000,000 of back pay and penalties had been filed against Detroit industries.

Grand jury investigations that resulted eventually in sending a mayor, sheriff, prosecuting attorney and several councilmen to the penitentiary, spread to the state government, and several members of the legislature and others were convicted of bribery. In the political area, the Republican party, after a long interval, elected a majority of local representatives to the state legislature and a number of candidates to county offices. However, a vacancy in the city council was filled by a labour candidate, although on earlier election, labour candidates were generally defeated. (L. D. U.)

Diabetes.

The 25th anniversary of the discovery of insulin by Sir Frederick Grant Banting and Charles H. Best was celebrated in October at Toronto, Canada, jointly by the University of Toronto and the American Diabetes association. There was a large attendance which included representatives from many countries. The papers presented form a part of the *Proceedings* of the American Diabetes association, whose secretary is Dr. Cecil Striker of Cincinnati, O.

The growth of public interest in diabetes during 1946 was manifested in several ways. Thus the U.S. public health service entered the field of diabetes and initiated a program for a detailed study of the frequency of diabetes among the blind in conjunction with the Commission of the Blind in Massachusetts and began a survey of the incidence of diabetes by examinations of the urine and blood of the 5,000 inhabitants of the town of Oxford in the same state. Hitherto, only one insurance company made a practice of insuring diabetics, but 1946 witnessed many insurance companies writing policies for diabetics. In general, the expectancy of life of a diabetic, based upon a tabulation in 1938 of many thousands of diabetics seen in private practice, was two-thirds that of the ordinary individual. Finally both the English and the American Diabetic associations expanded their activities by making more provision for the care of diabetics, increasing their membership and co-operating with their respective governments which had recognized their active force in diabetic health programs.

For each three years from the discovery of insulin in 1921 and its use with human patients in 1922 the average duration of life of diabetics, based upon fatal cases, increased 1 year or a total of 8 yr. for the period, making it 14 yr. in 1946. Between 1914 and 1922 it was 6.1 yr., calculated by deaths at that time, but when the data were recalculated to include all fatalities of those living in that period, but subsequently dying, the figure rose to 12.1 yr. This was one of the four reasons why diabetics were so much more numerous in the United States in 1946 than in 1921, the others being the prolongation of the lives of the inhabitants into the sixth decade, when diabetes occurs most frequently, better case finding and the increase of the population from 106,000,000 to 140,000,000.

Mortality tables failed to indicate the true picture of diabetes, because so often they represented only a fraction of those dying with diabetes but not of it. Surveys in Norway and in different areas of the United States have shown that approximately one-third of the diabetic population escaped enumeration. This became understandable when comparisons were made between the causes of death of diabetics formerly and now. Diabetic coma was recognized as diabetes and a diabetic death, but it dropped in 25 yr. from 42% to 3% of the deaths with no such distinctively diabetic complication to replace it, whereas cancer, which always hid a diabetic death, rose from 3.8% to 8.9%. Mor-

tality from diabetes in 1920 in the United States was 16.0 per 100,000, 14,062 deaths, but in 1944, it was 26.4 per 100,000, 34,948 deaths. The morbidity of the disease in this same country for 1946 was placed at 1,000,000, but this awaited statistical confirmation by surveys such as the one in progress in Oxford, Mass.

A detailed study of the diabetic mortality and morbidity in Bergen, Norway, with a population approximating 100,000, showed the morbidity was 3.8 per 1,000, 3.2 per 1,000 having applied for supplementary rations on account of their disease, while 0.6 per 1,000 had not done so because their disease was so slight. The Oslo Supply board placed the diabetic morbidity for Oslo in 1943 at 4.8 per 1,000.

The gravity of arteriosclerotic complications in the eyes, hearts and kidneys of all diabetics, but especially after the existence of the disease for 20 or more years in those with onset in childhood, has been generally recognized. The picture in this youthful group has been painted too dark, because the treatment of childhood diabetes in the 1920s was far inferior to that of today, both as regards diet and insulin. In the latest compilation of the causes of death of diabetics in the Joslin series, cardio-renal-vascular disease accounted for 67.4% of all diabetic deaths instead of 24.6 as in the years 1914-22 and the average age at death rose from 46.7 to 64.5 yr.

A new method for the production of experimental diabetes was announced by Francis D. W. Lukens and F. Curtis Dohan of the Cox Metabolic institute associated with the medical school of the University of Pennsylvania in Philadelphia. They found that as a result of the experimental production of hyperglycaemia by injections of glucose into the abdomens of cats, diabetes was established with changes in the islands of Langerhans similar to those resulting from injections of pituitary extract. (The article was accepted for publication in *Science*.) These experimental data thus strongly supported the orthodox treatment of diabetes.

Studies upon the diabetes experimentally produced by the administration of alloxan continued and, in fact, many new articles upon this subject appeared. The fact that destruction of the islands of Langerhans follows the intravenous administration of alloxan led to its use in a few cases of hypoglycaemia when the offending adenoma of the pancreas baffled removal. Partial successes were reported in a very few cases, but all concerned with this type of treatment warned of its dangers. Unfortunately the beta cells of tumours of the islands of Langerhans are more resistant to alloxan than the nonadenomatous island tissue.

Experiments with alloxan, by which the beta cells of the islands of Langerhans are destroyed and diabetes produced, were continued. Owls and chickens, however, appear immune. R. M. Archibald described six methods for the detection of alloxan but it had not been conclusively shown to be present in human tissues. A. Lazarow demonstrated that the intravenous injection of large doses of glutathione (2,500 mg./kg.) or of cysteine (912 mg./kg.) immediately before the injection of alloxan protected the rat from its diabetogenic action. So, too, will certain other chemicals. An injection of adrenalin, 0.1 cc. of a 1:1,000 solution, intraperitoneally also prevented the diabetogenic effect of alloxan in rats. Starvation of rats for 48 to 60 hr. made rats more susceptible to alloxan than nonfasting animals. The transmission of the effect of alloxan by the blood stream and its quick destruction or removal from the blood was shown when a part of the pancreas was deprived of blood by temporary ligatures around the supporting blood vessels for the first six minutes after alloxan was injected. The islets in that part of the pancreas temporarily deprived of blood were not damaged in contradistinction to the remaining islets in the pan-

creas which underwent degeneration. Instead of the customary intravenous or intraperitoneal methods of producing diabetes with alloxan, the same end was accomplished in cats by feeding 0.5 to 1 gm./kg. of alloxan mixed with the food. Alloxan injected into pregnant rats passed through the placenta into the foetal circulation within one to two minutes, but diabetes was not produced in the foetus, although the mother rat developed the disease.

Hydropic degeneration was observed 48–58 days after the administration of alloxan by one group of observers and by another after 194 days. These changes were attributed by the authors to the effect of hyperglycaemia on the beta cells which had escaped destruction by the original dose of alloxan. Thyroidectomy decreased and the induction of hyperthyroidism increased the sensitiveness of the rat to the toxic and diabetogenic action of alloxan. In addition to the destruction of beta cells in the islets of Langerhans, proliferative changes were observed 72 hr. after the injection of alloxan in the centro-acinar cells and in the intracanalicular ducts. These destructive and proliferative changes were followed by duct hyperplasia which gave rise to duct islets. Stimulation of the beta cells brought about their exhaustion followed by necrosis, the alpha cells remaining immune and the question was raised, "Were the alpha cells an intermediary stage in the evolution of beta cells, as maintained by some authors, or were they specialized cells with a specific function?"

Treatment with insulin continued as heretofore, the diabetes of the older patients being controlled with protamine zinc insulin and that of the younger ones with a combination of quick-acting insulin, regular or crystalline, plus protamine zinc insulin either by separate injections or in specially prepared mixtures before breakfast. Globin insulin has been employed especially with the intermediate group, its action being more rapid than the regular or crystalline and lasting about 20 hr. in contrast to protamine zinc insulin which exerts some effect for 24 to 48 hr., the drawback of globin insulin being its liability to cause hypoglycaemic reactions in the midafternoon. Up to Jan. 1947 the manufacturers had not offered a stable mixture of crystalline and protamine zinc insulin. (See also PHYSIOLOGY.)

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Diamonds. World War II probably brought a more complete upheaval to the diamond industry than to any other industry of its size. In the prewar years, in spite of a marked increase in demand for industrial stones, the gem stone was still predominant. The war quadrupled the demand for industrial diamonds, with the results that imports of industrial stones into the United States during 1941–45 exceeded

world output of all diamonds during those years. Although the dollar value of gem stones imported was considerably greater than that of the industrial stones, the weight of the industrials was several times greater, and their value as tools in war production gave them a clear predominance over gem stones. The fact that the demand for industrial stones exceeded production meant that the supply could be maintained only because for many years industrials had been produced in amounts in excess of demand, so that large stocks had been built up. It was understood in 1946 that the heavy war demand had just about wiped out those accumulated stocks, at least in some grades, and that in the future the supply would be limited to current output. That producers anticipated a future demand in excess of past rates of production was evidenced by increases in output from the Belgian Congo, the largest producer of industrial stones, and by the reopening of mines in South Africa which had been shut down largely because they yielded larger proportions of the industrial grades than other mines.

Production data were difficult to secure during the war years, and for many countries only estimates can be given. Table I presents the data as collected or estimated by S. H. Ball, in *Minerals Yearbook*.

Table I.—World Production of Diamonds, 1939–45

	1939	1940	1941	1942	1943	1944	1945
	(Thousands of carats)						
Angola	690	784	787	792	795	800	786
Belgian Congo .	8,360	9,603	5,866	6,018	4,881	7,540	10,386
Gold Coast . .	1,088	825*	1,000*	1,000*	1,000*	1,000*	500*
Sierra Leone .	600*	750	850	850*	850*	700*	800*
South Africa . .	1,250	543	158	119	302	909	1,141
S.W. Africa . .	35	30	47	56	88*	154	156
Tanganyika . .	3	6	29	41	53	91	116
Brazil	350*	325*	325*	300*	275*	370*	275
Others	124*	150*	148*	85*	103*	103*	97
Total	12,500	13,016	9,210	9,261	8,347	11,677	14,257

*Estimated.

Cutting.—A considerable degree of revival of the Belgian cutting industry was indicated by the 1945 U.S. imports of 104,840 carats of cut diamonds from Belgium, as compared with 399,806 carats in 1939. Belgium formerly cut a large proportion of small stones, with a proportionately low valuation, but a better grade of stones was evidently being handled in 1945, as imports averaged \$139 per carat in value, against \$54 in 1939. Using the 1945 U.S. imports as a gauge of the status of the cutting industry in various countries, we find the order to be Palestine, Belgium, Cuba, South Africa, Brazil and Great Britain. However, arranged in the order of the average value



DIAMONDS in the Bank of Japan, photographed in 1946. These gems were said to be marked for war reparations

per carat of the stones supplied, the order is South Africa, Great Britain, Cuba, Brazil, Palestine and Belgium. The revival of cutting in the Netherlands, the second largest source of cut stones in 1939, had as yet made little progress. The growth of the cutting industry in the United States is indicated by the importation of 896,547 carats of rough stones in 1944 and 893,761 carats in 1945, as compared with 153,982 carats in 1939, while the imports of cut stones was 488,154 carats in 1939 and 377,243 carats in 1945.

United States Imports.—The United States has long been the largest buyer of gem diamonds. From 1933 the weight of industrial diamonds imported had exceeded that of gem stones, though of course the value was much lower. Import data are shown in Table II.

Table II.—U.S. Diamond Imports, 1939–45
(Thousands of carats)

	Rough	Cut	Industrial	Total
1939	153,982	488,154	3,570,111	4,212,247
1940	227,886	321,471	3,809,856	4,359,213
1941	215,026	229,582	6,882,750	7,327,358
1942	278,437	126,004	11,204,754	11,609,195
1943	751,674	193,701	12,173,918	13,119,293
1944	896,547	169,097	12,656,823	13,722,467
1945	893,761	377,243	10,792,186	12,063,190

The values of the 1945 imports were: rough, \$43,122,622; cut, \$64,185,406; industrial, \$12,858,145; total \$120,166,173. The average values per carat were: rough, \$48.25; cut, \$170.14; industrial, \$1.19. (G. A. Ro.)

Diatomite. The annual production of diatomite in the United States was not reported, but the total sales for 1942–44 were 524,872 short tons, as compared with 360,502 tons in 1939–41, and 1945 ran above the 1942–44 average. California and Oregon are the chief producers. The principal uses are as filter aid, insulation and filler. Filtration absorbed about one-half of the consumption, fillers one-fifth, and insulation one-eighth. (G. A. Ro.)

Dictatorships: see COMMUNISM; FASCISM; GERMANY; SPAIN; UNION OF SOVIET SOCIALIST REPUBLICS.

Dietetics. Civilian feeding programs received an impetus as a result of wartime rationing and feeding. War-time food planning demonstrated how the broad principles of nutrition could be applied to the nation's food supply program within the limitations set by dietary habits and social environment; and it also showed that control bodies such as the United Nations Food and Agriculture organization might develop responsibility for distribution of food internationally.

Another important phase of international planning was furthered on July 22, 1946, when representatives of 61 nations signed the constitution of a new World Health organization. The functions relating to food and nutrition as defined in Article 2 of the constitution were: (1) to promote, in co-operation with other specialized agencies where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions and other aspects of environmental hygiene; (2) to promote maternal and child health and welfare; (3) to develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products. It was also stated that the assembly may "promote and conduct research in the field of health by the personnel of the Organization, by the establishment of its own institutions or by co-operation with official or nonofficial institutions of any Member with the consent of its government." W.H.O. thus had ample warrant to act effectively in the field of nutrition.

Still another sphere of international planning was furthered in 1946 by five countries of Central America and Panamá when an

agreement was signed to engage in a four-year study of food and nutrition. It was planned that a physician, biochemist, agronomist and a health educator would receive a year of special training in the United States with a view to the study of food consumption, production of proper food, investigation of nutritional deficiencies and education of the people in proper food habits.

This program was somewhat similar in function to the nutrition program initiated in the United States after congress made it possible for the public health service to expand its activities in the field of nutrition. In this connection a nutrition section was set up in the states relations division to give consultation service to the states and to develop nutrition demonstration projects for localities on invitation from a state. These nutrition teams were staffed by a medical officer, a nutritionist, a chemist, a public health nurse, a laboratory technician and a clerk. These nutrition teams conducted nutrition demonstration programs on school children and family units. Until 1946 routine laboratory procedures were confined to determinations of haemoglobin, haematocrit and total plasma protein. In Alachua county, Fla., almost the entire school population was examined by the rapid physical method. There were three positive findings: namely follicular conjunctivitis, skin folliculosis and gingivitis.

As a result of such studies the value of supplementary feeding of school children in the United States was sufficiently well demonstrated that public law 396 was passed which established a permanent school lunch program. The federal funds for food were to be used for reimbursing schools for local purchases and for direct purchases by the department of agriculture of foods in abundant supply. The responsibility for setting nutritional standards for the lunches rested with the U.S. department of agriculture. The aim was to provide each child eating at school with at least one-third of his daily nutritive needs. Plans were made for further research on school feeding so that nutritional standards as well as methods of food preparation and school lunch management in general might be improved. The new legislation placed great responsibility on local initiative and resources. The act required that funds from within the state must be provided for the first four years, or until the fiscal year 1950, on an equal basis with federal funds, and for the next five years, or until 1955 inclusive, on the basis of \$1.50 for every \$1 of federal funds and for any fiscal year thereafter, in the relationship of \$3 for every federal \$1. Since matching of funds would be state-wide, it would be possible for schools in more affluent communities to help carry the operating costs of those in poorer communities. Small schools under this system would receive the benefits of quantity buying and better lunches.

The efficacy of supplementary feeding of mothers and babies was well demonstrated in Great Britain. Maternal and infant mortality and neonatal and stillbirth rates reached the lowest levels ever recorded. Provision of conventional medical care was found to be of less importance as a factor in explaining these results than proper food. There also appeared to be a decrease in anaemia particularly in women and children. The use of high extraction flour, the increased consumption of vegetables and the special measures taken to protect the health of expectant mothers and others contributed to this improvement. Postwar aims in Great Britain included greatly increased education in food matters for school children, students, housewives, caterers and cooks; investigations into the development and use of new foods; the continuation of the National Milk and Welfare Food services which had become part, as allowances in kind, of the family allowance legislation; the continuation and expansion of the service of milk and meals at school; and the

planning of a new attempt to provide better nutrition to adolescent workers in factories and other places.

Hospital feeding practices were improved as a result of the lessons learned during World War II on emaciation and starvation. It was found that in the emaciation where there is insufficient caloric and food intake to maintain a normal metabolic level, the outstanding deficiency is calories; but the specific nutrient deficiencies, particularly protein, are responsible for much of the clinical symptomatology. Wasting phenomena, especially of the musculature, presented the end result of a negative nitrogen balance. Abrupt therapy on prisoners of war, started in an attempt to restore these patients quickly to normal, resulted in a breakdown of the compensatory mechanisms and death ensued frequently. Effective therapy had to be directed toward supplying the proteins and eventually restoring complete caloric and nutrient therapy. Intravenous alimentation was found to be not only unnecessary but very dangerous. In the prisoner of war camps milk and egg mixtures, dehydrated and powdered, were well tolerated by the majority for oral use. Actual statistics gathered from the medical units for recovered Allied military prisoners also showed the value of the bland diet regime. In controlled studies of conscientious objectors it was demonstrated that calories were of overwhelming importance. Within reasonable limits every increase in calories was associated with an increased rate of recovery. If the total caloric intake was low; *i.e.*, less than 2,500 calories per day, supplementary protein seemed desirable. However, with a good caloric intake extra proteins beyond those in the diet itself (about 100 gm. daily) did not appear useful. For rehabilitation of conscientious objectors 2,500–3,000 calories seemed about right in the first few weeks and 3,500–4,000 later. The importance of maintaining a positive nitrogen balance for good health and convalescence was demonstrated beyond question. Good wound healing, resistance to infection and complete convalescence was dependent on attaining a positive nitrogen balance.

On May 29, 1946, the New York Academy of Sciences sponsored a conference on folic acid at the American Museum of Natural History in New York city. At this time the chemical structures were announced and the synthesis of folic acid and certain derivatives described. The availability of pure substances and the previous indication that folic acid was related to haematopoietic activity led to successful therapeutic trials in many macrocytic anaemias, pernicious anaemia, sprue and related diseases. The folic acid content of foods was also reported during 1946. While the methods of assay were not entirely adequate, there was an indication that fresh, deep green, leafy vegetables and liver were very high in folic acid; green vegetables, cauliflower and kidney were high; beef, veal, breakfast cereals prepared from wheat were of medium content; while root vegetables, tomato, cucumber, light green leafy vegetables, banana, pork, ham, lamb, cheese, milk, rice and corn cereals were low. Losses were found to be large when vegetables were stored at room temperature. Storage at normal refrigerator temperatures was quite effective in maintaining the folic acid content. Storage in ice prevented losses for periods of two weeks or more. The data on instability during cooking placed folic acid in the same group as thiamine, biotin, pyridoxine, inositol and pantothenic acid, all of which are more easily destroyed than riboflavin, niacin or choline. (See also FOOD RESEARCH; VITAMINS.)

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Dimension Stone: see STONE.

Diplomatic Services: see AMBASSADORS AND ENVOYS.

Disabled American Veterans.

An organization of veterans, commonly called the D.A.V., who served honourably in time of war in the armed forces of the United States and who became wounded, gassed, injured or disabled as a result of that service. A small group of World War I veterans, while taking vocational training in Cincinnati, O., early in 1920, founded this organization in an attempt to improve the methods then being inefficiently employed in the administration of the affairs of veterans in vocational schools, hospitals and the then existing complicated system of overlapping government bureaus.

There was steady growth in the importance and usefulness of the organization. In recognition of its policies and valuable services to disabled veterans, their dependents and the public, a charter was granted by congress in 1932, and was amended in 1942 to extend eligibility to those who served in World War II.

During 1946, there was substantial expansion of activities, made possible and necessary by a rapid increase in membership, largely because of hundreds of thousands of veterans becoming eligible by reason of service in World War II. To meet the urgent need for assistance in handling claims for authorized benefits to which these veterans were entitled, additional personnel was necessary to handle administrative and service duties. An extensive program was therefore developed for completing the training of more than 400 veterans in American university at Washington, D.C., to be followed by on-the-job training with experienced personnel, in order to have skilled representatives of Disabled American Veterans available in U.S. hospitals, offices of the Veterans' administration and D.A.V. offices, to assist those needing help with their rehabilitation problems.

Funds for maintaining the executive and service activities are derived from per capita tax from membership dues, from voluntary gifts and contributions and from other sources. Early in 1946, the organization acquired ownership of an established business which it conducted as a department and which yielded a substantial percentage of the total financial income. This consisted of the production and distribution of "Ident-O-Tags," or miniature automobile licence plates. The tags are worn on key rings; in the event the keys are lost, the finder may deposit them in any letterbox. They are then delivered to D.A.V. headquarters for identification, and subsequently returned to the owner without charge.

National headquarters are located at 1423 E. McMillan street, Cincinnati, O. National service offices are maintained at 1701 Eighteenth street, S.W., Washington, D.C. As of 1946, Vivian D. Corbly had served for 21 years as national adjutant and business manager in charge of executive functions at national headquarters. At the annual convention in Portland, Ore., on Sept. 6, 1946, Lloyd F. Oleson was elected national commander.

Membership at the close of the fiscal year, June 30, 1946, was 105,039 in about 1,200 local chapters throughout the United States and in foreign countries. Eligibility requirements are such as obviously limit the numerical strength of the organization, but in 1946 it nevertheless ranked third in size among all veterans' organizations in the United States.

Publications include a newspaper, *The D.A.V. Semi-Monthly*, sent to all members, also reports to congress, various pamphlets and leaflets occasionally distributed to acquaint potential mem-

bers and the public with the activities of the organization, and the annual convention proceedings.

The women's auxiliary is composed of wives, widows, mothers, sisters, daughters and granddaughters of D.A.V. members. Mrs. Cicero F. Hogan, Cincinnati, was national commander in 1946. Headquarters office was at Colorado Springs, Colo., where Mrs. Ann Weber served as national adjutant. (V. D. C.)

Disasters. During 1946 loss of life and property in accidents included the following:

Aviation

- Jan. 18 Cheshire, Conn. All 17 persons aboard commercial air liner were killed when plane crashed into ravine and burned.
- Jan. 31 Near Laramie, Wyo. Crash of commercial air liner into Elk mountain, 65 mi. north of here, killed all 21 persons aboard.
- March 3 San Diego. All 27 persons aboard New York-Los Angeles air liner were killed when aircraft crashed into fog-shrouded mountain peak 60 mi. east of here.
- March 19 Near Truckee, Calif. Army transport plane exploded and crashed in snowstorm in Sierra Nevada area, bringing death to all 26 persons aboard.
- April 4 Porto Rican area. Nine persons were killed and a tenth wounded when a bomb accidentally dropped by plane fell on group of observers watching aircraft carrier in test exercises.
- April 4 Albuquerque, N.M. Navy transport plane crashed 13 mi. southwest of Albuquerque, bringing death to 11 persons aboard craft.
- May 10 Near Munson, Fla. Two four-engined navy planes crashed in flames in wooded area, killing 28 fliers.
- May 16 Near Richmond, Va. Twenty-five passengers and crew of two were killed when commercial air liner, groping through fog, missed airport and crashed in flames in pine forest six miles from Richmond.
- May 20 New York, N.Y. Army plane lost in fog crashed into 58th floor of Manhattan company building in Wall street, killing all five occupants of craft, including WAC officer.
- June 9 Panama C.Z. All 23 persons aboard U.S. army transport were killed when plane crashed into mountain on Taboga island off entrance to Panama canal.
- June 12 Great Smoky mts., Tenn. All 12 persons aboard army Superfortress were killed when aircraft crashed into mountain peak near Tennessee-North Carolina state line.
- July 9 Mount Tom, Mass. Twenty-five persons were killed in crash of converted B-17 Flying Fortress.
- July 17 Cuenca, Ecuador. Crash of air liner resulted in death of 32 persons.
- Aug. 1 San Diego, Calif. Eleven persons were killed when navy bomber crashed during take off.
- Sept. 3 Zealand isl., Denmark. Twenty-two persons were killed in crash of French air liner.
- Sept. 4 Le Bourget, France. Crash of French air liner in factory courtyard resulted in death of 20 persons aboard craft; a mason working on roof of nearby building was decapitated by low-flying plane.
- Sept. 5 Near Elko, Nev. Twenty-one persons were killed when U.S. air liner crashed into hill; only survivor was two-year-old child.
- Sept. 7 Near Bathurst, Gambia, W. Africa. All 23 persons aboard British air liner bound for South America were killed when plane crashed a few minutes after take off from Bathurst airport.
- Sept. 13 Near Waynesville, N.C. Maj. Gen. Paul Wurtsmith and four other army men were killed in crash of B-25 bomber 10 mi. south of Waynesville.
- Sept. 15 Estevan, Saskatchewan, Canada. Transport plane exploded and burned after crash at airfield, killing 21 Royal Canadian air force personnel aboard.
- Sept. 18 Near Gander, Newfoundland. Twenty-six persons aboard Belgian air liner were killed when plane crashed. Eighteen survivors of crash were brought back to safety by army and coast guard rescue teams.
- Sept. 27 Near Rio Doce, Brazil. Commercial air liner struck by lightning caught fire and crashed in jungle killing all 25 persons aboard.
- Oct. 2 Near Battle Mountain, Nev. Explosion of B-29 bomber over desert caused death of 11 persons aboard.
- Oct. 3 Near Stephenville, Newfoundland. All 39 men, women and children aboard U.S. transatlantic air liner were killed when craft exploded after crashing into hill; cause of accident was ascribed to "mechanical failure."
- Oct. 6 Penang, British Malaya. Twenty-one persons aboard Ceylon-to-Singapore transport were killed in crash 100 mi. west of Penang.
- Oct. 7 Apeldoorn, the Netherlands. Twelve pupils were killed when military stunt pilot crashed his plane into school; pilot was also killed.
- Oct. 17 Laramie, Wyo. Transport plane crashed near Laramie, killing all 13 persons aboard craft.
- Nov. 1 Limoges, France. Twenty-four persons were killed when chartered plane crashed on Paris-Casablanca run.
- Nov. 13 Near Perote, Mex. At least 16 persons were killed in crash of passenger air liner on mountain.
- Nov. 13 Los Padres forest, Calif. Commercial air liner crashed in storm on White mountain, 50 mi. northwest of Los Angeles, bringing death to at least 11 persons.
- Nov. 16 Iwo island. Twenty-three persons were killed when U.S. army transport crashed into sea 15 mi. from Iwo.
- Nov. 22 Near Locking, Eng. Eight R.A.F. members were killed and 30 others injured when bomber plane, diving for crash landing, sheared off upper deck of bus in which R.A.F. men were setting out on leave.

- Nov. 26 San Jose, Costa Rica. At least 23 persons were killed when commercial air liner hit mountainside near San Jose.
- Dec. 14 Near Manila, P.I. At least 12 persons were killed in crash of passenger plane.
- Dec. 23 Near Rio de Janeiro, Brazil. Twenty persons were killed in crash of commercial air liner, 30 mi. from Rio de Janeiro.
- Dec. 24 Laguna mts., Calif. Commercial air liner crashed on peak in Laguna mountains killing 12 persons.
- Dec. 25 Shanghai, China. At least 71 persons were killed when three Chinese air liners crashed near Shanghai in heavy fog.

Fires and Explosions

- Jan. 15 Welch, W.Va. Explosion in coal pit resulted in deaths of at least 14 miners.
- Jan. 28 Oklahoma City, Okla. At least 10 persons perished in fire of undetermined origin that swept through main hangar at army air force airdrome at Tinker field.
- Feb. 2 Garfield Heights, Cleveland, O. At least 13 persons were killed in fire that swept through home for aged.
- June 5 Chicago, Ill. Sixty-one persons perished in flames or were suffocated by smoke in fire that swept LaSalle hotel.
- June 9 Dubuque, Ia. Fire that started in basement of Canfield hotel, brought death to 19 people and injuries to a number of others.
- June 21 Dallas, Tex. At least 8 persons were killed and 41 others injured when exploding ammonia fumes from air-conditioning unit in basement swept through 700-room Baker hotel. There was no fire.
- June 25 Staten Island, N.Y. Estimated \$2,000,000 damage was caused by fire that destroyed ferry terminal; at least two persons were killed and several others injured in flames.
- July 18 Onset, Mass. Explosion of natural gas in restaurant cellar killed 9 persons and injured 60 others.
- Aug. 18 Vergarola, Yugoslavia. At least 43 persons were killed in explosion of mine dump on beach.
- Nov. 19 Greenville, S.C. Eleven persons were reported killed in explosion that wrecked laundry.
- Dec. 7 Atlanta, Ga. One hundred nineteen persons were killed in fire that swept Winecoff hotel; an estimated 100 more were injured.
- Dec. 8 Saskatoon, Saskatchewan. Roaring fire that started in hotel's restaurant raged through Barry hotel in matter of seconds, bringing death to at least 11 persons; 18 others were injured.
- Dec. 12 New York, N.Y. Collapse of huge wall of ice plant sheared off half of a neighbouring tenement, entombing and killing at least 38 residents of building.

Marine

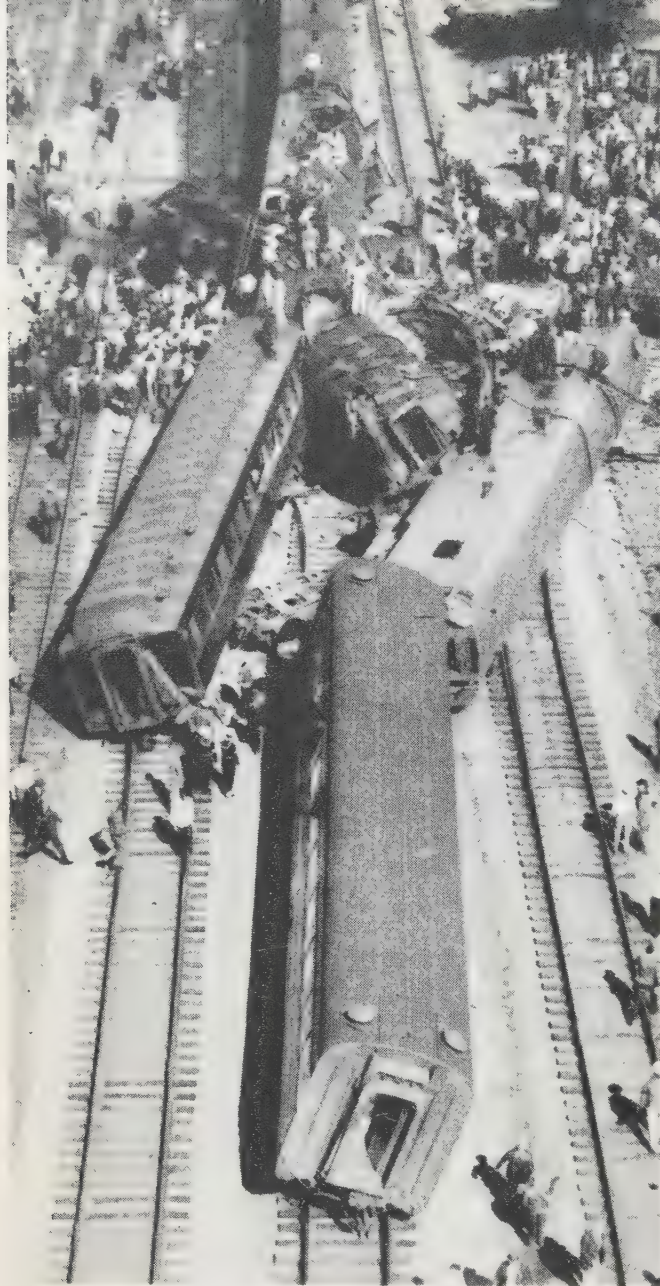
- Feb. 4 Near Seward, Alaska. Passenger liner "Yukon" with 495 persons aboard, split into two sections after running aground in raging blizzard; coast guard reports indicated two dead and 31 missing.
- April 30 Leonardo, N.J. Ammunition blast that tore away one-third of destroyer "Solar's" forward structure resulted in death of five navy men.
- July 31 Rio de Janeiro, Brazil. About 27 persons died in fire that started in boiler room of Brazilian transport "Duque de Caxias" while vessel was at sea off Brazil; 1,600 survivors were brought to shore by Brazilian, U.S. and British rescue vessels.
- Aug. 2 Tanganyika, Africa. 295 persons were drowned in sinking of steamer "Vitya" in Lake Nyasa.
- Sept. 13 Off Cape Hatteras, N.C. Captain, his wife and 10 crew members drowned when Norwegian tanker broke in two during hurricane; 24 others of crew were rescued.
- Dec. 7 Off Toulon, France. French government officially abandoned hope for 18 men trapped in submarine believed sunk by floating mine.

Miscellaneous

- Jan. 12 Diamond Harbor, India. Collapse of two temporary jetties on Hooghly river resulted in death of estimated 100 pilgrims who were bound for site of ceremonial bath.
- March 9 Bolton, Lancashire, Eng. At least 33 persons were killed and 500 more were injured when guard rails in football stadium collapsed.

Natural

- Jan. 4 Eastern Texas. Thirty-three persons were killed by tornado that struck Nacogdoches and nearby areas.
- Feb. 13 Constantine, Algeria. At least 276 persons were killed in earthquakes that hit Setif and Batna regions in Constantine department.
- April 1 Alaska-Hawaii area of Pacific ocean. Series of tidal waves started off Alaska and Aleutian islands and spread to Hawaiian islands, causing about 150 deaths and leaving 5,000 persons homeless in Hawaii alone; damage was estimated in millions of dollars.
- May 28 Susquehanna valley, N.Y.-Pa.-Ohio. Susquehanna river flood, aggravated by heavy rains, caused widespread damage; 12 were reported dead and several persons were reported missing.
- May 31 Mus and Erzurum provinces, Turkey. At least 1,330 persons were killed in earthquake in eastern Turkey that levelled many villages.
- June 17 Detroit-Windsor. At least 14 persons were killed and many others injured by tornado that swept through U.S.-Canada border area striking Detroit and Windsor regions.
- Aug. 4-10 West Indies. Violent earthquake in northern provinces of Dominican republic brought death to at least 73 persons; heaviest shock accompanied by tidal wave occurred Aug. 4; minor tremors were felt in Puerto Rico, Haiti and Cuba.
- Aug. 16 St. Louis, Mo. Heavy floods brought about by record rainfall made 2,000 families homeless, caused damage estimated at \$2,000,000 and resulted in two deaths.



TRAIN WRECK at Naperville, Ill., on April 25, 1946, where the Burlington Exposition Flyer crashed into the rear of the Advance Flyer, killing 46 persons and injuring many more

- Aug. 18 Mankato, Minn. At least 7 persons were killed and 50 injured in tornado that swept through Mankato.
- Sept. 27 San Antonio, Tex. Heavy rains, inundating large sections of San Antonio, resulted in six deaths with four persons missing.
- Oct. 9 Off Portugal. Hurricane which swept over Madeira and Azores resulted in death of 27 persons.
- Nov. 3 India. Between 300 and 400 persons were killed in earthquakes that struck Muzaffarpur in Bihar province.
- Nov. 12 Philippines. Two hundred-sixty persons were killed in typhoon which struck Negros island, Manila dispatches disclosed.
- Nov. 13 Northern Peru. More than 500 persons were believed killed in series of earthquakes over 72 hr. in Andes mountain area; quake started Nov. 10.
- Nov. 15 Colorado. At least 18 persons died in two-week-period snowstorms (Nov. 2-15) that paralyzed communications over vast area in Colorado.
- Dec. 21 Southern Japan. Great earthquake which started six tidal waves, spread ruin over huge area of southern Japan; official figures indicated 1,088 persons dead, 165 missing, 142 injured and 94,669 left homeless; 21,846 houses were devastated, washed away or damaged.

Railroad

- Jan. 1 Lichfield, Eng. Freight train that telescoped into rear of passenger train at Lichfield station resulted in at least 15 deaths and many injured.
- April 25 Naperville, Ill. Forty-six persons were killed and 100 others injured when second section of crack express train, racing at speed of more than 75 m.p.h. ploughed into rear of first section, which had halted.

- Sept. 26 Near Victorville, Calif. Six persons were killed and 50 others injured in crash of crack passenger train.
- Nov. 12 Near Revigny sur Ornain, France. At least 35 people were killed and 80 others injured in train crash.
- Dec. 13 Near Mansfield, O. At least 18 persons, including 14 soldiers enroute to Japan for occupation duties, were killed in three-way crash of one passenger and two freight trains.

Traffic

- June 24 Snoqualmie pass, Wash. Bus carrying Spokane baseball team plunged off mountain road, 50 mi. east of Seattle, causing eight deaths.
- Dec. 18 Near Newberry, S.C. Ten school children and bus driver were killed when school bus crashed into train during fog.

Disciples of Christ. Statistics as of June 30, 1946, showed a total membership of 1,718,010 in the United States and Canada (Canada 8,982), a net gain of 16,982 for the year. Reported additions were about normal—52,904 by baptism, 51,393 otherwise—7,787 more than for 1945. There were 7,945 churches in the United States and Canada (a loss of 59), and 8,030 ministers (a gain of 582 after a loss of 324 the year before). Total world membership was 1,889,066 (up 21,475, after a gain of 21,760 for 1945). There were 11,660 members in Great Britain, 31,623 in Australia, 4,336 in New Zealand (losses of 441 and 899 and a gain of 9, respectively). South Africa reported 333 members. There was still no report from Poland, listed 3 years before as having 65 churches and (estimated) 40,000 members, and none from Denmark nor Norway. Receipts and expenditures for local church maintenance in the United States and Canada rose to \$23,157,449 (up \$2,247,914, after an increase of more than double that amount the previous year); for missions and benevolences \$9,941,051 (increase \$1,181,179). The foreign missionary agency, which had been able to continue its work in Africa, Latin America and India during World War II, made progress in resuming operations in the orient. Some missionaries had remained in China and most of the others had returned and were at work in the churches, schools, colleges and hospitals. Two missionaries sailed for Japan in December. All mission property was deeded to the native Japanese churches before World War II. There was also a resumption of work in the Philippines, especially in rebuilding and rehabilitation. The missionary magazine, *World Call*, as of Nov. 1, 1946, had a monthly circulation of 69,523 (up 9,124 in 1 year). The international convention (U.S. and Canada) met at Columbus, O., Aug. 6-11, with M. E. Sadler as president. It elected Rev. Hampton Adams, of St. Louis, as president of the next convention, which was to meet in Buffalo, N.Y., July 29-Aug. 6, 1947, in connection with the world convention of the Disciples of Christ.

(W. E. GA.)

Displaced Persons: see PRISONERS OF WAR; REFUGEES.

District of Columbia: see WASHINGTON, D.C.

Divorce: see MARRIAGE AND DIVORCE.

Dixon, Thomas (1864-1946), U.S. author, was born on Jan. 11 in Shelby, N.C., the son of a clergyman. He studied at Wake Forest college, N.C., and Johns Hopkins university, Baltimore, Md., and received an LL.B. degree from the Greensboro (N.C.) Law school in 1886. He joined the state legislature at the age of 21 but resigned a year later to become a Baptist minister. Later, he wrote novels, most of which were devoted to preaching the "dangers" of racial intermixture of whites and Negroes. This was the theme of *The Clansman* (1905), a book which David Wark Griffith adapted to motion pictures in 1915 under the title *The Birth of a Nation*. Dixon was an eloquent defender of the Ku Klux Klan, which his father had founded. In the 1920s, however,

he denounced the second Ku Klux Klan as a bigoted organization and attacked its antagonism toward Jews and Christians but clung to his earlier convictions that the whites were "superior" to the Negroes. Among Dixon's other works are: *The Leopard's Spots* (1902), *The Traitor* (1907), *The Southerner* (1913), *Foolish Virgin* (1915), *The Black Hood* (1924), *The Love Complex* (1925), *Companions* (1931) and *The Flaming Sword* (1939). He died in Raleigh, N.C., on April 3.

Dodecanese.

A group of 12 islands in the Aegean sea. Area 1,035 sq.mi., pop. (1936) 140,848. Capital: Rhodes (27,466). As the inhabitants of the islands are in the large majority Greeks, the foreign ministers of the Big Four, in drafting the peace treaty with Italy during 1946, decided that the islands should be given to Greece. Article XII of Part I of the peace treaty draft with Italy stipulates that the islands shall be and shall remain demilitarized. The procedure and technical conditions governing their transfer to Greece was to be determined by an agreement between Britain, whose troops occupied the islands in the closing stages of World War II, and Greece, and the occupation troops were to be withdrawn within 90 days after coming into force of the treaty. (See also ITALIAN COLONIAL EMPIRE.)

(H. Ko.)

Doenitz, Karl

(1892—), German naval officer, was born on Sept. 16 in Berlin. Commissioned in 1913 as an ensign in the Imperial German navy, he served in a submarine division during World War I. Captured by the British in 1918, he was committed to an insane asylum. He was repatriated in 1919, but the suspicion prevailed that he simulated insanity to hasten his release.

After the Armistice Doenitz resumed his association with the German navy and it was believed that he assisted in the construction of U-boats and in training crews for them in violation of the Versailles treaty. He was chief of the U-boat force, 1939-43, and upon Erich H. A. Raeder's resignation he was made grand admiral and commander of the German navy in 1943.

In May 1, 1945, Doenitz announced the death of Adolf Hitler and declared that before he died the fuehrer had designated Doenitz as his successor. After Doenitz' efforts to surrender only to the western Allies were rejected by Gen. Dwight D. Eisenhower he ordered his envoys to sign the Allied unconditional surrender terms at Reims, France, on May 7, and at Berlin the following day. The Allies dissolved his government May 23, 1945, and arrested Doenitz, who was formally indicted by the international military tribunal at Nuernberg to stand trial on charges of war crimes. Doenitz was absolved by the court of charges of conspiring to wage aggressive war and of committing crimes against humanity; however, he was found guilty, Oct. 1, 1946, of crimes against the peace and violations of the customs of war and was sentenced to ten years of imprisonment.

Dog Racing.

Caught in the midst of an international betting fever, dog racing flourished in the United States and Europe during 1946. Record attendance and mutuel handle marked racing in Florida and Massachusetts. Top purse of the year was for \$10,000, contested in a series of matched races between Lucky Pilot and Flashy Sir on Massachusetts tracks. Ireland profited by the dog-racing craze in England by shipping 6,252 greyhounds during the first eight months of 1946.

(M. P. W.)

Dog Shows: see SHOWS.

Dominica: see WINDWARD ISLANDS.

Dominican Republic.

A West Indian republic occupying the eastern two-thirds of the island of Hispaniola or Haiti. Area, 19,129 sq.mi.; pop. (July 1945 est.), 2,029,054. Almost two-thirds of the population lives in the Cibao lowlands in the north; most of the rest lives in the vicinity of Ciudad Trujillo on the south coast. Racial distribution is estimated to be 15% white, 15% Negroes and 70% mestizo and mulatto. The capital is Ciudad Trujillo (formerly Santo Domingo) with a pop. (1946 official estimate) of 131,271. Other urban centres (with 1945 pop. ests.) are Santiago de los Caballeros (54,113), San Pedro de Macoris (22,728), San Felipe de Puerto Plata (15,610); additional cities (with 1944 pop. ests.) are San Francisco de Macoris (15,418), La Romana (13,814), Barahona (13,751), Baní (11,731), and Concepción de la Vega (11,683). Roman Catholicism is the predominant religion; the language is Spanish. President in 1946: Gen. Rafael Leónidas Trujillo y Molina.

History.—The government on Jan. 4, 1946, adopted a labour law establishing an 8-hour day and a 48-hour week for different categories of employees. Because of the alleged ambiguity of the law, restlessness resulted among labouring groups in later weeks. Sec. Gen. Trygve Lie of the United Nations announced on Aug. 1 that the Dominican Republic had paid its full assessment of \$12,250 to the working capital fund of the U.N. During the summer the government made elaborate plans for the celebration of the 450th anniversary of the founding of Santo Domingo (renamed Ciudad Trujillo in 1936) by Bartolomé Columbus in 1496. On the day set, Aug. 4, however, the country experienced its most serious disaster in many years in the form of a heavy earthquake, followed by a destructive tidal wave, in the northern part of the republic. The most seriously damaged cities were Santiago, San Francisco de Macoris and Puerto Plata, but the interior town of Moca (pop. 8,720) also suffered much damage and some loss of life, as did the smaller localities of Matanzas and Samaná. Recurrent but less serious shocks came in the two weeks following Aug. 4. The first quake was recorded on seismographs entirely around the world and was supposedly one of the most severe ever recorded. The government some days later, after an incomplete survey, reported a loss of life of at least 73, with 131 or more injured and 20,000 made homeless. Authorities immediately took steps, in spite of the serious interference with communications, to rush clothing, food and medical supplies to the stricken areas; additional assistance was furnished by U.S. naval vessels and others. Pres. Trujillo announced plans late in 1946 to introduce constitutional amendments providing for a central bank, establishment of a paper currency system, elimination of the foreign debt and other fiscal reforms.

Education.—Schools numbered about 2,000 in 1946, with an enrolment of more than 210,000 pupils; the total teaching staff was 3,439. The government began construction of a university city patterned after those in Colombia, Venezuela and elsewhere, at a cost of about \$2,500,000. The government claimed in 1946 to have reduced illiteracy by 10%, although it still presumably reached almost 60%.

Finance.—The monetary unit is the peso, valued at par with the U.S. dollar. The 1946 budget estimated revenues at 26,333,644 pesos and expenditures at 22,598,644 pesos; the budget did not, however, mention a pledged payment of \$3,000,000 to the international bank set up under the Bretton Woods agreement, to which the Dominican Republic adhered late in 1945. Total government collections in 1945 were 26,440,532 pesos, an increase of 5,493,399 over original estimates for the year. The government in 1946 authorized circulation of an additional 260,000 Dominican 10-centavo and 70,000 five-centavo pieces. Total U.S. Export-Import bank commitments to the Dominican



CHURCH OF SAN FRANCISCO DE MACORIS damaged by an earthquake which hit the town of San Francisco de Macoris in the Dominican Republic on Aug. 4, 1946

Republic, as of June 30, were \$2,200,000, all of it listed as amount outstanding. The Dominican government during the year took steps to float a 5,000,000-peso bond issue to finance 25,000 workers' homes.

Trade.—Exports in 1945 were valued at 43,564,113 pesos (1944: 60,269,328 pesos); the decline was largely caused by decreased sugar exports. U.S. exports to the Dominican Republic in 1945 totalled \$18,200,000 (1944: \$13,500,000) and imports were \$14,500,000 (1944: \$30,900,000). Dominican coffee exports in the crop year 1945-46 (Oct. 1-Sept. 30) were 10,471,985 kg. of green, 4,220,311 kg. of roasted and 3,520 kg. of ground coffee, valued respectively at \$3,103,028, \$1,933,734 and \$1,626. Approximately 67% of the coffee went to the U.S., 22% to Europe and 11% to other Latin American countries. Kapok exports in the first six months of 1946 were 38,978 kg. valued at \$5,925 (same period of 1945: 27,195 kg. valued at \$5,447). Straw hat exports in the first six months of 1946 were 26,292 units valued at \$8,573 (same period of 1945: 319,488 units valued at \$155,504). Quantities and values of certain other exports in the first eight months of 1946 (figures for the same period of 1945 in parentheses) were: cacao: 22,154,778 kg., \$3,544,022 (13,825,708 kg., \$2,273,916); chocolate: 775,621 kg., \$226,786 (926,392 kg., \$334,120); bananas: 910,779 stems (579,939 stems); plantains: 184,574 kg. (92,610 kg.). The United Kingdom contracted for the entire 1946 exportable sugar surplus. Most tobacco was marketed in Spain, Switzerland and the Netherlands.

Agriculture.—The estimate of coffee production for 1946-47 was 325,000 bags of 60 kg.; the 1945 crop was good but that for 1946 was estimated at only 43% of the 1945 crop. The 1945-46 rice crop, the largest on record, was estimated at 27,500 metric tons of paddy and 20,000 tons of highland rice; the price was expected to increase because of a government pledge of 10,000 tons to the United Nations Relief and Rehabilitation administration. The 1946 sugar crop estimate was 480,000 short tons. The government estimated that by the beginning of 1946, 123,000 ac. would be under irrigation. It took steps to establish a new degree-granting agricultural institute.

BIBLIOGRAPHY.—*The Inter-American* (monthly); Albert C. Hicks, *Blood in the Streets* (1946); Pan American Union, *Bul.* (monthly); *Foreign Commerce Weekly*. (R. H. F.N.)

Donations and Bequests. U.S. philanthropy, having set new records in the World War II years, was maintaining a high level of giving, according to the annual study of giving made by the John Price Jones corporation of New York.

Citizens of New York, Baltimore, Boston, Chicago, Los Angeles, Philadelphia, St. Louis and Washington, D.C., the cities studied, gave or bequeathed \$275,853,339 to private philanthropy and organized fund-raising campaigns during 1946, a 31.32% increase over the \$209,306,297 contributed in these cities during 1945.

Further indication that U.S. people are philanthropic-minded and have a large amount of civic consciousness is shown in a study of fund-raising campaigns announced during 1946. During that year, 563 organizations publicly announced current or contemplated campaigns for total goals of \$1,821,020,194. Public announcements of amounts raised on some of these efforts show that the American Red Cross had received as of May 21, \$113,498,608, or 113.5% of its goal; the United Jewish Appeal raised \$102,000,000 surpassing its goal by \$2,000,000. In the United States and Canada 800 community chests had a combined goal of \$162,000,000 and as of Nov. 21, 244 chests reported raising \$75,672,824, or 98.4% of their goals. The National Foundation for Infantile Paralysis raised \$15,982,150 in its 1946 March of Dimes campaign.

The Presbyterian Restoration fund, seeking \$27,000,000 by May 1948, announced in December that \$18,191,271 had been contributed.

Gifts in the eight cities studied amounted to \$249,445,290 in 1946, compared with \$191,134,648 in 1945, an increase of 30.51%. Publicly announced bequests were \$26,408,049, a 45.33% increase over the \$18,171,649 announced in 1945.

U.S. interest in war projects and foreign relief in this first rehabilitation year was evidenced by the fact that the largest totals of gifts were as follows: \$55,832,280 for foreign relief; \$42,468,871 for combined community chests and war funds; \$33,237,013 for U.S. war organizations such as the U.S.O. and Red Cross.

Gifts in other classifications were as follows: education, \$37,583,544; organized social work, \$52,029,722; health, \$19,652,327; and religious purposes, \$6,616,825.

New Yorkers contributed \$135,296,487 in 1946, with the other cities as follows: Philadelphia, \$22,186,592; Boston, \$21,-

408,331; Los Angeles, \$17,188,017; Chicago, \$16,013,513; Washington, D.C., \$14,112,212; Baltimore, \$12,286,185 and St. Louis, \$10,953,953. (J. P. J.)

Great Britain.—Charitable bequests and donations to hospitals were noticeably lower in Britain in 1946 owing, it was believed, to a tendency to regard them as unnecessary in view of the coming inclusion of all hospitals in the national health service. There was also a tendency among testators not to name particular charities in their bequests but to leave the choice to executors. Thus Philip E. Hill, a financier who left an estate of £3,000,000 gross, arranged that his executors should dispose of three-quarters of it among unspecified charities.

The outstanding donation of the year was the official gift of a gold certificate for £985,000 and a bank draft of £196,625 handed to Clement R. Attlee, prime minister, by Field Marshal Jan C. Smuts in October as a present from the people of South Africa to the people of Britain, in admiration of their wartime spirit.

Properties given to the National Trust included George Meredith's home, Flint cottage, on Box Hill, Surrey; Charlecote, near Stratford-on-Avon, where Shakespeare was supposed to have poached; various small properties in the Lake district, and 250 acres of Hampshire which included Stockbridge down.

Charles Hopkins presented a house at Sevenoaks to Mrs. Winston Churchill as a tribute to her husband, and it was entrusted by him to the British legion under the new name of "Churchill house."

The duke of Montrose gave four of his largest pictures to the nation. They included an impressively large portrait, by Van Dyck, of Charles I riding on horseback through an archway at St. James's palace. (See also COMMUNITY CHEST; SOCIETIES AND ASSOCIATIONS.) (P. BN.)

Doolittle, James (1896—), U.S. army air officer, was born Dec. 14 at Alameda, Calif. During World War I he served as a flying instructor, and when peace came, he completed a course in engineering at Massachusetts Institute of Technology, Cambridge, Mass., graduating in 1925 with a doctor of science degree. He returned to active army service in 1940 and in Jan. 1942 was promoted to the rank of lieutenant colonel in the air corps. Doolittle electrified the world on April 18, 1942, during World War II, by leading a U.S. squadron of 16 B-25 bombers in a spectacular daylight raid over Tokyo. He was made a brigadier general and awarded the congressional medal of honour. Transferred to Africa, he was advanced to the rank of major general. On Feb. 26, 1943, he became head of the bomber command in the northwest Africa air forces and in the following December was named commander of the 8th U.S. air force. On March 14 Doolittle was nominated for the rank of lieutenant general. After the end of the war in Europe Doolittle and part of the 8th air force were assigned to the Pacific war, May 26, 1945. Shortly afterwards Doolittle arrived at Guam (July 23), but the war with Japan ended before he could fully employ the 8th air force in the Pacific area. On leaving the army, Jan. 1, 1946, Gen. Doolittle became president of the Air Force association and on March 18 he was named head of a board of former officers and enlisted men to investigate the army's caste system. The board published a report May 27, recommending elimination of many of the military terms emphasizing the differences in caste between officers and enlisted men.

Draft: see SELECTIVE SERVICE, U.S.

Drama: see RADIO; THEATRE.

Dress: see FASHION AND DRESS.

Drought: see METEOROLOGY.

Drugs and Drug Traffic. Misbranding of drugs in the United States was transferred, in large part, from the container of the medicine to less conspicuous types of labelling, such as circulars which were often brought together with the medicine only after they reached the dealers' shelves. A number of federal courts held this practice a violation of the Federal Food, Drug, and Cosmetic act. Another type of drug misbranding was through oral promotion by "health class" lecturers and "pitchmen" who recommended the preparation for serious diseases not listed in the labelling. Federal court actions against such practices were on the increase in 1946, while drug actions charging violations of the act were, as a whole, less in number than in the previous year. Actions against gadgets and contraptions misbranded with claims for serious diseases also increased. The diseases they purported to treat or cure included diabetes, cancer, tuberculosis, syphilis, arthritis and bronchial troubles.

Seizures of drugs standardized in the *Pharmacopoeia of the United States of America* and *National Formulary* were greatly reduced in 1946, largely because of the decrease in actions against injection drugs containing undissolved particles and of surgical dressings failing to meet sterility requirements.

The campaign was continued against the retail sale without prescription of drugs such as the sulfonamides, barbiturates and thyroid preparations, which were limited to prescription use only by the labels under which they were shipped. A federal district court upheld the government's criminal prosecution of a druggist who contested the case on the ground that the sulfathiazole he sold was not in interstate commerce at the time of the sale.

The fiscal year 1946 was the first in which the Food and Drug administration certified penicillin under the Food, Drug, and Cosmetic act, although it had, under a wartime agreement, maintained predistribution testing since the commercial production of penicillin began in 1943. Production of penicillin increased from 617,000,000,000 to 2,100,000,000,000 units in the 1946 fiscal year. Certification under the act was continued for insulin drugs, with 460 samples examined. Also under certifica-

PART OF OPIUM, WORTH \$2,000,000, being burned by Chinese officials at Peiping, China, on Jan. 26, 1946. The opium was seized from the Chinese puppet government set up by the Japanese



tion, through allocation orders of the Civilian Production administration, were all lots of streptomycin manufactured.

Among the new-drug applications were some representing the concentrated results of medical research for the armed forces, with information concerning them made available at the end of hostilities. Applications for the distribution of new drugs cleared in 1946 numbered 114.

Seizure actions against 324 drugs and devices were effected, 74 criminal prosecution cases were instituted and 7 injunctions were requested of the federal courts. (See also FEDERAL SECURITY AGENCY; FEDERAL TRADE COMMISSION.) (P. B. D.)

League of Nations and United Nations.—International narcotic controls in western Europe were being satisfactorily re-established except in Germany where considerable confusion resulted because of the quadripartite occupation. No uniformity was practiced in German zones, although some solution was brought about by a Working party consisting of the four governments in occupation. The solution to the problem was a co-ordinated effort to obtain the estimated medical needs for Germany for submission to the Permanent Central Opium board, but the Russian government refused to submit statistics to a board which had any League of Nations connections. This position was taken by the U.S.S.R. even though the Permanent Central Opium board was set up as an independent body under the 1925 convention.

Eastern Europe.—Yugoslavia again went into the opium market as an exporter. The postwar smuggling which was expected to develop from this part of the world had so far not materialized.

Near and Middle East.—Turkey was still the largest opium producer in the world for medical needs, and during 1946 produced an estimated crop of approximately 251 metric tons of opium, which is only 150 tons short of the world's medical needs. Iran ordered complete prohibition of opium production and went so far as to require that all government officials addicted to the use of opium must submit a certificate showing cure within 15 days from the date of the order. Afghanistan had previously banned the production of opium. Extremely large opium seizures in Palestine indicated a sizable addiction problem developing there. The seizures pointed to the fact that opium was being smuggled into Palestine from Iran and Turkey and was not being transhipped for smuggling elsewhere.

Far East.—India continued to be a source of illicit opium. Indian opium was being found in the illicit traffic in nearly every country where illicit opium was used. Portugal issued a decree declaring prohibition of opium smoking in Macao, which was formerly one of the worst spots in the entire world. This left Siam and India as the only places in the far east where the smoking and eating of opium was under government licence. Up to the close of 1946, prohibition was effected in Hong Kong, Straits Settlements, Malay States, French Indo-China, the Netherlands Indies and Macao.

Japan.—Complete controls with adequate penalties were set up under General Douglas MacArthur. Some 70,000 dealers of all kinds, including wholesalers, practitioners and druggists were licensed for the first time. Investigation developed a complicity on the part of the Japanese government in keeping its narcotic treaty obligations. Duplicate sets of records were found, one for their own use and one for the League of Nations. The indictment for war crimes contained a count charging violation of narcotic treaties and the poisoning of the Chinese population with narcotic drugs. Investigation developed that in one factory alone operating in Seoul, Korea, during the years 1938 and 1939, the Japanese government manufactured and sent to the Manchoukuo Opium Monopoly in each year an amount of heroin sufficient to supply the entire world's medical needs.

North American Continent.—Information from the army service forces of the United States showed that roughly 1 man in 10,000 selective service registrants examined for military duty was rejected primarily because of drug addiction. This indicated an impressive decrease in drug addiction, in comparison with World War I figures, when 3,000 were rejected in an army of 4,500,000 or one man in 1,500.

There was considerable clandestine cultivation of opium in Mexico.

United Nations.—The assembly in London adopted a Chinese proposal establishing a Commission on Narcotic Drugs consisting of 15 members representing the following nations: China, United Kingdom, U.S.A., U.S.S.R., France, India, Netherlands, Canada, Mexico, Turkey, Egypt, Iran, Yugoslavia, Peru and Poland. This commission was to report to the Economic and Social council. It convened for its first meeting at Lake Success, N.Y., on Nov. 27, 1946.

This was the first permanent commission set up under the United Nations and was to proceed to make recommendations without having to go through preliminary organization. During the meeting of the Economic and Social council, at which time a protocol was being considered for all nations to sign transferring all of the functions, powers and duties invested in the League of Nations under the international narcotic conventions to the United Nations, a Russian proposal was adopted that Spain be not permitted to sign the protocol as long as the Franco government was in power. (For pharmaceutical research and application of new products, see articles on specific diseases, such as ANAEMIA; DIABETES; LEPROSY, etc.; see also AGRICULTURAL RESEARCH ADMINISTRATION; ALIMENTARY SYSTEM, DISORDERS OF; ALLERGY; ANAESTHESIA; BACTERIOLOGY; BIOCHEMISTRY; BOTANY; CHEMISTRY; CHEMOTHERAPY; CHEMURGY; DENTISTRY; DERMATOLOGY; ENDOCRINOLOGY; ENTOMOLOGY; EPIDEMICS AND PUBLIC HEALTH CONTROL; EYE, DISEASES OF; GYNAECOLOGY AND OBSTETRICS; MEDICINE; PHYSIOLOGY; SURGERY; UROLOGY; VEGETABLE OILS AND ANIMAL FATS; VETERINARY MEDICINE; VITAMINS.)

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Drunkenness: see INTOXICATION, ALCOHOLIC.

Duke University. A privately endowed institution at Durham, N.C., founded by James B. Duke in 1924. It includes Trinity college for men, which goes back in its origins to 1838, the women's college, the college of engineering, the graduate school of arts and sciences, the schools of divinity, law, medicine, nursing and forestry, and the summer session.

The development of the curricula at Duke university during 1946 showed two trends: (1) A revision of course offerings with a view to simplification and a return to fundamentals. The first two years of college tend to be devoted to basic work, whereas the last two years are given over to diversification and specialization. The departments of mathematics and physics illustrate this trend. (2) A revision of course offerings with a view to meeting the changing conditions of society. The departments of sociology, economics and history illustrate this trend.

An enlargement project was under way in the college of engineering, which had completely outgrown its plant. The new building, under construction in 1946, was designed to house more than 400 undergraduate students. It was to include the best in library facilities, stack space for 20,000 volumes, drawing rooms, blueprint rooms and reading rooms. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. L. Fs.)

Dunhill, Thomas Frederick (1877–1946), British composer, was born on Feb. 1 in Hampstead and was educated at Kent college, Canterbury and the Royal College of Music, London; the latter institution awarded him the Open Scholarship for Composition in 1897. In 1900 he became pianoforte professor at Eton. He was appointed to the staff of the Royal College of Music, London, in 1905 and founded the Thomas Dunhill concerts in 1907. His publications include a treatise on chamber music, 1913, and on Mozart's string quartets, 1927. His book on Sir Arthur Sullivan's comic operas appeared in 1928, and a work on Sir Edward Elgar in 1938. Among his compositions are the *Enchanted Garden*, an opera which won for him the Carnegie award in 1925; a comic opera *Tantivy Towers* (1931); a work for viola and orchestra *Triptych* (1942) and an overture *Maytime* (1944). He died at Scunthorpe, Lincolnshire, England, on March 13.

Dust Storms: see METEOROLOGY.

Dutch Possessions: see BÓRNEO; NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES; SURINAM.

Dutra, Eurico Gaspar (1885–), Brazilian statesman and army officer, was born May 18 in Cuiabá, Brazil. He joined the army in 1902, and after studying at the Brazilian Military school in Rio de Janeiro (1904–08) he was commissioned in 1910 as a second lieutenant. Dutra became one of the leaders of the Brazilian officers clique and participated in the coup d'état that put Getúlio Vargas in the presidency in 1932. Dutra helped to crush the anti-Vargas revolt staged by Paulistas and in 1936 he was appointed minister of war. After Brazil declared war on the axis in Aug. 1942 the general, with the aid of U.S. equipment, organized and supervised the expansion of the Brazilian armed forces.

Vargas relinquished the presidency in Oct. 1945, after he had already announced that he would support Dutra's candidacy in the presidential campaign. Dutra won the elections held Dec. 2, 1945, and was inaugurated Jan. 31, 1946. In the summer of 1946 Pres. Dutra dismissed Brazilian Communists from government offices and shut down Communist newspapers that denounced the action.

Dyestuffs. The dyestuff situation in 1946 paralleled the 1945 pattern insofar as actual needs were concerned. The demand for civilian dyes, both for domestic and export consumption, far exceeded the supply. Reconversion began soon after V-J day and military-type inventories held by textile mills were taken over by the government and declared surplus property. The dye industry had to make extensive shifts in the relative importance of different dyes produced and despite the difficulties entailed by a change-over to a normal production basis, the problem was not considered insurmountable. The technical and mechanical changes involved were relatively simple, consisting largely of the realignment of equipment without large-scale replacements or alterations, but required time. The year 1946 held high promise for a closer approach by the textile and dye industries to a peacetime economy and conversion was well under way. Unsuspected obstacles presented themselves in the form of strikes in the steel and coal industries which prevented the dye industry from completing all of the major readjustments before the end of 1946. The supply of many raw materials was still insufficient to meet all requirements but it was considered to be only a matter of time before these shortages could be overcome. The industry would then be in a position to supply a wider variety of colours than formerly, since many dyes were developed during the war

which had previously been imported. U.S. dye manufacturers were also in a far stronger competitive position, their efficiency had reached a high level and new technical methods and processes were developed.

Restrictions on the use of dyes for civilian consumption were lightened early in 1945 and removed altogether the latter part of the year. The output of all types of dyes in 1945 amounted to 144,296,000 lb. compared with 151,651,000 in 1944 and the 1939-43 average of 142,515,000 lb. Sales of all dyes were 137,417,000 lb. valued at \$102,408,000 compared with 150,049,000 lb. valued at \$110,748,000 in 1944. Despite the substantial decline in the production of vat colours, this class continued to be the most important, accounting for 33.7% of the total 1945 dye production, direct dyes for 20.3%, sulphur dyes for 12%, acid dyes for 12.4% and mordant and chrome dyes for 5.9%. The remaining 15.7% was divided among the acetate rayon, basic, azoic and lake and spirit-soluble dyes. Production of direct dyes declined 545,000 lb., acid colours increased 699,000 lb. while sulphur colours decreased 681,000 lb. Sales of vat dyes other than indigo were valued at \$36,930,000, direct dyes at \$17,428,000, acid dyes at \$13,680,000 and sulphur dyes at \$4,239,000.

The dye industry in Great Britain, like that in the United States, strengthened its equipment and operating technique during the war. A vast program of expansion was formulated and commenced in 1946 which included larger plant facilities both in the United Kingdom and in other parts of the British empire. It was expected that this development would help make British dye consumers considerably less dependent upon foreign sources of supply and enable the empire to acquire a larger share of the overseas markets. Production figures after 1938 were not available in the year 1946. (A. G. BR.)

Ear, Nose and Throat, Diseases of. **Treatment and Training of the Hard of Hearing.**—This difficult problem as handled by the navy was discussed at great length and exactitude by Capt. Francis Lederer. The naval program of speech and hearing rehabilitation at United States Naval hospital, Philadelphia, is dedicated to the psycho-social adjustment of the handicapped person. It was planned to achieve within a 4-to 8-week period optimal retraining for communication, and by 1947 it had processed 3,000 aural casualties. Individual ear moulds had to be fabricated by especially trained personnel, hearing aids had to be tested by trial and error for each patient and it was of especial importance that correlation be made between audiometric and speech reception tests. A prospectus was outlined for three types of civilian hearing clinics—one for university centres, a second for metropolitan areas and a third for rural districts. Speech and hearing clinics should be a real boon to the hard-of-hearing patient.

Testing the Hearing of Newborn Infants.—In order to substantiate A. Liebmann's observation of 40 years ago that children were not born deaf, a study was undertaken to test the hearing of newborn infants. The audiometer could not be used, naturally, and tuning forks were found ineffectual, but the Urbantschitsch's whistles worked well. This set of whistles is comprised of 35 whistles, namely, 7 octaves, tones from Tr to F4. Of newborn infants 33 were tested, often with only 3 or 4 whistles; 31 reacted positively by turning the eyes or the head, or both, toward the source. The acoustopalpebral reflex (winking of the eyes) was the most frequent reaction. It was further suggested that the test be generally used in order to detect hearing impairments at an extremely early age, thus making it possible to introduce therapy as soon as possible.

Benadryl Therapy in Vasomotor and Allergic Rhinitis.—

Benadryl and pyrabenzamine antihistaminic drugs, were synthesized and used in allergic conditions in accordance with the concept that allergens produce on sensitized cells an effect causing liberation of histamine or histamine-like substances. It was given to 72 patients with allergic complaints; marked improvement or complete relief from nasal congestion and its associated symptoms occurred in 50% of the group with vasomotor rhinitis, and in 42.8% of the group with perennial allergic rhinitis. Only 4 of the 8 patients with associated asthma were definitely improved, with none of these obtaining complete subsidence of the thoracic symptoms and physical findings. One patient with pseudo-Ménière's syndrome obtained complete relief; another was not helped. In general, it may be said that benadryl would tide the patient over until the physician could further investigate and find out the real cause of the illness.

Miscellaneous.—Sinus surgery entered more and more into conservative channels. Antrum puncture with penicillin insertion by way of an in-dwelling needle was found to be of great benefit and would probably prevent many a future Caldwell-Luc operation on the maxillary sinus.

Surgery of the nasal septum was reviewed and improved by the Fomon group in New York. To overcome subsequent tension forces when a portion of the septum was removed, the resected septal cartilage or preserved cartilage was reinserted as a graft. Exceedingly accurate illustrations and sketches were shown in great detail. However, observation and training were necessary before the operation could be carried out to a successful conclusion.

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Earnings, Company: see BUSINESS REVIEW.

Earthquakes: see DISASTERS; SEISMOLOGY.

East Africa, British: see BRITISH EAST AFRICA.

East Indies, Dutch: see NETHERLANDS INDIES.

East Prussia. Formerly the easternmost province of the German land of Prussia. Area 15,061 sq.mi., pop. 2,256,349. Capital: Königsberg, pop. (1939) 368,433. After the defeat of Germany in 1945, the U.S.S.R., the United States and Great Britain decided at the Berlin conference in 1945 that East Prussia should be divided between the U.S.S.R. and Poland. The southern part of the province was put under Polish administration, while the capital with its important port, the protected position of which fits it equally for military and commercial purposes, and the northern and eastern parts of the province were annexed to Russia. The city of Königsberg was renamed by the new government Kaliningrad, in honour of Mikhail Ivanovich Kalinin, chairman of the praesidium of the supreme soviet of the soviet union, who died in 1946. The important cities of Tilsit and Insterburg were also included in the territory annexed by Russia. The German population of the Russian and Polish territory was expelled and settled in the remaining parts of Germany.

At the end of Dec. 1946 the Russian government offered free transportation and housing to Russian farmers wishing to settle in East Prussia. At that time 149 schools with Russian instruction were opened for the new settlers (there had never been any Russian inhabitants in East Prussia) in the Russian annexed part of the province, and 30 schools with German instruction for the German population still there. The city of Friedland was renamed Pravdinsk, the city of Tilsit became Sovetsk and Insterburg was to be known as Chernyakhovsky

after the Russian commanding general who fell in battle in the conquest of the region. Pillau on the Baltic coast was renamed Baltiisk. Thus any trace of the 700 years' existence of Germans in a land in which Russians had never lived and which had never formed part of the Russian empire was radically eliminated. (H. Ko.)

Eclipses of the Sun and Moon, 1947: see ASTRONOMY; CALENDAR, 1947 (page xxii).

Economic Association, American: see SOCIETIES AND ASSOCIATIONS.

Economic Development, Committee for: see COMMITTEE FOR ECONOMIC DEVELOPMENT.

Economics. During 1946 interest in economics centred in business cycles, taxation, international trade and the transition problems. Among private institutions the Committee for Economic Development issued substantial research reports in all of the fields mentioned during the year. Significant of probable long-run emphasis in the field of economic research, the committee scheduled an elaborate high employment study as its major subject for future effort. The Twentieth Century fund published a major study of international cartels. The Brookings institution issued studies of relief and social security policies, and of the securities markets.

The National Bureau of Economic Research published the second of its important major volumes on the statistical measurement of business cycles, and two additional volumes of the bureau's studies in income and wealth. The American Economic association released a collection of articles on income distribution, the third in its series of basic papers in important areas of economic thought.

Among government agency studies related to economic policy, the Federal Reserve board continued the release of its series on postwar economic problems. These included discussions of the relations of prices, wages and employment, private capital requirements, and the broad fields of housing, social security and



"HOW TO LET GO AND WHEN?" was a problem posed by Justus of *The Minneapolis Star* in 1946

public works. Significant studies were also made by the treasury on the economic effects of the corporation income tax, and by the bureau of agricultural economics on land use and farm tenancy.

Government agencies continued to make important statistical studies. Highly significant was the sample survey of liquid asset holdings, spending and saving published by the bureau of agricultural economics and the Federal Reserve board. As a pioneer study it was expected to be much used in studying the effect of cash balances, saving and spending on the level of economic activity. The bureau of labour statistics continued its studies in the measurement of productivity, and initiated a series of bulletins embodying the results of nation-wide surveys of wages and working conditions in important industries. The bureau of the census made available the results of the 1945 census of agriculture, initiated a series of current reports on service trades and continued its monographs on future population trends. Important for the future was the passage of the Agricultural Research and Marketing act providing substantially increased funds for research in problems related to the marketing of farm products.

The release of many professional economists from government and military service resulted in both an increase in quantity and an improvement in quality of professional publications in journals and books above the war years. While no outstanding contributions in either theoretical or empirical economics were made by individuals during 1946 much useful work was done on the economics of the firm, the uses of marginal analysis, the econometric study of business cycles and international trade.

Two developments important for economics occurred in the field of government action. One was the appointment of a three-man commission under the chairmanship of a professional economist, Edwin G. Nourse, setting in motion the terms of the Full Employment act. Because of the significance of the problems involved, recommendations of the commission would undoubtedly receive much attention from economists. The other was the actual organization and preliminary operation of the International Monetary fund and the International Bank for Reconstruction and Development projected under the Bretton Woods agreements. The influence of this action on economic discussion was already visible in the much greater proportional attention given to problems of international trade and finance than before World War II. (E.U.C.)

Economic Stabilization, Office of: *see* CIVILIAN PRODUCTION ADMINISTRATION; WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Ecuador. A west coast republic of South America, astride the equator, for which it is named. It is bounded on the north, east and south and west, respectively, by Colombia, Peru and the Pacific. Area, 104,510 sq.mi. (including the Galápagos Islands, a Pacific dependency, 3,029 sq.mi.); pop. (1944 est.), 3,171,367 (density of 30.35 per sq.mi.). Racial distribution is estimated at 60% or more pure Indian, 25% to 30% mestizo and at most 15% white. The capital is Quito (pop., 1944 est., 165,924); other important cities (with 1944 pop. est.) are: Guayaquil, the chief port (172,948); Cuenca (52,519); Riobamba (27,459); Jipijapa (22,097); Vinces (21,860); Chone (21,834); Ambato (21,692); Loja (20,776); and Latacunga (20,357). Ecuador has traditionally had a unitary government with a popularly elected president and a bicameral congress; a new constitution was being completed at the end of 1946. President in 1946: José María Velasco Ibarra.

History.—Turbulent political conditions were characteristic of 1946. The government on March 30 suppressed a revolution-

ary plot, with many arrests and the suspension of constitutional guarantees. Soon afterward the constitution, promulgated as late as March 5, 1945, was suspended and the government announced elections for May 26 for a new constituent assembly and elections on June 30 for a congress. Final returns for the constituent assembly indicated the choice of 33 Conservatives, 20 dissident Liberals, 6 independents, 2 dissident leftists and 1 Democrat; Communists, Socialists and Liberals refrained from voting. Although an attempted armed revolt by 60 civilians on Aug. 10 was aimed at preventing the assembling that day of the constituent assembly, the movement was easily suppressed and the assembly met on schedule. Velasco Ibarra immediately submitted his resignation as president but the assembly, dominated by the Conservatives, rejected it on Aug. 11 by a vote of 43 to 10, with leftist and centre parties abstaining from voting. Velasco was reinstated in office until 1948 and on Nov. 29 the assembly reaffirmed this action, continuing the president until Sept. 1, 1948. The assembly voted on Aug. 18 to end all military and political sanctions imposed after the 1944 revolution. The new constitution was reported completed Dec. 23.

The government on Jan. 6 signed a treaty of amity with China. Ecuador early in the year proposed the creation of a permanent conciliation commission for the American republics. On Feb. 1 the U.S. transferred its wartime airfield at Salinas to Ecuadorian authorities and on June 30 evacuated the military bases in the Galápagos.

Finance.—The monetary unit is the sucre, valued on Nov. 15, 1946, at 6.65 cents, U.S. The government on Feb. 2 approved the 1946 budget, totalling \$21,170,000. A considerable problem existed in 1946 over the available supply and the apportionment of foreign exchange. Total 1945 sales of foreign exchange exceeded purchases by \$4,000,000. The government fixed a quota for foreign exchange purchases for all purposes for the entire country for the first quarter of \$7,500,000 and imposed a tax of one sucre per dollar on exchange purchases; it was estimated that the tax would produce 30,000,000 sucres of revenue, 85% of which would be allocated to fomento (development) banks. A decree effective Jan. 1 required payment of seven days' wages for five and a half days' work; it was expected to be a disturbing factor in the labour market. The official cost-of-living index at the beginning of 1946 was 503 as against 100 for 1927. The government on Jan. 22 announced an Export-Import bank loan of \$780,000 for construction of the Pacific highway. Total Export-Import bank commitments June 30 were \$16,800,000, of which \$5,800,000 was the amount outstanding and \$11,000,000 the undisbursed balance.

Trade and Communication.—Exports in 1945 were valued at 378,000,000 sucres (a decrease of 19% from 1944) and imports at 324,000,000 sucres (decrease of 2%), leaving a favourable balance of 54,000,000 sucres. Exports of various products in 1945 included: coffee, 9,960,078 kg. (1944: 14,344,912 kg.) valued at \$2,350,100 (1944: \$2,526,383); cacao, 16,694,900 kg. (1944: 13,554,324 kg.); bananas, 693,652 stems (1944: 540,934 stems) valued at 2,871,759 sucres (1944: 1,897,921 sucres); oranges, 13,848,590 units (1944: 18,185,776 units); crude rubber, 1,968 metric tons (1944: 2,801 tons); kapok, 396,814 kg. (1944: 415,151 kg.); cinchona, 827,886 kg. (1944: 3,174,955 kg.), of which the U.S. took 820,862 kg. (1944: 3,172,471 kg.); straw (Panama) hats, \$5,167,368 (1944: \$4,895,929); crude petroleum, 279,278 metric tons (1944: 251,280 tons). Cacao exports in the first four months of 1946 were 6,100,352 kg. (same period in 1945: 6,114,564 kg.) valued at \$1,518,906 (1944: \$1,386,732); banana exports in the same period were 242,397 stems (1945: 126,020 stems). Balsa exports in the first seven months of 1946 were 1,888,705 kg. (same period in 1945: 5,538,094 kg.) valued at \$4,727,819 (1945: \$11,286,784). Imports from the

U.S. in 1945 were 55% of the total (1944: 52.5%); from Argentina, 10.4% (1944: 14%). Exports to the U.S. in 1945 were 58% of the total (1944: 57%); to Canada, 16% (1944: 18%). All restrictions on rice exports were expected to be lifted and the food commission headed by Herbert Hoover was told that Ecuador could export 500,000 quintals (quintal equals 101.4 lb.) of rice by September beyond previous commitments. Ecuador on Oct. 18 changed its 1936 commercial agreement with Chile to an unconditional and unlimited most-favoured-nation agreement.

Various plane companies serving Ecuador began or increased their services in 1946. The government contracted with a Swedish firm at the end of 1945 for installation of automatic telephone service in Quito and Guayaquil. On Sept. 22 it contracted with a U.S. firm for construction of 67.10 mi. of all-weather road between those two cities. The government gave consideration in 1946 to establishment of a joint merchant marine with Colombia and Venezuela, the plan advanced being to establish an intergovernment corporation with \$20,000,000 capital, subscribed 10% by Ecuador and 45% each by the other two countries.

Production.—The estimate of 1945 sugar production was 700,000 quintals (1944: 501,300 quintals). The government was attempting to make Ecuador self-sufficient. The 1945 estimates of coffee and rice production were, respectively, 350,000 and 1,400,000 quintals; the 1946 rice crop was expected to approach record proportions. The 1945 cotton estimate was 6,630 bales of 500 lb. (1944: 7,350 bales). Actual 1945 cacao production was 395,474 quintals (1944: 294,516 quintals). Crude petroleum production in 1945 was 2,622,724 bbl. (1944: 2,892,188 bbl.).

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Education. The two most serious educational problems of 1946 in the United States were (1) the provision of adequate facilities for the education of returning veterans in institutions of higher education, and (2) the continued shortage of teachers. Both problems were nation-wide and both brought to the fore the issue of federal aid for education at all levels.

Education of Returning Veterans.—At the annual meeting of the American Council on Education held in Chicago in May, General Omar N. Bradley announced that 1,687,000 veterans had applied for educational benefits under the G.I. Bill of Rights. These benefits included opportunities not only at the level of colleges, universities and professional schools, but for training on the job, in high schools and other approved institutions of less than college grade. In the last of these there was some concern about the quality of training that was given, while the job training program was criticized by the American Legion on the ground that the pay given to veterans was inadequate.

The most serious problem was raised, however, at the level of higher education. Many veterans were unable to gain admission to colleges, universities and professional schools. One reason for this was that the majority of veterans applied for admission to the larger or better-known institutions, particularly since the grants for tuition covered the fees charged everywhere, but generally because they were not familiar with the opportunities available in the smaller institutions. At a meeting of the American College Publicity association the establishment of a clearinghouse to provide information on these opportunities was suggested. In Minnesota such a clearinghouse was created in the state department of education. At the federal level an Inter-agency Committee on Veterans, representing federal agencies, was organized to handle all matters concerning the education and training of veterans—housing, opportunities for admission, collection and dissemination of information, the distri-

bution of surplus property, recruiting of teachers and discharge from the services of college and university teachers.

At the opening of the academic year, 1946–47, there was hardly any institution of higher education, except teachers colleges, whose facilities were not taxed to the utmost. There were shortages in housing accommodation, in classrooms and laboratories, and in teachers and textbooks. The housing accommodations were stretched to the utmost; trailer camps were set up and Quonset huts erected; institutions fortunate enough to be near discontinued housing projects established for war workers had the buildings transported. In some cases surplus real properties were acquired; Temple university in Philadelphia, Pa., purchased a structure used for the manufacture of aircraft parts; the state of New York was permitted by the navy department to establish a college at the Navy Training station, Sampson, N.Y.; the University of Connecticut was given permission by the U.S. maritime service to use part of Fort Trumbull, New London; the Naval Air station at Norman, Okla., was transferred, on a revocable permit, to the University of Oklahoma; the list could be expanded. The Federal Public Housing authority (FPHA) planned to dismantle surplus war housing and transfer 103,000 units, plus surplus furniture, beds and other equipment, to 675 colleges and universities; but by the middle of August only 11,000 units had been completed at college campuses, and 65,000 others were in various stages of construction. The institutions receiving the units were responsible for the preliminary work of preparing the sites, including the needed sewer, electric and telephone connections. The colleges and universities of New York city entered into an arrangement to have barracks at Camp Shanks converted to house 2,400 families and transport the students to and from the city by bus; only 246 units were ready by October.

The shortage of classrooms, laboratories and other facilities was met by the enactment of the Mead bill (S. 2085) under which congress appropriated \$75,000,000 to implement its provisions. The act authorized the Federal Works agency (FWA) to provide, as a temporary measure, for nonhousing needs from surplus and unused government structures, such as classrooms, laboratories, libraries, gymnasiums, recreation centres, cafeterias and dining halls, infirmaries and administration offices. These facilities were to be made available to public and nonprofit institutions if the U.S. commissioner of education certified, on the basis of information submitted by the institutions applying for them, that an acute shortage existed or impended to meet the need of educating veterans.

Not only were the institutions of higher education overcrowded, but all the numbers applying for admission could not be accommodated even in off-campus centres. Thus the University of Wisconsin established 34 centres in different parts of the state to give the first two years of college work; the University of Illinois acquired the use of the amusement pier in Chicago, used by the navy department, to provide instruction but not housing for about 4,000 students; the University of Maine established a centre for 800 students in Brunswick; the Pennsylvania State college extension services opened technical institutes in 13 centres. In New York state the problem created by the lack of a state university and the overcrowded conditions in the nonpublic colleges and universities was met by the establishment, on a temporary basis, of the Associated Colleges of Upper New York, consisting of Sampson college, located at the Naval Training station, Champlain college in Plattsburg and Mohawk college in the former Rhodes General hospital, Utica. Each college is affiliated with a number of neighbouring institutions, to which students may be later transferred on completing two years of work. Dr. Asa S. Knowles was appointed president of the Associated Colleges.



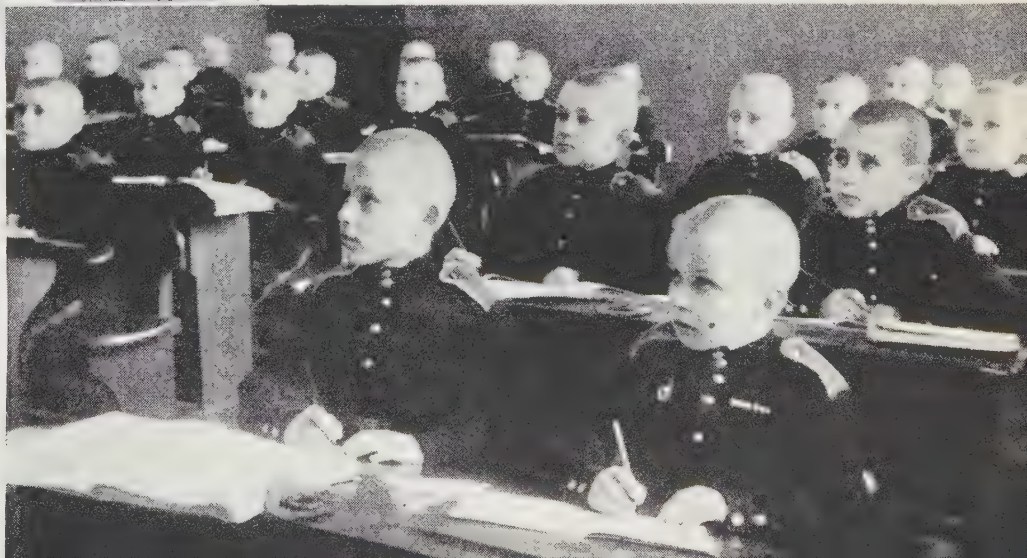
Above: PUPILS RECITING in a newly decorated corner of a bombed school-house in Warsaw, Poland, in 1946

Below: HIGH SCHOOL CLASS at Hiroshima, Japan, where in 1946 there were 160 girls under one schoolmaster; 600 pupils out of 1,000 had been killed in the atomic bombing of the city in 1945



Above: EMPTY SEATS IN A FRENCH CLASSROOM in 1946 were an indication of the decline in the population of the country

Below: CLASS AT A MILITARY PREPARATORY SCHOOL at Tula, U.S.S.R., in 1946; the lad in the front row, right, wearing the military ribbons on his chest, was adopted by a Russian infantry division which found him hiding in a forest after his mother had been killed by the Germans



No information was available in 1946 on the increase in the size of faculties, but additional instructors had to be secured in all institutions. Many, but not all, who had been on leave of absence for various services during the war returned to college teaching; in a number of instances high school teachers were appointed. In all cases the situation was met by largely increased size of classes and by repetition of courses to different classes during each week. According to a report of the U.S. office of education in November the total enrolment of students in 1,749 institutions of higher education was 2,062,000, of whom 1,073,000 were veterans and 667,000 were women. (See also VETERANS' ADMINISTRATION.)

The Future of Higher Education.—There was no doubt as the institutions of higher education prepared for postwar activities that a new stage was opening in their history. It was estimated early in 1946 that enrolments would reach 2,000,000 in 1949, and 3,000,000 some five years later. The first report on enrolments in 1946-47 indicated that the 2,000,000 mark had already been reached. The estimate was based on figures collected by Dr. Raymond Walters, president of the University of Cincinnati, for his report on college and university enrolments, published annually in *School and Society*. Reports from 450 typical institutions in all parts of the country showed marked increases in enrolments everywhere over 1939. In 256 independent colleges of arts and sciences the increase ranged from 40% to 279%; in 31 technological institutions, including engineering and agricultural schools, the range was from 15% to 125%; in 53 teachers colleges the range was from 5% to 580%, but it was inferred that many students enrolled in these colleges planned later to transfer to liberal arts colleges and not to prepare for teaching positions. Of the students enrolled it was estimated that 800,000 were veterans. It should be mentioned that the influx of veterans worked a hardship on recent high school graduates, many of whom found it difficult to gain admission to colleges immediately after graduation. In many colleges the number of high school graduates to be admitted was limited. The women's colleges had more applicants than they could admit. In many of the 600 junior colleges the enrolments doubled, and it was expected that the demand for the more varied types of courses offered by these institutions would lead to an increase in their numbers to 1,000.

The institutions of higher education were confronted not only with the problems of increased enrolments but also with serious financial problems. During the depression and war years their income had been reduced considerably by the drop in enrolments, lower yield in investments and diminution of gifts. (See report from the committee on education, house of representatives, *Effect of Certain War Activities upon Colleges and Universities*, Washington, 1945.) All were faced with arrears of building and other expansion. The postwar period began with increasing costs in every direction—operation and maintenance, supplies, and wages and salaries. To meet this situation most institutions raised the fees for tuition and board and lodging. Publicly maintained institutions raised tuition fees for nonresidents of the state or locality, and dormitory and incidental fees generally. It was estimated that the increase in student fees was from 15% to 30%. This move was stimulated not only by actual financial need, but also by the fact that under the G.I. Bill of Rights veterans were entitled to receive up to \$500 a year for tuition. The increases adopted brought the annual fees almost up to that sum. Women's colleges also fell in line and increased their fees, although their financial conditions had not been so seriously affected by the war as were those in men's and coeducational institutions.

Plans were already under way in 1946 to make up for the lag in building construction. A survey conducted by *School and*

Society and published in that journal, Oct. 26, 1946, showed that 182 institutions planned to spend \$601,928,000 during five years beginning in 1947 on new buildings, modernization of old and equipment. It was estimated on this basis that the 1,160 colleges, universities and professional schools of the country would spend about \$1,500,000,000 on building construction in the next five years.

In view of the increasing demand for education beyond the high school, a general survey of the whole situation was begun by a National Commission on Higher Education, appointed by Pres. Harry S. Truman on July 13, 1946. Dr. George F. Zook, president of the American Council on Education, was appointed chairman, and Dr. Francis J. Brown, director of the Division of Higher Education in the council, executive secretary of the commission of outstanding civic and educational leaders. Dr. John R. Steelman, director of war mobilization and reconversion, was appointed liaison officer between the executive agencies and the commission. The duty assigned by the president to the commission was "to re-examine our system of higher education in terms of objectives, methods and facilities, and in the light of the social role it has to play." In general, the commission planned to inquire into the question of expanding opportunities for higher education, the provision of courses in international affairs and social understanding, the need of intermediate technical institutes, and the financial structure of higher education. It was expected that the inquiry would ultimately bring up the issue of federal aid at the higher levels of education.

The absence of a state university in New York state and the charge of racial and religious discrimination in admission policies of nonpublic colleges and universities led to the appointment by Governor Thomas E. Dewey of a commission under the chairmanship of Owen D. Young to inquire into and report on the adequacy of existing facilities for higher education in the state.

Child Welfare: See CHILD WELFARE.

New Curricular Developments in Higher Education.—It was not clear whether the curriculum changes discussed and planned during the war years could be generally introduced because of the influx of veterans, whose special and more mature needs had to be met. New interests did develop, however, largely because of the international situation. At the meeting of the Mississippi Valley Historical association it was reported that record numbers of students were enrolling in courses in U.S. history, and it was urged also that greater emphasis be placed on world history to promote international understanding. Reports from all parts of the country indicated a widespread interest in the study of Russian language, history and culture. A number of institutions with grants from the Rockefeller Foundation organized courses in far eastern and Slavic studies. The experiments with the intensive language programs, conducted during the war, stimulated the adaptation of the same methods of language instruction in many colleges and universities. Another area in which there were important developments was in the study of international affairs.

To improve instruction and to stimulate research and creative activity in colleges and universities in the south, the Carnegie corporation of New York made a grant of \$700,000, to which the co-operating institutions were to add \$200,000 over a period of five years. The institutions were to be grouped around university centres in Nashville, New Orleans, Atlanta, and Duke university in Durham, N.C., and the University of North Carolina, which would serve as focal points to finance full or part-time research, purchase research materials and books for libraries and stimulate creative activity. At each centre a faculty committee was to select participants in the plan and a co-ordinator would serve as liaison agent between the centre and



STUDENTS jam Memorial hall, Harvard university, Cambridge, Mass., for registration in the fall of 1946. Veterans represented about 75% of the enrolment

the co-operating colleges and faculty participants.

Teacher Shortage.—The return to postwar conditions brought little or no relief in the supply of teachers. At the meeting of the National Education association, held in Buffalo in July, it was reported that 350,000 teachers had left the profession since 1941; and that 110,000 teachers, or 1 in 8 or 10 teachers would be employed in the school year, 1946-47, on emergency or substandard certificates. Since the enrolments in teachers colleges were from 20% to 50% below the numbers that could be accommodated, it was expected that it would take about ten years to bring the standards up to a desirable level. The shortage affected all parts of the country more or less seriously except in the east, but Maine sought a solution by inviting applications from teachers who had already retired from the larger school systems. The greatest shortage existed in rural areas and small village elementary schools; in the high schools it was difficult to secure qualified teachers in home economics, commercial subjects and physical education for girls. Enrolments in 179 teachers colleges had dropped from 90,000 women and 39,000 men in 1939 to 51,000 women and 13,000 men in 1946. In the liberal arts colleges in 14 states in the North Central association only 3,757 students planned to teach in elementary schools in 1946 as compared with 10,182 in 1941.

The problem of teacher shortage was discussed at a National Emergency Conference on Teacher Preparation, in Chautauqua, N.Y., in July; it was estimated that \$2,000,000,000 would be needed to secure an adequate supply of teachers, reduce the load of work, restore prewar school services and bring salaries up to a satisfactory level. The conference recommended the appointment by the National Education association of a National Commission on Teacher Education and Professional Standards. At its first meeting in September, the commission, under the chairmanship of Dean W. E. Peik, school of education, University of Minnesota, recommended that inexperienced teachers with four years of college training be paid minimum salaries equivalent to \$45 a week on a 52-week basis, with annual increases starting with the second year of service and rising in ten years to at least \$4,000 a year for college trained teachers. The commission also recommended reduction in the

size of classes. It was urged that school boards be made to realize that more money must be spent on education as on everything else, and that the alternatives were deterioration or regimentation. The commission planned a national campaign stressing the importance of the teacher for national effectiveness, and proposed the formation by state education associations of affiliated commissions on teacher education and professional standards.

The chief cause of teacher shortage was recognized to be the failure to pay adequate salaries to retain teachers in service and to attract new recruits. The rising cost of living, opportunities for employment in other vocations, and to some extent undemocratic systems of administration could not be left out of consideration. The National Commission for the Defense of Democracy through Education of the National Education association undertook a campaign to protect teachers and children against corrupt and politically controlled school boards. The unrest, however, was caused by inadequate salaries. The teachers of Paterson, N.J., staged a one-day strike for a cost of living bonus, while the teachers of Norwalk, Conn., refused for nine days to return to the schools in September because the local board of estimate and taxation had refused to appropriate adequate funds for salaries and to recognize the local teachers' association as the bargaining agency. The issue was settled through the intervention of Governor Raymond E. Baldwin and Dr. Alonzo G. Grace, commissioner of education, with the result that \$65,000 was appropriated instead of the \$90,000 demanded by the teachers. The teachers of St. Paul went on strike in November.

Salaries of teachers, principals and administrative officers had risen from an annual average of \$1,400 in 1940 to about \$1,700 in 1946, considerably below the increase in the cost of living in the same period; there were still many teachers who were receiving less than \$20 a week. There was a general movement to establish a minimum salary of \$2,400 a year, recommended by the National Commission on Teacher Education and Professional Standards and by the New York State Council of School Superintendents at its meeting in September.

Federal Aid.—The teacher shortage and the salary situation provided strong arguments, in addition to the many others, for federal aid for education. Some 30 of the 48 states, it was esti-

mated, could not meet the crisis without such aid. The inequalities in educational opportunities were presented clearly in graphical form in a brochure, *Unfinished Business in American Education; An Inventory of Public School Expenditures in the United States*, prepared by John K. Norton and Eugene S. Lawler for the American Council on Education and the National Education association. The report revealed the great variations in the expenditure on schools not only in different states but in each state, with a range from schools costing \$100 to schools spending \$6,000 or more per year per classroom unit, i.e., expenses for salary, books and instructional supplies, and maintenance. The average expenditure per classroom unit for the country was \$1,600. Such inequalities could only be removed by reorganizing education as a national concern and by pooling the nation's resources, that is, by federal aid.

No action was taken by the 79th congress on a bill to provide federal aid, strongly recommended in his budget message by President Truman, who stressed particularly that the federal government would not seek to dominate education in the states. The advocates of federal aid were, however, greatly encouraged by the organization of a bipartisan group in congress in favour of federal aid legislation. The existence of opposition from proponents of economy at any price and from supporters of private and sectarian schools was not ignored, but the outlook for federal aid appeared to be more promising in 1946 than at any other time in the history of the movement.

Cultural Co-operation.—The progressive expansion of government activities in the field of international cultural co-operation, which began in 1938, was marked by three important events. On July 30 President Truman signed a resolution of congress authorizing the United States to join and participate in the United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.). Since the adoption of the constitution of U.N.E.S.C.O. in London in Nov. 1945, U.S. representatives had participated in the work of the Preparatory commission, which was engaged in drafting the agenda for the first general assembly of the organization scheduled to meet in Paris in Nov. 1946. To implement the provision of the constitution that member states establish national co-operating bodies, a United States National commission of 100 members was created in September, consisting of delegates from 50 educational, scientific and cultural associations, 40 appointed by the department of state, and 10 from organizations selected at the first meeting of the commission.

The second event was the enactment by congress of the bill introduced by Senator J. William Fulbright of Arkansas authorizing the department of state to use some of the proceeds from surplus property sales abroad for the exchange of students and other educational activities. Under the provisions of the act grants were to be made to foreign students to study in U.S. institutions of higher education, to U.S. students to study abroad, and to U.S. professors to lecture in foreign universities. Without the benefit of this act foreign students, whose number in 1946 was estimated to be about 10,000, had already entered U.S. colleges and universities, many of them on scholarships granted by their own governments.

The third event was the concentration of all cultural activities conducted by the government in the department of state. It was expected, however, that co-operation between the department and voluntary agencies in the field of international cultural relations would be continued. A new voluntary agency, the World Organization of the Teaching Profession, was established following a conference of representatives of teachers' associations from 30 countries, convened by the National Education association at Endicott, N.Y., in August.

Finally, the interest of the United States in promoting demo-

cratic systems of education in former enemy countries occupied by U.S. troops was indicated by the appointment of two education missions, one sent to Japan in March and the other to the U.S. zone in Germany in August. Both missions submitted reports for the reorganization of education in the two countries. (For statistics of institutions see UNIVERSITIES AND COLLEGES.)

BIBLIOGRAPHY.—*Higher Education*, published by the United States Office of Education; *Higher Education and National Affairs*, published by the American Council on Education; *Journal of the National Education Association* and *School and Society*. (I. L. K.)

Great Britain.—In face of difficulties, because of the universal shortage of manpower and materials, government departments, local education authorities and teachers were steadily if slowly laying the foundations necessary to implement the Education act, 1944, and the Education (Scotland) act, 1945. In Jan. 1946 a small Education bill for England and Wales was introduced into parliament, and in May this became law as the Education act, 1946. An amending measure only, it did not affect the main structure of the 1944 act, its purpose being to clarify rather than alter the law.

The local education authorities in England and Wales found the task of completing their "development plans" (for primary and secondary education) by the appointed date of April 1, 1946, beyond their power. In March the minister of education granted them leave to apply for an extension of up to three months, or longer in exceptional circumstances. By the end of the year approximately two-thirds of the authorities had submitted complete plans: the ministry estimated that in the aggregate they would involve £700,000,000 to £800,000,000 of capital expenditure.

The proposal, embodied in the plans of many county authorities, to close large numbers of small village schools raised a controversy. The principle of the concentration of pupils of secondary school age had long been accepted, but the idea of transporting children between the ages of 5 and 11 away from their home village aroused strong opposition in many districts, as did that of denuding a village of what often is in effect a community centre.

Practically no school building of a permanent nature was yet possible. In preparation for the raising of compulsory school age to 15 on April 1, 1947, and the large-scale provision of mid-day meals at school, the ministry of works erected prefabricated huts as annexes to existing schools; and to meet exceptional needs a few "light-permanent" buildings were erected. Both tasks were sadly hampered by prevailing shortages, and it was doubtful whether, particularly in Scotland, sufficient accommodation for the raising of the age would be everywhere available by the appointed day.

In accordance with the terms of the Family Allowances act 1945, the provision of milk in schools became free on Aug. 6, 1946, but the provision of free meals was deferred until sufficient school canteens became available to make it a nation-wide service. Canteens were being erected at the rate of over 1,000 a year and already served more than two-thirds of the schools in 1946.

The emergency scheme for the training of teachers in England and Wales was also held back by delays in adapting buildings. There was no lack of suitable candidates for training, but most of those accepted had to wait 12 to 18 months before entry into college. It had been hoped to have 10,000 students in training by the end of 1946, but by November only 6,500 were accommodated. In Scotland room was found in the permanent training establishments for all emergency courses, and no candidates had to wait. New regulations governing the training of teachers, made in Feb. 1946, provided that all recognized students should receive free tuition, while charges for board and lodging would be scaled in accordance with the student's means. Exchanges

between teachers of the U.S. and Great Britain began again in 1946. In August, 74 British teachers, representative of all types of primary and secondary schools, sailed for the U.S., while 74 U.S. teachers took up appointments in Britain. In July Ronald Gould was appointed to succeed Sir Frederick Mander as general secretary of the National Union of Teachers. Mr. Gould was president of the union in 1943-44.

In May 1946 the ministry of education proposed radical changes in the first and second school examinations (the school certificate and the higher school certificate) taken by secondary schools; the school certificate was to become an internal examination, with external assessment, and the higher school certificate to be divided into two, for the purposes respectively of university entrance and the award of university scholarships. No immediate action was planned; the proposals were referred to the Secondary Schools Examinations council for consideration.

In Jan. 1946 the Carnegie United Kingdom trust set up a Bureau of Current Affairs to perform for civilian adult education services comparable with those offered to the forces by the war-time Army Bureau of Current Affairs (ABCA). In May a National Foundation for Adult Education, representative of statutory and voluntary bodies, was established. In December the minister announced that national committees had been established to advise on and produce educational films. In August the fields of responsibility for agricultural education were newly delimited. The ministry of education was made responsible for it in primary and secondary schools and farm institutes, and for providing courses for "domestic (*i.e.*, nonprofessional) providers." The ministry of agriculture had charge at university, college, and professional levels. In September the ministries of labour and education began to co-operate in a scheme of education and training for potential business executives. In March the directorates of army education and the Army Bureau of Current Affairs were combined under the director of army education, and in June the air council approved the formation of an education branch of the royal air force, which came into being on Oct. 1.

In Sept. 1946 an Education bill for Northern Ireland was introduced into the Ulster parliament, in October given a second reading and in November and December passed through the committee stage. This bill, which gave effect to the proposals for reform outlined in the White Paper on *Educational Reconstruction in Northern Ireland* published in Dec. 1944, was markedly similar in its main structure to the Education act, 1944. It provided for a statutory system of education in three progressive stages; secondary education for all, with the raising of compulsory school age to 15, and later to 16; free milk and meals at school; medical inspection and treatment; compulsory religious instruction and worship, and the registration of independent schools. Compulsory part-time education was not, however, included, though envisaged as a future possibility.

(See also CAMBRIDGE UNIVERSITY; LONDON UNIVERSITY; OXFORD UNIVERSITY.) (H. C. D.)

Education, U.S. Office of: see EDUCATION; FEDERAL SECURITY AGENCY.

Education Association, National: see NATIONAL EDUCATION ASSOCIATION.

Eggs. The production of eggs declined slightly in 1946 from the level of 1945 and the record of 1944. The total for 1946 was estimated by the U.S. department of agriculture at 4,950,000,000 doz. compared with 5,060,000,000 doz. produced in 1945 and a prewar average of 3,335,000,000 doz. in 1935-39. Egg production during the first ten months of 1946 was about 2% below the level of 1945 because of about 2%

reduction in the average number of layers during the period. The number of chickens on farms on Jan. 1, 1946, was 525,536,000 birds compared with 510,939,000 on Jan. 1, 1945, and the high record of 576,441,000 in 1944. Egg production in 1946 was favoured by good weather and was above 1945 in all parts of the country except the south Atlantic and south central states where it was about 5% lower. Egg production per hen averaged 9.2 eggs in October, the highest on record for the month compared with an average of 7.7 eggs. The rate of laying was below the level of 1945 during the first half of the year. The average egg production per hen made a high record of 118 eggs in 1945 but dropped off to 114 in 1946. Feed supplies were tight during the early part of the year but were relieved by the good grain crops in July. Farmers culled flocks sharply in early spring and commercial hatching was lower than in the previous few years from May to July. With more feed available production was increased during the fall when prices were high.

Prices of eggs were supported by the strong demand for meat substitutes in early 1946. When price ceilings on meats were removed in July the price of eggs increased slowly and chicken prices declined 20%. From a level of around 40 cents per dozen in Jan. 1946 egg prices declined during the spring and then rose to 33 cents per dozen in July, and on to a high of 51.5 cents in October. Then followed the usual fall decline to 47 cents in December. Prices during 1946 were lower than in 1945 until August when price control ended. They were about double the average of 1935-44, and the highest after 1920.

Stocks of shell eggs increased rapidly during 1946 much above both the level of 1945 and the average. Frozen egg production was high until May when it dropped below the rate of 1945 and the war average 1940-44. The end of World War II put an end to the hope of a large export market. While the demand kept up through 1946 it was expected to drop in 1947 to the prewar level of about 2% of U.S. production. Poultry production in European countries was being rapidly restored. From 1941-45 about 11% of U.S. egg production was exported, two-thirds to the United Kingdom and one-third to the soviet union. Government purchasing of eggs declined sharply in July and the buying of frozen eggs for export was terminated Sept. 12, 1946, and the dried egg program was sharply reduced. The civilian consumption of eggs was estimated at 367 per capita in 1946, 392 in 1945, 352 in 1944 and an average of 298 in 1935-39.

Poultrymen were warned by the U.S. department of agriculture to reduce egg production in 1947 to take account of the reduced exports and military demand. Most of the exports of eggs were in the dried form which is not popular for domestic use. The improvement in breeding for egg production resulted in the advance from an average of 96 eggs per hen in 1935 to 118 in 1945. Commercial hatching was the chief factor in making this increase possible. In 1946 about 90% of all chickens raised were hatched commercially in contrast to less than 50% in 1930. (See also FOOD RESEARCH; POULTRY.)

FILMS.—Eggs. (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

Egypt. An independent kingdom of northeast Africa; bounded N. by the Mediterranean, S. by the Anglo-Egyptian Sudan, N.E. by Palestine, E. by the Red sea, W. by Libya and the Sahara. Area: 386,000 sq.mi. (arable land 13,600 sq.mi.); pop. (est. June 1944) 17,620,000. Chief towns: Cairo (cap., 1,455,400); Alexandria (756,000); Port Said (132,000); Tanta (105,000); Mansura (79,000); Damanhur (71,000); Asyut (65,000). Language: Arabic; religion: Mohammedan 91%; Coptic 7%. Ruler, King Farouk I; prime ministers: Ismail

Sidky Pasha (Feb. 17-Dec. 8, 1946); Mahmoud Fahmy el-Nokrashy Pasha (Feb. 24, 1945-Feb. 16, 1946, and again from Dec. 9).

History.—Egyptian affairs throughout the year 1946 were conducted against a background of rioting, arson and murder in protest against the continued presence of British troops long after the end of World War II. The attitude of the Arabs over the Palestine question further aggravated unrest.

In mid-Jan. the king of Egypt and Ibn Sa'ud issued a joint statement associating themselves with all Moslem Arabs on the Palestine question and confirming the constitution of the Arab league. Ten days later the ministers of finance, war and supply—all of the "Kotla bloc" (independent Wafdist)—resigned, following the cabinet's refusal to disavow the statement of the foreign minister that the matters outstanding between Egypt and Great Britain were not yet questions for the United Nations. In view of a British reply to the Egyptian note of Dec. 1945 asking for negotiations to be opened for revision of the Anglo-Egyptian treaty of 1899, reaffirmed in 1936, the three ministers withdrew their resignations. Serious rioting headed by students broke out in mid-Feb. and the same three ministers once again resigned as a protest at the way in which the police were handling the students. Mahmoud Fahmy el-Nokrashy Pasha resigned the premiership and the king asked Ismail Sidky Pasha, a former prime minister, to form a government, which he did, taking the portfolios of finance and the interior himself. On Feb. 18 the government received a vote of confidence in the chamber by 105 votes to 3, with 78 abstentions. Violent rioting broke out again and damage was done to churches, shops and hotels. The British minister protested in writing. University students declared a three-day strike in memory of Egyptian "martyrs." Dr. Ahmed Bilal of the Moslem brotherhood was arrested. The Arab league issued a statement pledging the Arab states to stand behind Egypt in the event of a clash with Britain. On March 9 the police closed the offices of the three Wafdist papers in Cairo. The leader and four members of the Young Egypt party were arrested for intimidating shopkeepers. Later in March the British foreign secretary made a statement in parliament that no change would be made in the status of the Sudan in the treaty negotiations until the Sudan had been consulted.

On May 9 formal negotiations with the British delegation led by Lord William Stansgate began. On May 12 British troops began evacuating barracks in Cairo and Alexandria. On June 19 the king received the mufti of Jerusalem, fugitive from the British, who wanted him in connection with anti-Allied activities during World War II, when he was in Berlin. Sidky Pasha stated that no request had been received from the British for the extradition of the mufti and the foreign minister stated that the mufti would be treated as a political refugee and not surrendered.

On July 4 the Cairo citadel was handed over by the British. The British commander in chief, middle east, announced that headquarters of troops in Egypt would leave Cairo for the Canal zone before the end of Sept.; general headquarters, middle east, moved to temporary headquarters at Fayid at the end of the year. In Aug. the Arab league sent a note to the British government requesting British recognition of the former mufti of Jerusalem as the Arabs' leader in Palestine.

On Sept. 27 heads of the British and Egyptian delegations received from the Umma party of the Sudan telegrams stating that the party would not allow negotiations to be concluded without admission being made by both of the full rights of the Sudanese to sovereignty over their country. The following day the prime minister resigned owing to the "breach of faith" of certain members of the treaty delegation in giving the press their views about secret documents. The king asked Sherif

Sabry Pasha to form a coalition cabinet but he was unable to do so and on Oct. 1 Sidky Pasha was asked to remain in office. He consented and issued a declaration pointing out that there was no conflict among members of the treaty delegation regarding the most recent British proposals, which had been unanimously rejected. (G. A. V.)

Sidky Pasha and Abdul Hadi Pasha, the foreign minister, arrived in London on Oct. 17 and during their stay had lengthy conversations with Ernest Bevin, the foreign secretary; they also saw Clement R. Attlee, the prime minister. A joint announcement issued in London on Oct. 25 stated that the conversations were carried on "in the most cordial and friendly atmosphere," and that it was hoped that they would lead to "a decisive result" when the Egyptian ministers returned to Cairo. Returning to Egypt, Sidky Pasha declared on Oct. 26 that he succeeded in his efforts to "achieve unity between Egypt and the Sudan under the Egyptian crown." Two days later Attlee made a statement in the house of commons describing Sidky Pasha's view regarding the Sudan as "partial and misleading." "No change in the existing status and administration of the Sudan is contemplated," he said, "and no impairment of the right of the Sudanese people ultimately to decide their own future." Attlee's statement caused disappointment in Egypt. The two delegations to negotiate a new Anglo-Egyptian treaty met on Nov. 1 and 17, but no decision was reached, mainly because certain members of the Egyptian delegation objected to an admission—that the Sudan had the right to separate itself from Egypt. On Nov. 26 the Egyptian chamber of deputies, after a long debate in secret session, passed a vote of confidence in the government by 159 votes with 3 abstentions, authorizing it at the same time to continue to take steps to "realize the nation's aims"—defined as "evacuation and the unity of the Nile valley"—and to submit the results to parliament. On the same day King Farouk issued a decree dissolving the all-parties delegation to negotiate a new treaty with Great Britain and entrusting the further negotiations with the government. Sidky Pasha, however, faced now such an opposition—mainly on behalf of Wafd and of the Moslem brotherhood—that he resigned again. On Dec. 9 King Farouk appointed a new government with Nokrashy Pasha as prime minister. Press reports described him as faithful to the policy of Saad Zaghlul; i.e., believing in the value of an alliance with Great Britain.

The British admiralty announced on Nov. 27 that the evacuation of Alexandria by the royal navy was completed.

Education.—(1942-43) Elementary and secondary schools 7,415, scholars 1,358,453; colleges 55, scholars 19,581; Fuad I university: scholars, male 8,396; female 713; Farouk I university: scholars, male 2,007; female 64; foreign schools 322, scholars 69,179.

Banking and Finance.—Revenue (est. 1945-46) \$394,661,000; expenditure (est. 1945-46) \$359,178,400; public debt (Oct. 31, 1944) \$380,696,000; notes in circulation (June 1946) \$565,664,000; gold reserve (June 1946) \$52,600,000; foreign assets reserve (June 1946) \$620,700,000; exchange rate (1944-45) 100 piastres = 413.8 cents U.S.;

BRITISH TROOPS marching out of the citadel at Cairo, Egypt, in 1946, a first step in British evacuation of the country





EGYPTIAN TROOPS marching into the citadel at Cairo, Egypt, after it had been vacated by British forces in 1946

(June 1946) 100 piastres = 413.7 cents U.S.

Trade and Communications.—External trade (merchandise): imports (1944) \$209,399,000; exports \$111,403,000. Provisional monthly averages (1945): exports \$14,345,000, imports \$20,850,000. Communications and transport: (1942) roads, main 1,393 mi.; secondary 4,497 mi.; railways (1943): state 4,037 mi.; agricultural 862 mi.; shipping (1939) 110,000 tons gross; (1944) entered ports 24,197,866 tons gross; (1939) passed through Suez canal 25,827,977 tons gross; motor vehicles licensed (Dec. 31, 1942): cars 28,675; commercial 5,529; cycles 2,321; wireless receiving set licences (Dec. 31, 1942) 98,456; telephone instruments in use (April 30, 1942) 77,099.

Aerial Navigation in Egypt

	1938	1942
	Imperial Airways Ltd.	Royal Dutch Air Lines Misr Airways Company
Passengers	6,056	2,450
Freight and baggage (short tons)	125.6	49.6
Mails (short tons)	1,630	145
Miles flown	6,967,935	2,795,180
Regularity of service	99.9%	98.2%

Agriculture and Minerals.—Production (1943-44) (in short tons): cotton, ginned, 230,318; maize 2,559,000; wheat 1,062,000; rice 897,000; petroleum 1,023,758; barley 249,933; ground-nuts 4,400; beans 355,000. (See also ANGLO-EGYPTIAN SUDAN; ARAB LEAGUE.)

Eire. The southern portion of an island to the west of Great Britain. Under the constitution, operative from Dec. 29, 1937, the name "Irish Free State" was replaced by that of "Eire." Area: 26,601 sq.mi.; pop. (est. 1943): 2,949,713. Capital: Dublin (pop. est. 1945: 502,600); other chief towns (pop. est. 1943): Dun Laoghaire (42,105); Cork (75,484); Limerick (42,070); Waterford (27,825). Languages: Erse (or Gaelic) and English; religion: Christian (Roman Catholic 93%). President: Séan T. O'Kelly (*Ó'Ceallaigh*); prime minister: Éamon de Valera.

History.—Early in 1946 the government embarked on three major public works projects. In January the Electricity Supply board gave a £1,250,000 contract to the Cementation Company, Ltd., Doncaster, for a hydroelectric scheme on the River Erne calculated to take three years to complete and to provide em-

ployment for 1,000 men; a White Paper published on Jan. 14 outlined a ten-year plan to make Eire self-sufficient in fuel by utilizing turf at a cost of about £4,000,000, and in April it was announced that a new graving dock was to be constructed in Dublin at a cost of £750,000 for Eire's enlarged mercantile marine service.

In June stocks of wheat were some 33,000 (short) tons short of the country's estimated needs, but in view of the urgent needs of European countries no imports were sought from the Combined Food board before August. As regards other foodstuffs Eire was, comparatively speaking, a land of plenty and in July and September negotiations took place in London between the British minister of food and an agricultural mission from Eire on the question of increasing food supplies for Britain.

Eire provided more than £3,000,000 for relief of distress in Europe during the year. The question of its status within the British commonwealth was again raised; on June 19 De Valera described Eire as a republic within the commonwealth and said that in his view there was nothing inconsistent in that. After comparative quiescence during World War II the Irish Republican army showed marked signs of activity during the first six months of 1946 and several arrests were made in March. Séan McCaughey, one of the prisoners, went on hunger strike and died on May 11, which gave rise to more protests against the government attitude to prisoners on hunger strike. On May 27 De Valera declared a new war on the I.R.A. and warned hunger strikers that their methods would not procure their release.

During the year Eire sent its first diplomatic representative to Australia and appointed its first chargé d'affaires in Sweden. Eire applied for membership to the United Nations but did not secure the necessary recommendations and so was not elected.

(J. RA.)

Education.—Elementary schools (1943-44): 5,032; scholars 464,738; teachers 12,937. Secondary schools (1943-44): 377; scholars 40,040; teachers 3,386. Universities (1945-46): National, 4,896 students; Trinity college, Dublin, 1,484 students.

Banking and Finance.—Revenue (est. 1945-46) £55,550,000; expenditure (est. 1945-46) £53,490,000; public debt (March 31, 1945) £79,541,000; notes in circulation (June 30, 1946) £40,300,000; gold reserve (June 30, 1946) £2,600,000; securities reserve (April 30, 1944) £25,700,000. £=403.5 U.S. cents.

Trade and Communications.—Foreign trade (merchandise): imports (1945) £40,660,000; exports and re-exports (1945) £35,470,000. Roads, main 9,798; secondary 39,191; railways, total track mileage (1944) 2,493. Shipping (1944): vessels 466; net tonnage 44,650; entered from abroad 3,465 (tonnage with cargo 1,524,316); cleared for abroad 3,463 (tonnage with cargo 1,518,238). Motor vehicles licensed (Aug. 1944): private cars 6,566; motor cycles 4,340; other vehicles 16,420; wireless receiving set licences (1943-44) 173,300; telephone installations (1943-44) 31,168.

Agriculture, Manufacturing, Mineral Production.—Production (1945) in U.S. bushels: wheat 21,394,000; rye 283,000; barley 6,995,000; oats 50,803,000. In short tons: potatoes 3,343,000; beet sugar 824,000; flax 6,000; coal (1941) 170,000. Livestock (1945): horses 445,000; cattle 3,856,000; sheep 1,922,000; pigs 390,500; poultry 11,874,000. Agriculture and fisheries: total output (1943-44) £96,821,000. Number of insured works (average, 1944) 406,000; number of unemployed (average, 1945) 60,700.

Eisenhower, Dwight D. (1890—), U.S. army officer, was born Oct. 14 at Denison, Tex. He was admitted to West Point, graduating in 1915, and during World War I was an instructor at several U.S. army

camps. After graduating from the Army War college he served in the office of the chief of staff, Washington. In 1935 he served in the Philippines as Gen. MacArthur's chief of staff. In June 1942 he was given command of the U.S. headquarters in England and was promoted to the rank of lieutenant general. Eisenhower commanded Allied armies that conquered North Africa and Sicily (1943), invaded Italy (1943), landed in France (1944) and in conjunction with soviet forces conquered Germany in 1945. Eisenhower, who had been raised to the rank of a general of the army on Dec. 15, 1944, was designated chief U.S. representative in the Allied military government for the rule of Germany (March 29, 1945). He moved his headquarters to Frankfurt-on-Main on May 26. On Nov. 20, 1945, he was named chief of staff of the U.S. army, succeeding Gen. George C. Marshall.

The growing number of G.I. demonstrations against delays in demobilization prompted Eisenhower to ban the protests in early Jan. 1946 and he stated Jan. 15 that too rapid a speed-up in demobilizations would cause the U.S. to "run out of army." In the spring and summer of 1946 the general frequently appealed for an extension of the draft and strengthening of the armed forces. On March 28 President Harry S. Truman named Eisenhower for promotion to permanent five-star rank.

Generally, Eisenhower backed U.S. foreign policy. On May 28 he urged military collaboration with Latin-American nations and possibly Canada and on Oct. 16, during a tour of Europe, he visited Gorizia where he stated that U.S. troops would remain in troubled areas of the world until democratic governments could be established. In early Jan. 1947 Eisenhower scotched rumours that he would be a candidate for the presidency in 1948 with a flat denial.

Elections. In early elections in 1946, the G.O.P. showed premonitory strength. It reclaimed the 23rd Pennsylvania congressional district, which had voted Democratic from 1932. It held the 1st Oregon district after a hard fight. Its successes in these contests, as well as an increase in its vote in local disputes, seemed to reflect the Democratic weakness which manifested itself in the forthcoming congressional and state elections in November.

Herbert E. Brownell, Jr., then Republican national chairman, derived special satisfaction because, as he noted, the Democratic candidates in these early, off-year tests had campaigned on a platform of "Support Truman!" With other contests staged in 1945, the results in these engagements meant that the Democrats had lost every debatable congressional trial after Harry S. Truman succeeded F. D. Roosevelt on April 12, 1945.

Spring senatorial primaries indicated that the American people, even in the west, favoured full participation in world affairs. Several noninterventionists and opponents of Roosevelt's foreign program, which Truman adopted with minor modifications, were defeated in Democratic and Republican contests.

The fatalities included such senate veterans as Burton K. Wheeler of Montana, Henrik Shipstead of Minnesota, Robert M. La Follette, Jr., of Wisconsin and Gerald P. Nye of North Dakota.

The Democrats entered the important November struggle under numerous handicaps. President Truman's popularity and prestige had fallen so low that he took no part in the national campaign, except to vote at his home town of Independence, Mo. He was dubbed "the forgotten man of 1948" by friends and enemies.

He suffered personal political humiliation when he headed a movement to "purge" Representative Roger C. Slaughter of the 7th Missouri district because of his opposition to the Truman legislative program. Although Slaughter was defeated in the

Democratic primary, the man who won over him was beaten badly in the general election.

Truman's difficulties derived partially from his inability to persuade or force an overwhelmingly Democratic congress to enact laws of a social, political, racial and economic nature. He was assailed as "weak and ineffective" because of his legislative reverses.

The racial, liberal and labour groups which would have benefited from enactment of these defeated or shelved measures were disappointed, and did not conceal their chagrin. The confusion over food controls, which were held responsible for an unprecedented shortage of meat on the eve of election, alienated consumers, small business men and retailers.

A wave of strikes in key industries that halted the reconversion program, caused a scarcity of all consumer and durable goods and inflated prices, helped to complete the process of breaking up the catch-all political organization which Roosevelt had built.

An effective anti-administration issue was its alleged "appeasement" of an aggressive and belligerent Moscow, as well as the popular belief that certain key officials pursued this policy for domestic political purposes. Indeed, albeit reluctantly, Truman was forced to ask for the resignation of Henry A. Wallace, then secretary of commerce, because of his open advocacy of an even softer attitude toward the soviet. But even this disavowal and discharge of a vocally pro-soviet cabinet member did not resuscitate party fortunes.

The Wallace episode, moreover, alienated so-called "liberal" groups, who viewed his dismissal as evidence that President Truman had abandoned the Roosevelt foreign policy. Many admirers of the former chief executive, including his son, Elliott, levelled this indictment against the administration's handling of domestic as well as foreign questions.

On the other hand, numerous racial blocs whose European homelands and kin had suffered from Moscow's postwar expansion—the Poles, Jews, Germans, Czechs etc.—were antagonized because they did not feel that either Roosevelt or Truman had been sufficiently firm toward the soviet.

Democratic national chairman Robert E. Hannegan tried to revive old New Deal spirit by distributing recordings of Roosevelt's more stirring speeches for use at rallies and headquarters throughout the country. But these canned discussions of war and prewar issues seemed to make no impression on an electorate struggling with new, postwar problems of a bread-and-butter kind. There was no indication that this strategy saved an old vote or won a new one. Instead, especially as ridiculed by the Republicans, it sharpened the impression that President Truman was an unimportant and ineffective figure.

In view of these Democratic dissensions and difficulties, the Republicans presented no positive program. They relied on a purely protest vote for victory, stressing the "three C's" listed by their national chairman, Carroll Reece, as the winning issues—"confusion, controls and communism."

On Nov. 5, 1946, the G.O.P. won by a landslide, regaining full control of congress for the first time since 1930, when the Democrats carried the house. The Republicans increased their senate membership from 39 to 51, leaving the Democrats with 45 seats.

It was considered significant that the opposition won in both industrial and agricultural regions. Most important, perhaps, was their showing in the metropolitan centres which Roosevelt had always carried by tremendous majorities. They won or broke fairly even in such erstwhile Democratic strongholds as Boston, New York, Philadelphia, Pittsburgh, Chicago, Cleveland, St. Louis, San Francisco and Los Angeles.

By reason of these municipal victories, the G.O.P. recaptured

senate seats in such key states as Massachusetts, New York, Pennsylvania, Delaware, Ohio, Missouri, Wisconsin, Minnesota, Montana, Utah and Washington. They lost the senatorial races by extremely close margins—from 2,000 to 5,000—in Maryland, West Virginia, Wyoming and New Mexico.

The G.O.P. boosted its house strength from 192 to 246, with the Democrats holding 188 seats and the American Labor Party retaining one place. The Republicans also increased their total of governors to 25, meaning that they controlled the state establishments in 25 of the 32 commonwealths outside the solid south and the border states. In the congressional elections, their popular plurality over the total Democratic vote was slightly more than 3,000,000.

A notable feature of the election was the casualties suffered by the radical labour candidates, especially those endorsed by Wallace. Only two of the C.I.O.'s more prominent legislative champions survived—Rep. Helen Gahagan Douglas of California, a Democrat, and Vito Marcantonio of New York, the sole American Labor Party victor.

So sweeping was the Republican comeback that Senator J. William Fulbright, Arkansas Democrat and Rhodes scholar, thinking apparently of England's ministerial system of responsibility, proposed that President Truman hand over the executive branch of the government to the Republicans. He suggested that Truman name a Republican as secretary of state and then resign, thus permitting the G.O.P. cabinet member to succeed him. The idea was not taken seriously in any quarter.

James A. Farley, former Democratic national chairman, whose absence on a world business trip during the campaign brought charges that he had "run out on the party," emerged from his long silence soon after election. Roosevelt's erstwhile Warwick said that, despite the Nov. 5 defeat, the Democratic party could win in 1948 if it would install new leadership and administrative heads "from the top down."

The Democratic upset badly damaged the political machines in most of the great cities. Whereas Roosevelt carried New York by 716,000 in 1944, James M. Mead won it by only 189,000 in his race against Governor Thomas E. Dewey. Henry Cabot Lodge, running for the United States senate, eked out a majority in Boston.

Frank Hague, mayor of Jersey City and political boss of the state, lost the governorship for the third straight time, the U.S. senate fight, and saw a decline of Democratic membership in the state legislature and the house of representatives. The seemingly impregnable Cook county organization in Chicago was routed for the first time in 14 years, losing many key county offices. Only a few weeks after election, Mayor Edward J. Kelly, who had headed the party in Chicago for years, announced that he would not seek re-election.

It was the same story in Philadelphia, Pittsburgh, St. Louis, Kansas City, Los Angeles, San Francisco and in many smaller places. In fact, the only important city which returned a Democratic administration was "Ed" Crump's bailiwick of Memphis in the border state of Tennessee.

In addition to the fact that they were victims of a general "against the ins" uprising, there appeared to be several new and basic factors behind the rout of the bosses. It was not accomplished by excitable, hysterical and hurriedly organized bands of reformers and purists who, so often in the past, retired from the field after a lone victory.

The city organizations were hoisted by hard, practical, political fighting. In many places the opposition benefited from installation of voting machines that afforded an honest count. They also had control of election officials and the courts, two agencies which helped to prevent manipulation of the ballots. Campaigns to strike the names of "floaters" and "dead men"



NEGROES waiting in line to vote in Georgia primary, July 17, 1946; this was the first time that they were permitted to vote in a primary election in that state

from registration rolls had been conducted in numerous cities. The possession of this machinery gave aroused citizens an opportunity to voice effective protest against boss rule.

The Republicans' 1946 triumph stirred factional and individual rivalries, largely because of their belief that they would recapture the White House in 1948. As the year closed, the following Republicans were willing and eager, despite protestations to the contrary, to run against Truman in 1948:

Gov. Thomas E. Dewey of New York, Senator Edward F. Martin of Pennsylvania, Senators Robert A. Taft and John W. Bricker of Ohio, Sen. Arthur H. Vandenberg of Michigan, ex-Gov. Harold E. Stassen of Minnesota and Gov. Earl Warren of California.

Schedule of Elections.—Presidential elections in the United States are uniformly held on the Tuesday after the first Monday in November in years designated by multiples of four. Congressional elections are held on the same or corresponding day in even years by all states except Maine, which adheres to its old custom of holding elections on the second Monday in September. Governors are elected in even years on the same day as members of congress in 22 states: Arizona, Arkansas, Colorado, Connecticut, Georgia, Idaho, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Mexico, North Dakota, Ohio, Rhode Island; South Dakota, Tennessee, Texas, Vermont and Wisconsin. They are elected quadrennially at the same time as the president in 10 states: Delaware, Florida, Illinois, Indiana, Missouri, Montana, North Carolina, Utah, Washington and West Virginia; quadrennially at the congressional elections between presidential years in 10 states: Alabama, California, Maryland, Nevada, New York, Oklahoma, Oregon, Pennsylvania, South Carolina and Wyoming;

quadrennially on the corresponding day in the years immediately preceding presidential elections in 2 states: Kentucky and Mississippi; quadrennially on the corresponding day in the years immediately following presidential elections in 1 state: Virginia; triennially on the corresponding day in 1 state: New Jersey. Louisiana chooses its governor quadrennially in presidential years on the third Thursday in April; and Maine, biennially at the same time as it selects its congressmen. (See also DEMOCRATIC PARTY; REPUBLICAN PARTY; UNITED STATES and under various state articles. For elections in other countries see under the name of the country.) (R. Tu.)

British Commonwealth and Europe.—During 1946 elections and referenda were held in Australia, Belgium, Bulgaria, Czechoslovakia, France, Greece, Italy, the Netherlands, New Zealand, Poland, Rumania and Turkey.

Australia.—Voting took place on Sept. 28. The Federal Labour party obtained 43 seats, followed by the United Australia (Liberal) party with 17 and the United Country (Conservative) party with 12. The main issues were represented by the Labour party standing for opposition to further large tax reductions against the Liberal and Conservative parties who were in favour of the reductions. The opposition wanted strikes and lock-outs to be made illegal and penalties enforced. A referendum held at the same time as the elections sought to amend the constitution to give the commonwealth government power to legislate (1) on social benefits, (2) organized marketing, (3) conditions of employment in industry. In each case the voters gave a mandate in favour of the constitution being amended to achieve the proposed legislation.

Belgium.—Elections were held on Feb. 17. There were domestic differences between Socialists and Communists on wage and price control. The Catholic (including the Christian-Social) party opposed nationalization. In the background there was Catholic support for a referendum on the return of King Leopold III. The Catholic party gained 92 seats, the Socialist 69, the Liberals 17 and the Communists 23, the last a relatively large increase.

Bulgaria.—Elections were held on Oct. 27. The Communist-sponsored Fatherland Front parties won a majority totalling 364; of these 277 seats went to the Communists, 69 to the dissident Agrarians, 9 to the dissident Social-Democrats and 8 to the *Zveno* Union (Army party). The opposition (Agrarian-Democratic and Independent Socialist parties) won 101 seats. The opposition leaders declared that they took part in the election only to show that they were not afraid to enter the contest, and that there were sufficient irregularities to reduce the pro-Fatherland Front vote from 66% to 22%.

Czechoslovakia.—The Czech and Slovak peoples voted on May 26. In Bohemia-Moravia the Communists won 93 seats, the Social-Democrats 37, National-Socialists (Dr. Benes's party) 55 and the Populists (Catholics) 46. In Slovakia the Communists won 21 seats, the Labour party 2, Christian-Democrats 43 and the Freedom party 3. This was a test of strength between eastern and western concepts of democracy. All parties were agreed on nationalization measures, expulsion of minorities, and the need to continue the coalition. The Populists and the National-Socialists favoured slower nationalization and more limited expulsion of Sudeten German skilled workers.

France.—During 1946 two referenda and three elections were held. On May 5 the draft constitution prepared by the first constituent assembly was rejected by 10,488,059 "no" against 9,327,073 "yes." The Catholic M.R.P. (*Mouvement Républicain Populaire*), the right wing and the Radical parties were against it, favouring a stronger upper chamber and wider powers for the president of the republic; Socialists and Communists supported the draft.

On June 2 a second constituent assembly was elected. The M.R.P. gained and rose from 142 (out of a total of 592) seats, which they had obtained on Oct. 21, 1945, to 163; the Socialists declined from 142 to 128; the Communists slightly decreased from 152 to 150; the Radicals (appearing with affiliated groups, as R.D.G. or *Rassemblement des Gauches*) rose from 25 to 47 and the right wing obtained 67 seats instead of 70.

The new draft constitution prepared by the second constituent assembly was adopted in a referendum held on Oct. 13 by 9,120,576 votes against 7,980,333; there were 7,938,884 abstentions (General Charles de Gaulle called upon the electorate to abstain from voting).

On Nov. 10, the constitution having been adopted, elections to the new national assembly were held. The Communists showed a new relative gain and secured 182 seats (out of 619), the Socialists declined again to 101, and the M.R.P. secured 172; the R.D.G. increased to 69; two right wing groups gained 66 but there were 16 members mainly rightist but "nonaffiliated" to any group; finally there were 13 Algerian Moslems (of whom five were Nationalists).

On Nov. 24 preliminary indirect elections were held for the creation of the new upper chamber, the council of the republic, which with the national assembly joins in electing the president of the republic. On that day some 84,600 *grands électeurs* were elected. On Dec. 8 the *grands électeurs* in each *département*, together with local *conseillers-généraux* and the deputies in the assembly for that *département*, voted for 200 metropolitan members of the council of the republic, the 14 members for Algeria being also elected the same day. The distribution of seats was as follows: Communists 61, Socialists 37, R.D.G. 25, M.R.P. 62, right wing groups 20, Left Independents 2, Algerian Moslems 7. The remaining 101 seats were distributed later, and to these the national assembly elected 42 members on Dec. 20.

Greece.—Elections were held on March 31. The Populists (Monarchists) won 206 seats, the National Political Union (a coalition of three small republican parties led by Sophocles Veniselos, George Papandreu and Panavotis Kanellopoulos) 68, Themistocles Sophoulis Liberals 48, the supporters of Colonel Napoleon Zervas 17 and the Independents 11. The issues were mainly royalist v. republican and Right v. Left. The

elections were followed on Sept. 1 by a referendum on the return of the king. Out of the 1,861,146 persons who registered 1,691,592 (90.9%) voted and 1,170,470 (69.3% of those who voted) were in favour of the king's return. There were 346,862 blank voting papers and of the 176,224 republican votes 3,813 were cancelled. The blank papers and the republican votes were against the king's return and totalled 523,086. The vote represented a demonstration of Greek solidarity in foreign affairs rather than purely royalist vote.

Italy.—The first elections after the end of the fascist regime were held on June 2. The Christian-Democrats won 207 seats, followed by the Socialists with 115 and the Communists with 104. There was a large number of smaller parties which sprang up, the largest being the National-Democratic (Liberal) Union which gained 41 seats, *Uomo Qualunque* which won 30 and National Freedom (Monarchist) Bloc 16. The issues were monarchy v. republic and clerical v. anticlerical policy. The extent of future public control and land reform were important issues. A referendum on the monarchy was held at the same time; 12,717,923 votes were cast in favour of a republic and 10,719,284 for the monarchy; as many as 1,798,136 papers were invalid.

Netherlands.—Elections were held on May 17. The Roman-Catholic party won 32 seats, the Anti-Revolutionary (Conservative) party 13, the Christian-Historical (Protestant) Union 8, the State Reform (Calvinist) party 2, the Freedom (Liberal) party 6, the Social-Democrats 29 and the Communists 10. The confessional and anticonfessional parties were broadly aligned against each other. The Catholic party supported social reform, but were anti-Socialist. The Anti-Revolutionary party attacked the government's Indonesian policy.

New Zealand.—Elections were held on Nov. 27. The Labour party obtained 43 seats, the National (Conservative Farmers') party 37 seats. The issues were domestic rather than foreign. Both parties were agreed on controls, but the National party favoured reduction of taxation, modification of the means test for pensions and giving producers a greater measure of control while retaining bulk marketing and guaranteed prices for the export producer. Labour was charged with yielding too readily to trade union pressure.

Poland.—A referendum took place on June 30. The Polish electorate had to answer the three questions: (1) Are you for the abolition of the senate? (2) Are you for making permanent the economic system instituted by land reform and nationalization of basic industries? (3) Are you for the Oder-Neisse frontier? The Polish Peasant party, the only party allowed to fight openly for true democracy, decided to vote "no" to the first question in order to count all the electors opposed to a regime controlled by the Communist party. According to Stanislaw Mikolajczyk, leader of the Peasant party, 83.5% of the electorate voted "no" to the first question. The regime, however, published after a delay of 12 days completely different results, according to which the answers to the first question were 7,844,522 "yes" and 3,686,029 (32%) "no."

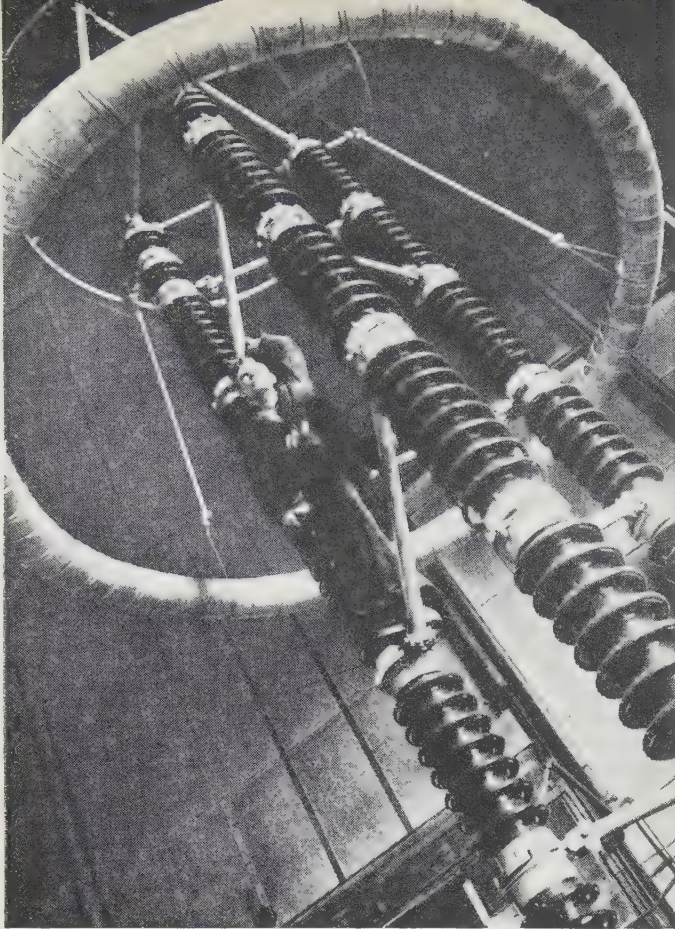
Rumania.—The Rumanian people went to the polls on Nov. 19 to elect a single chamber parliament. The Communist-sponsored Democratic Front won 348 seats; the National-Peasant (chief opposition) party obtained 32, the National-Liberal (Conservative) party 3, the Popular Hungarian Union 29 and the Democratic-Peasant party 2. According to the official figures (contested by the opposition) the government parties obtained 84% of the votes.

Turkey.—The Turkish people went to the polls on July 21. The elections were based for the first time on universal suffrage and were the first reasonably democratic elections to be held, though the Democratic (opposition) party complained of violence and terrorism being used against them. The Republican People's (Government) party won 395 seats, the Democratic party 62 and the Independents 8. All parties agreed on their attitude to the U.S.S.R., but there was disagreement on internal policy. (J. G. Fo.)

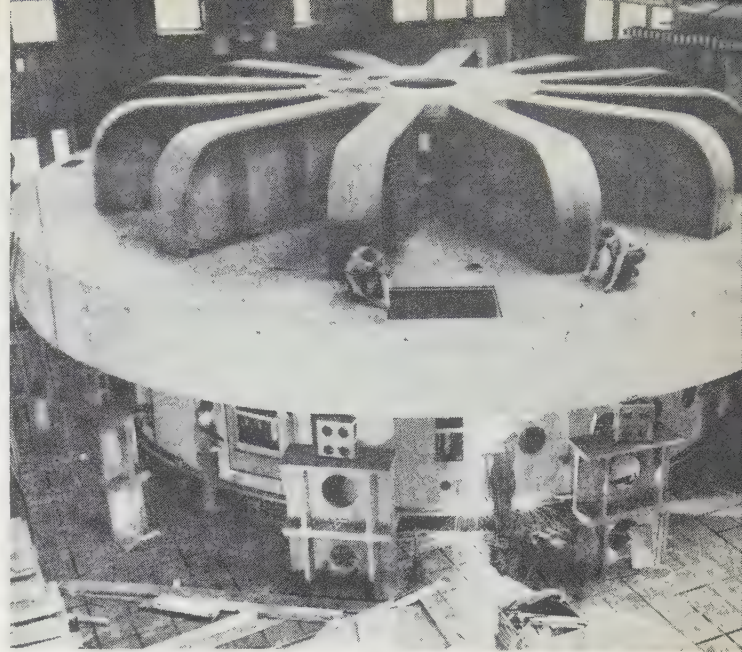
Electrical Industries. Plainly in the record of the electrical industry appear the effects of the disturbed industrial conditions of 1946. Strikes, shortages, controls persisting from the World War II period and all the difficulties afflicting the converting economy of the United States, did not prevent the year from being one of tremendous industrial production and the highest of history in peacetime national income. But this great accomplishment was spotty and uneven, some lines of production being extremely low, others very high. An example taken from the statistics of the electrical industry shows this condition in sharp outline.

Planning for 1946 construction in the fall of 1945, electric utility engineers programmed an expenditure of nearly \$360,000,000 for distribution systems. The money actually laid out was slightly more than that.

In bleak comparison to this picture stands that of production plant construction. Of more than \$313,000,000 estimated for the building of new plants in 1946, less than \$220,000,000 was actually expended. In both cases higher costs had their effects in equal ratios. But in the one case it was possible to obtain materials and equipment for construction in fairly sufficient quantity, while in the other these essentials were obtainable only in severely reduced volume. This contrast illustrates clearly the confused industrial conditions of the year.



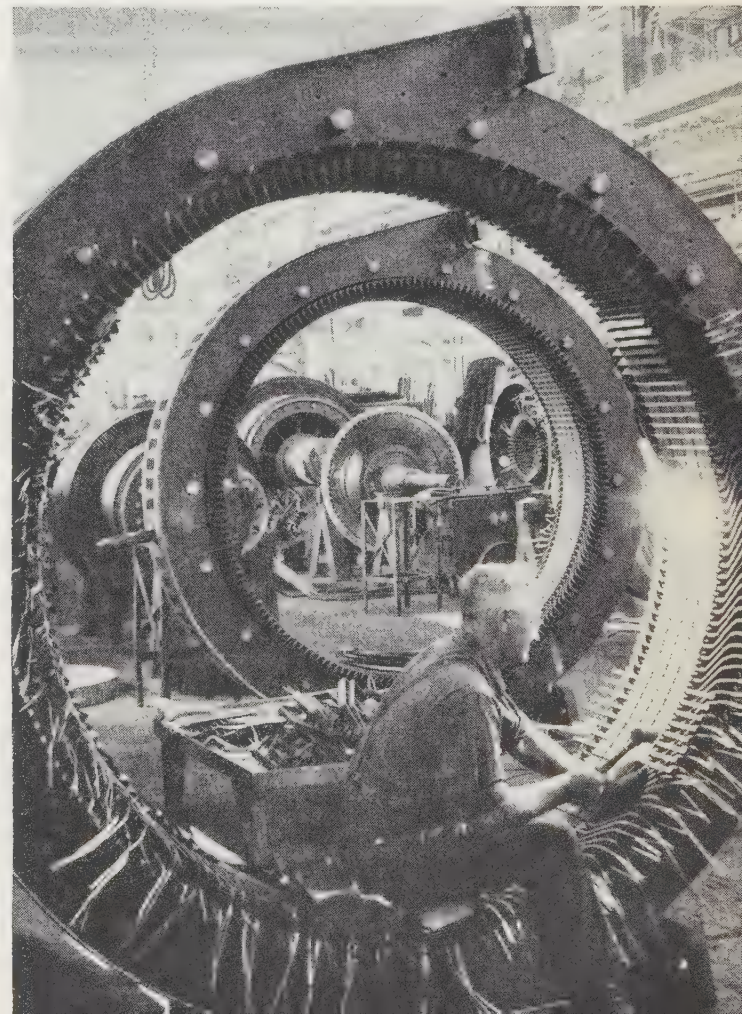
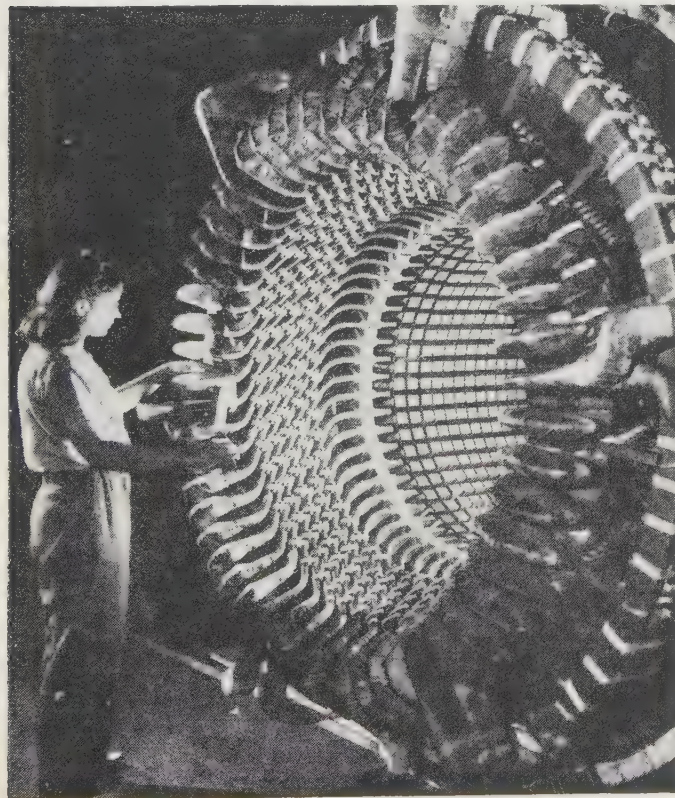
Above: 40-FT. LIGHTNING ARRESTER, an experimental model said to be the largest ever built, being constructed at Trafford, Pa., in 1946 for use in a 500,000 volt test transmission line



Above: 90,000 KILOWATT hydro-electric generator under construction during 1946 at the General Electric company's plant in Schenectady, N.Y. It was one of three ordered for the rebuilding of the Dnieprostroi dam in Russia

Below: VIEW in the Westinghouse Electric corporation plant at East Pittsburgh, Pa., during 1946, showing two circular motor frames for 900 h.p. electric motor. The "bull's-eye" in the centre is a commutator for a 12,000 kva. rotary converter

Below: ARMATURE OF A huge turbogenerator under construction at Pittsburgh, Pa., during 1946. The worker is winding insulating tape around the end connections



Output of electricity for public supply in 1946 was slightly above that of 1945, 223,300,000,000 kw.hr. as against 222,500,000,000. These total figures do not give a true picture. In the second half of 1946 weekly output figures climbed up rapidly, consistently setting records above those of corresponding weeks in 1943-44, the peak years of war production. This upsurge of energy output was the sharpest in the industry's history and was evidence of brisk recovery from the industrial paralysis caused by the widespread strikes in the first half of the year.

Although output in 1946 was slightly above 1945, sales of electricity were a little below, 191,000,000,000 kw.hr. and 193,500,000,000 kw.hr. respectively. The apparent inconsistency is explained by larger system losses in 1946 caused by a combination of many factors—more customers, decrease in large, and increase in small volume sales, etc.

From 1945, sales of energy to large industrial customers declined about 7%, from 107,000,000,000 kw.hr. to 100,000,000,000 kw.hr. This drop was mostly cancelled by increases in sales to commercial, residential and rural customers of 2,500,000,000, 4,200,000,000 and 800,000,000 kw.hr. respectively.

Revenue from energy sales was \$3,450,000,000 in 1946, up about 3% from 1945. Here is another apparent inconsistency, increased revenue with decreased sales. The explanation is that decline in revenue from large industrial customers was more than offset by rise in revenue from others.

A striking phenomenon of the war years persisted through 1945-46. This was the rapid increase in use of electricity for domestic purposes. During the war the manufacture of electric appliances was stopped, yet despite this the average annual consumption of electricity continued to climb and had reached the figure of 1,229 kw.hr. in 1945. In 1946 the largest increase on record was made, the average rising to 1,327 kw.hr. For this energy the average residential customer paid \$42.93 and the average rate reached a new low of 3.23 cents per kw.hr.

More customers were added to electric utility lines in 1946 than in any previous year of the industry's history, the figure of total customers rising from 34,000,000 to 36,100,000. Of the increase, residential and rural customers accounted for 1,750,000 and of this number 600,000 were estimated to be rural. The combined figure of home users of electricity, urban and rural, was 31,000,000.

The ability of electricity supply systems to serve their customers was seriously affected by the disturbed industrial conditions of 1946 which, as earlier stated, prevented the installation of generating capacity on the scale that had been planned. In 1946 the net increase in capacity was very small, only a fraction of 1% rise from the 50,111,000 kw. of 1945 to the 50,196,000 of 1946. In the second half of the year peak loads rose to heights above the record of the war period and this, with output running above previous levels, left dangerously small margin of reserve capacity. Reserve, which is generally accepted as safe at around 20% was whittled down nearly to one-half of that in 1946.

Hopeful to widen the margin of reserve, supply system engineers planned for the installation of about 10,400,000 kw. of new capacity in the next two or three years, more than 3,000,000 being programmed to go into operation in 1947.

Division of ownership of generating capacity remained unchanged in the year, 20% government and 80% private enterprise. The ratio of fuel to hydro power also remained the same, 70% and 30% respectively.

The increases in loads and outputs against the small net increase in capacity resulted in a rise of unit output in 1946, 4,453 kw.hr. per kw. in comparison with 4,433 in 1945. Principally because of postwar declines in light metals production, mostly supplied with electricity from hydro plants, fuel power

production increased from 4,021 kw.hr. per kw. in 1945 to 4,121 in 1946. This heavier loading of fuel power capacity shows itself in a new low figure of thermal economy, 1.29 lb. of coal per kw.hr. as the national average.

Rising far above the highest previous year—\$919,000,000 in 1930—electric utility construction expenditures estimated for 1947 reached a total of more than \$1,300,000,000. Federal expenditures for power purposes increased the estimate another \$100,000,000, approximately. Estimates of 1946 construction, made late in 1945, came to about \$900,000,000. Only about two-thirds of this amount was actually expended. Thus the 1947 construction budget included a considerable carry-over from 1946. Also included was a significant increase in construction costs amounting to an average of 30% across the board, according to replies to a survey conducted by *Electrical World*.

Maintenance expenses of electricity supply systems in 1946 amounted to more than \$232,000,000. Indicative of how costs for keeping systems in good operating condition were going up were the estimated figures for maintenance expense per kw. of capacity—\$4.47 in 1945, \$4.63 in 1946 and \$5.10 in 1947.

More than 55,000 mi. of rural lines were built by electric utilities in 1946 at an expenditure of some \$89,000,000. This is exclusive of Rural Electrification Administration (REA) operations which included about 50,000 mi. at an expenditure of about \$130,000,000. These figures may not be used to arrive at comparative costs per mile of line because in both cases expenditures for other than line building are included. It was estimated that more than 500,000 farms were connected to service lines during the year, bringing the total number of electrified farms, as defined by the U.S. bureau of the census to more than 3,400,000. This is about 63% of all occupied farms.

All of the increased revenue of electric utilities in 1946 was absorbed by increased pay to employees. Pay rolls constituted the largest item in utility expense. In 1945 the estimated 222,000 utility employees received an average wage of \$50.49 per wk. In 1946 the number of employees increased to 246,000 and the average weekly wage to \$52.59 and working hours had declined from 42 to 41.5 hr. per week. Compared with labour in manufacturing industries, power company employees in Dec. 1946 received 130.5 cents per hour as against 114.2.

As in other industries, strikes caused much trouble for the electric utilities in 1946. The worst was in Pittsburgh, Pa., where striking employees of the Duquesne Light company remained out for 17 days. Despite this, however, service to the city was maintained at a reduced level by the efforts of supervisory employees of the company. Result of the Pittsburgh strike and of others was a widespread public demand for compulsory arbitration or some other device for composing labour disputes in the utility industry.

Financing operations of electric utilities in 1946 amounted to slightly more than \$1,000,000,000, about one-third under 1945. New money coming into the industry was nearly four times as much as in 1945, but the actual sum, \$173,000,000, was still disconcertingly small in relation to total capitalization and to the cost of necessary future expansion. Refunding financing, totalling around \$900,000,000, was down about one-third from 1945, which was the highest year of record.

Plagued by shortages and beset by strikes, electrical manufacturers had a hard time in 1946. In the face of these difficulties, their showing for the year was remarkable. Four out of the six production indexes of electrical manufacturing showed rises over 1945. The two that showed declines were for goods in which were included production definitely for war purposes. The production index for refrigerators jumped from 170 in 1945 to 1,363 and for other appliances from 62 to 246. Rises in production indexes of transmission and distribution equipment and of insulated wire and cable were less spectacular, from 138 to 144 in the first case and from 100 to 115 in the second.

Up to the war period, the index of over-all production in electrical manufacturing marched along in fairly close coincidence with the Federal Reserve board index of national production. Then the index curve

of electrical manufacturing shot far above that of the FRB ratio. In 1944 electrical manufacturing stood at 430 while national production was 231. In 1945 the positions were 390 and 223. Both declined in 1946, to 276 and 179. The gap between the two indexes was narrowing, but with the demand for electrical goods remaining consistently strong, as all indications were that it would, it was not likely that return of the indexes to their prewar condition of practical coincidence would come very soon.

Of technical advance in 1946 the electrical industry had little to report beyond progress in directions already started. Development was begun toward the production of electricity from atomic energy in pilot or experimental plants at Oak Ridge, Tenn., and Schenectady, N.Y. But up to the close of the year the only published results from explorations in this field were predictions that atomic power would be available for commercial uses in 5, 10 or 20 years, depending on the optimism of the particular prophet.

The year saw further experimentation and development in the gas turbine, but no outstanding installations. Of considerably more practical moment was the advance recorded in the successful application of steam temperatures of 1,000° F. and above in plants of the Atlantic City Electric company and the Public Service Electric and Gas company. In general terms it may be said that 1946 saw the beginning of the process of digestion and assimilation by which inventions and advances previously made become integral parts of the body economic. (See also PUBLIC UTILITIES; TENNESSEE VALLEY AUTHORITY.)

BIBLIOGRAPHY.—*Electrical World*; Edison Electric Institute; Federal Power Commission; Rural Electrification Administration. (F. R. I.)

Great Britain.—At the beginning of 1946 generating plant supplying the national grid totalled 12,297,000 kw.; this was some 15% below requirements because of the deferment in setting up new installations during the war. Extensive overhauls and repairs were needed; plants had been out of service for long periods and, in order to avoid serious overloading of the grid system, load shedding was necessary. Return to normal conditions would probably take three or four years. The central electricity board's program of plant extensions for completion before 1949 comprised 4,619,000 kw., including 18 new generating stations. Several 60,000 kw. alternator sets were being installed, steam pressures of 1,250 lb. per sq.in. and temperatures of 950° F. being used, with hydrogen cooling for the main alternator. During the first 11 months of 1946 authorized undertakers generated 36,868,000,000 kw.hr. compared with 33,608,000,000 kw.hr. in the corresponding period of 1945.

New construction of overhead lines was limited by the acute shortage of materials, particularly of poles. A specification for a simple and cheap British standard overhead line for voltages up to 11 kv. was published, and 240 volts were decided upon as the standard for low-voltage A.C. distribution. Unification of electricity tariffs was widely discussed; if the supply industry were nationalized this would probably in large measure be achieved. In spite of rising costs there was little, if any, increase in tariffs.

Industrial Developments and Research.—With the removal of blackout restrictions discharge lighting was installed on a large scale; it was becoming the most popular form of street lighting, although the systems used lacked uniformity. Fluorescent tubular lighting was widely adopted, particularly in offices and public buildings. High frequency heating, which produces temperature rises of several hundred degrees Centigrade in a few seconds, was increasingly used and there was further development of air blast and resistance-switched oil circuit breakers. Progress was made in the development of plastics for insulation in electrical construction. Research was done on silicones and particularly on silicone varnishes and oils which were of interest because of their exceptional heat stability.

Electrical domestic appliances, including thermostatically-controlled irons, reappeared on the home market: some 350,000 fires and 460,000 irons were made available during the first six months of the year. Although welcomed by the housewife, this return was partly responsible for the embarrassing increase in the power demand on the generating system.

There was great interest in the heat pump: the first large heat pump in Great Britain was designed, constructed and installed by the Norwich electricity department to warm 500,000 cu.ft. of building space. The heat delivered was nearly three times the B.T.U. (British thermal unit) equivalent of the electrical energy consumed by the pump.

The larger electrical manufacturing firms and the universities investigated the possibilities of the use of atomic energy for peaceful purposes. Substantial monetary grants were made to the universities by the department of scientific and industrial research for nuclear research and a 200,000,000 volt betatron was being built.

Exports.—Exports of electrical goods and apparatus during the first ten months of the year amounted in value to £42,140,767, of which £29,941,723 was mainly for cables, insulation, telephone apparatus and domestic appliances and the remainder for boiler-house plant and electrical machinery. Power transformers for operation at 231,000 and 242,000 volts were constructed for export by British manufacturers.

Commonwealth.—As in Great Britain, the increased demand for power called for new power station construction and government-sponsored transmission and distribution schemes. In New Zealand large extensions to hydroelectric generating stations and the construction of new ones were under way. The Rural Electrical Reticulation council was set up to co-ordinate rural development and to administer a government subsidy scheme. An electricity commission was established in Western Australia to control generation and transmission in the state; the Queensland electricity commission prepared a £2,700,000 program for the erection of new power stations. In Tasmania, where 75% of the water power of Australia is located, a new hydroelectric station was to be constructed on the River Derwent.

The government of Bombay planned to set up an electricity board to rationalize generation and transmission in rural areas and to construct new power stations with an interconnecting grid network. A scheme for the electrification of 2,200 sq.mi. in rural Bengal was to be put into operation.

To provide for increased railway electrification in South Africa large

extensions to power stations were to be undertaken.

Europe.—During the period 1946-50 11,700,000 kw. of new generating plant were to be installed in Russia, raising the total capacity to 22,400,000 kw. and the estimated annual output to 82,000,000,000 kw.hr. A special soviet ministry was formed for the electrical engineering industry.

In Sweden, where the electricity generated averaged nearly 2,000 kw.hr. per annum per inhabitant, some 5,400 km. out of a total of 16,700 km. of railway line were electrified by the end of 1946. Four 200 kv. transmission lines were in operation and an experimental 90 kv. D.C. line was under construction.

Water power, highly developed by the nazis, produced 55.7% of the electrical energy generated in Austria in 1945, but after the defeat much reconstruction was needed. The British zone in Germany had a generating capacity of some 2,000,000 kw.; the energy generated in 1946 was approximately 4,600,000,000 kw.hr., some of which was exported to France and the Netherlands. German wartime experimental work on 400 kv. transmission lines came to light during the year.

France nationalized its electricity supply industry. In both Rumania and Greece large-scale hydroelectric schemes were drawn up and a great Danubian dam was to be constructed for the provision of two-thirds of Rumania's electric power requirements.

Hydroelectric production in Italy was 50% of the normal at the beginning of the year. In Switzerland the power stations were overloaded and new constructions were under consideration. The estimated energy generation in Czechoslovakia for 1946 was 6,200,000,000 kw.hr.; in Poland the 345,000,000 kw.hr. generated in Jan. 1946 was to be increased to 530,000,000 kw.hr. before the end of the year.

Eire planned the extension of both water power and peat-burning stations to provide for a £25,000,000 rural electrification scheme on which work had begun.

(E. W. G.)

Electric Lighting: see ELECTRICAL INDUSTRIES.

Electric Transmission and Distribution: see ELECTRICAL INDUSTRIES.

Electric Transportation. The total number of passengers carried by urban electric transportation lines in the United States in 1946 remained close to the high levels of 1944 and 1945. This development was in part because of the exceptionally high level of industrial employment, which is always an important factor affecting the volume of riding on all types of urban transportation lines, and in part because of the rather limited number of private automobiles which came on the market to compete with public transportation service. Another factor which should be noted, though its influence can not be exactly measured, was the growing popularity of electric transportation in comparison with motor bus transportation. Indications were that this was a result of notable improvements in the design of electric vehicles. Popularity of the electric trolley coach was especially evident, this type of service having been selected in a number of public opinion polls in different cities as the best liked of all forms of public transportation service.

A comprehensive survey made during the year 1946 by the American Transit association of the operating results of 1,253 transit companies covering all important cities in the United States showed that 52% of the total number of passengers were carried by electric railway lines and 5% by trolley coach lines, or an aggregate of 57% for electric transportation as compared with 43% for motor bus transportation. This distribution of riding remained virtually unchanged during the year 1946. There was a slight decrease in the number of passengers carried by the surface electric railways because of substitutions of trolley coach operation or motor bus operation on some lines

Ten-Year Record of Passengers Carried by Electric Transportation in the United States 1937-46

	Surface Railways*	Rapid Transit	Trolley Coaches	Total†
1937	7,161,000,000	2,307,000,000	289,000,000	9,757,000,000
1938	6,545,000,000	2,236,000,000	389,000,000	9,170,000,000
1939	6,171,000,000	2,368,000,000	445,000,000	8,984,000,000
1940	5,943,000,000	2,382,000,000	534,000,000	8,859,000,000
1941	6,081,000,000	2,421,000,000	652,000,000	9,154,000,000
1942	7,290,000,000	2,566,000,000	899,000,000	10,755,000,000
1943	9,150,000,000	2,656,000,000	1,175,000,000	12,981,000,000
1944	9,516,000,000	2,621,000,000	1,234,000,000	13,371,000,000
1945	9,426,000,000	2,698,000,000	1,244,000,000	13,368,000,000
1946	9,096,000,000	2,860,000,000	1,281,000,000	13,237,000,000

Data from American Transit Association. 1946 figures based on preliminary reports.

*Figures include riding in both urban and suburban areas, but the suburban riding represents only a very minor part of the total.

†Statistics of passengers carried by electrified suburban and trunk-line railroads not available for presentation in this form.

in place of rail operation. Riding on trolley coach lines increased substantially both as a result of the numerous extensions of this type of service and also the augmented patronage of lines already in operation. The number of passengers carried by rapid transit lines showed no significant change from the previous year.

Modernization of Rolling Stock.—New rolling stock, which the electric transportation lines had been unable to secure in large quantity during World War II, made its appearance in many cities during 1946. Indications were that the beginning of 1947 would see about 3,000 of the modern "Presidents' Conference Committee" (P.C.C.) type of street cars in operation in cities in the United States and Canada, with about 1,400 additional cars of the same type on order. Considerable interest was shown after the end of the war in the possibilities for the use of the P.C.C. car in other countries. Licence agreements were signed with car builders in England and Belgium for the production of P.C.C. cars for operation in numerous countries in Europe and elsewhere throughout the world. One demonstration car was ordered by the tramways of Mexico City.

The year 1946 was marked also by an unprecedented volume of trolley coach purchases. Manufacturers of this type reported that the number of vehicles ordered between the end of the war and the latter part of 1946 was greater than the entire production of the industry in the 15 years before the war. A moderate number of the new trolley coaches were provided with complete air conditioning. This was the first use of air conditioning in local transportation other than as an experiment. Additional trolley coaches were designed for later addition of air-conditioning equipment if desired.

Since there were no indications of any slackening of demand, the manufacturers of electric trolley coaches were planning to increase their production facilities for 1947. Activity in trolley-coach buying was attributed to three main factors—the ability of this type of vehicle to increase earnings for operators, its excellent record of safety, comfort and speed and its amazing popularity with the riding public.

Outstanding in the field of rapid-transit rolling stock was the placing of an order for 400 new subway cars for the city of New York. These cars marked a definite step forward in subway-car design. They embodied a number of P.C.C. car features as well as fluorescent lighting. The rapid-transit system of the city of Cleveland also ordered new cars. These were essentially of P.C.C. type with modifications to meet special conditions.

Wages and Fares.—Following V-J day the transit industry in the United States experienced a wave of wage increases ranging from five to ten or more cents per hour. This was followed during 1946 by a second wave which, added to the first, brought the total increase up to about the 18½-cent level established in a number of important instances in manufacturing industries to compensate for loss of take-home pay because of shortened working hours. In the local transportation industry there had been little shortening of working hours as there had been no decrease in demands for service. However, transit wages tended to follow the general industrial wage pattern.

A difficult economic situation was thus created for the transportation industry where the ratio of wages to gross revenue is far higher than in manufacturing industries. Many increases in fares were granted to offset the increases in operating costs. As a result, the average cash fare rose from 7.72 cents at the beginning of the year to 7.82 cents in the latter part.

Heavy Electric Traction.—Conditions in the field of heavy electric traction were relatively static during 1946. No important extensions were made to existing systems in the United

States or Canada. Some extensions were made in South America and new electric locomotives were acquired by the Paulista, Sorocabana and Central Brazil railroads. (J. A. Mr.)

Great Britain.—Work on London suburban schemes, planned before World War II, was resumed during 1946 and manufacturers in Great Britain supplied locomotives and multiple-unit stock to existing systems in South Africa, New Zealand (Wellington suburban lines) and India. The Southern railway in England approved plans for the electrification of an additional 284 route-mi. to Ramsgate, Dover and Hastings, estimated to save 330,000 tons (U.S.) of coal annually.

South Africa.—Postwar development in South Africa involved the conversion of 266 mi. of line of which the main work was the electrification of the Bellville-Touws river section (149 mi.). In addition, the whole of the Cape peninsula suburban system was to be reorganized and existing lines and equipment were to be converted from 1,500 to 3,000 volts D.C. All electric railways in the union would then be standardized.

India.—In India the Mysore state planned the electrification of the Bangalore-Mysore section to cut coal imports and reduce maintenance.

Europe.—Steady progress and ambitious plans in railway electrification were made during 1946, and the European continental systems which had suffered badly during World War II were largely restored. The production of plant and equipment for existing lines and extensions increased steadily. In the many schemes planned acute fuel shortage was the main reason for the renewed attention to electrification.

In Italy restoration work and the extension of electrification over former steam routes was carried on. Electric working was restored in March on the badly damaged 196-mi. Milan-Bologna-Florence main line and the completion of electrification on the 77-mi. line between Domodossola and Milan was planned. In the Netherlands electric services were restored over 115 mi. of the 349 previously operated. In February the electrification of the longest privately owned railway in Sweden, the 353-mi. line between Goeteborg and Gaevle, was completed. This was expected to save about 90,000 tons (U.S.) of coal per annum. The Swedish Railway board planned the electrification of a further 776 mi. of state line in the next 5 years. Progress continued in Switzerland, where considerable attention had been given to design, especially to the development of high-speed power bogies and light-weight stock. A locomotive put in service in 1946 on the Loetschberg railway of the double bogie type weighed 88 tons (U.S.) and developed 4,000 h.p. The spring-disk flexible drive of this locomotive was of great interest; the prevalence of flexible drives in Switzerland was in marked contrast to the plain axle-hung motor in extensive use elsewhere.

Many projects were planned and started. The program to convert 1,250 mi. of railway within 12 yr. was resumed in Austria. This represented 50% of the Austrian system, conveying 75% of all state traffic. In France the national railways proceeded with the conversion of 1,287 route-mi., bringing the total electrified route to 3,481 mi. This scheme, to be completed in 1955, was estimated to save 2,450,000 tons (U.S.) of coal per annum. The first section of the former Paris-Lyons-Méditerranée main line from Paris to Chasse (near Lyons), 322 mi., was in hand. Other important conversions planned were Chasse-Marseille (204 mi.), Lyons-Geneva (106 mi.) and the whole of the Paris suburban system. The soviet five-year plan adopted in March 1946 envisaged the electrification of 3,300 route-mi., largely to conserve fuel, to increase line capacity and in some cases to overcome the difficulties of scarce or bad water. One of the most ambitious of projected works was that of the now nationalized broad gauge Spanish railway system. A 12-yr. plan was launched for the electrification of 2,500 mi., estimated to save 1,220,000

tons (U.S.) of coal annually. This was the first stage of the 8,000-mi. system to be completely electrified. (F. A. H.)

Electrification, Rural: see RURAL ELECTRIFICATION.

Electronics. As the world in 1946 shifted gradually from war toward a peacetime status, many wartime technical developments became available for civil use. This was true, for example, of radar and several manufacturers brought out simplified versions for use in merchant ships. Also made available for commercial use was loran. Where radar merely shows direction and distance of above-water features around the vessel, loran permits the navigator to fix the position of his craft with as much precision as from sights on celestial objects. It was installed and used on the S.S. "Drottningholm," in the Atlantic service, and other ships, including the S.S. "America," which was reconditioned for commercial service after being used as a transport during World War II.

Also announced during 1946 was "shoran," an aid to blind bombing during the war. Capable of precision equal to that of first order survey work, with an error of a foot in five miles, it has great peacetime possibilities in mapping uncharted parts of the earth. The aeroplane transmits two signals which are received at two ground stations, of which the positions are accurately known. Unlike radar, which merely sends back a reflection with no addition of energy, the shoran ground stations immediately and automatically retransmit a signal back to the plane. The air-borne equipment determines the time taken for each round-trip path, and so indicates the distance from each of the ground stations.

Combining radar and television as an aid to air navigation is "teleran," developed by the Radio Corporation of America, which gives the aviator instantly and accurately his position and other needed data. This eliminates the need of bulky and complicated radar equipment aloft. A large and accurate search radar on the ground sends out a signal. On the teleran equipped plane there is a transponder which, as with shoran, automatically transmits back to the ground station. This permits operation over a greater distance than if the radar receiver receives only the unreinforced echo reflected from the plane. Also the response is on a different frequency from the transmitted radar pulse. This avoids confusion from echoes reflected by stationary objects.

The indication of the ground radar is presented in a viewing tube which shows the position of the plane in its correct direction and distance. Over this is placed a transparent chart of the region, with essential features marked. This combination is viewed by a television camera and its image is radioed back to the plane. It is displayed on a picture tube in front of the pilot, so he can immediately see his position. The same television system can be used to transmit other data, such as a weather map.

Another navigation development was the ground position indicator, referred to as G.P.I., which indicates continuously the present position on the earth's surface of the plane or other vehicle in which it is carried. The position may be given on dials either as the present latitude and longitude, or as the total distance from a particular fixed point. From compass data the device records the direction travelled by the plane, while an airspeed indicator shows how much it moves in the surrounding atmosphere. To correct for winds, a radar set is used to pick up the reflection from some landmark, which is shown on the face of the radar tube. The aviator then sets an index to the bright spot which represents it. After a short time it has drifted away from the index, which is then reset. This automatically introduces into the computing mechanism the proper correction for the movement of the air, and the device then continues to give

the ground position, until the wind changes. Then the wind correction is reset.

One of the most striking accomplishments of radar during 1946 was the success of the U.S. army signal corps' project "Diana," receiving signals sent from the earth and reflected from the moon. Such echoes were first detected at the Evans Signal laboratory on Jan. 10, in the form of audible signals. A special transmitter giving a pulse of 0.2 to 0.5 seconds duration, at a frequency of 111.5 megacycles was employed. The signals were radiated from a directional antenna on a 100-ft. tower, which faced the moon as it rose or set. The echo, which returned after an interval of between 2.38 and 2.72 sec., corresponding to the moon's distance of 221,000 to 253,000 mi., was detected with a receiver of extreme sensitivity. This was necessary because the power received from the moon was only 11×10^{-16} (0.0000000000000011) watts, compared with 4,000 watts radiated into space!

Though these results were qualitative rather than quantitative, they demonstrated the possibility of observing celestial bodies by means other than the light they reflect or radiate. With further refinements, and much narrower beams, observations of surface features of the moon and perhaps even of the nearer planets may be possible. Later in the year radar proved of value in observing the Giacobinid-Zinner shower of meteors on Oct. 10, which was the finest observed in the United States in many years. Cloudy weather was general over the eastern part of the country, interfering with visual observations, but the meteors were detected and counted at several stations by radar.

While radar will not penetrate under water, another electronic device, called "sonar" (for sound navigation and ranging), proved highly successful during the war, and was, according to the navy, responsible for detecting and locating a majority of the 996 enemy submarines sunk. It was developed for the navy by the Bell Telephone laboratories, with the help of other commercial organizations. Like radar, sonar operates on an echo principle. However, it is not radio waves which are sent out and reflected, but sound waves. Electronic analysis of the echo received from an underwater object gives the desired information about its location and distance.

For echo ranging, sonar equipment is installed in a submarine or surface vessel below water level. The same apparatus sends out the sound waves and also receives the echo. The position of the projector when the echo is detected indicates the direction of the target, while the time required for the echo to return shows distance. In some cases, the sonar system is gyro-controlled so that the beam remains fixed in the same direction regardless of the turns made by the vessel on which it is installed.

The magnetic effect of a submarine served as the basis of its detection with the airborne magnetometer, familiarly known as the "aerial doodle-bug." It was devised in a co-operative effort by the Naval Ordnance laboratory and the Bell Telephone laboratories. Resembling an aerial bomb, it is lowered by a cable from an aeroplane and flown over the region to be examined. Iron and steel in the underwater boat produce a concentration of the lines of force of the earth's magnetic field: This affects the sensitive needle in the magnetometer and so reveals the U-boat's presence.

Since the device works equally well over land, and is affected by many kinds of ore deposits underground, the "doodlebug" was expected to be of value in aerial prospecting for possible oil and mineral producing areas. In fact, in addition to using it for detecting submarines, the navy employed it in an aerial search over some 40,000 square miles in the United States and Alaska for geological structures which might contain oil. After such a preliminary survey, the promising areas would be investigated

more thoroughly by ground parties.

A use of radar during World War II revealed in 1946 was that of a high-speed glide bomb developed for the navy, and known as the Bat. About 12 ft. long, with a 10-ft. wing spread, it was provided with a charge of half a ton of high explosive and a radar set which guided it to the target even though the latter was moving. Suspended under the "mother" plane, in which were the operators, the Bat's radar was set to a target, picked up either with the eye or by the mother plane's radar. When the Bat was released, it glided straight to the target.

The Gorgon was a jet-propelled flying bomb with a television camera in its nose and a transmitter which sent back what it saw to the mother plane. There the bombardier guided it as if he were riding along on the bomb in a suicide attack. It had a speed of as much as 550 m.p.h. and could carry more than a ton of explosive.

Another guided missile that found wartime use was Azon. Actually a tail assembly containing a radio receiver and associated controls, it was attached to standard 1,000 or 2,000 lb. standard bombs, and was used under conditions when the target was visible from the plane. Azon could be guided in azimuth, *i.e.*, to right or left; Razon, a similar device could, in addition, be guided in range as well, as it was made to glide at a steeper or lower angle.

Seeing in the dark was possible with several different types of war-developed apparatus, on which information was released in 1946. Some were highly sensitive detectors of heat or infra-red rays, which could pick up the radiation from a man's body in the dark a quarter of a mile away, or that from ships and the chimneys of factories. More elaborate were the sniperscope and snooperscope, which flooded a scene with infra-red rays and by means of an "infra-red telescope," developed at the RCA laboratories, showed a visible image.

A lens forms the infra-red image on a specially treated glass surface which, in proportion to the intensity of the radiation falling on it, gives off electrons. These in turn are focused by an electron lens to form an image on a fluorescent screen which glows where electrons strike and makes the image visible. It is viewed by a magnifying eyepiece. The sniperscope was used to aim a rifle in the dark. The snooperscope consisted of the same units—the infra-red floodlight and the viewing tube, together with the associated power pack carried by the user—but held by a separate handle for reconnaissance. In still another form it was attached to a soldier's helmet and could be used, for example, in driving a jeep in total darkness, the vehicle being provided with infra-red headlights. This had a maximum range of about 700 yd.

While Braille printing and "talking books" on records have done much to make literature available to the blind, there still remains a vast amount of printed material beyond their reach. To make it possible for a blind person to read any printed matter, an electronic device for reading by sounds was announced by the Radio Corporation of America as having been developed in experimental form, in co-operation with the Committee on Sensory Devices of the National Academy of Sciences.

The user moves a hand-held stylus along the line of type. At the bottom there is a vertical slit through which a beam of light scans the print vertically, 30 times per second. When the beam strikes a dark spot at the top of its swing, a high pitched note is heard through head phones. A spot at the lower end produces a low note, while if it encounters blackness all the way, a tonal variation from the highest to the lowest is heard. Suppose the "reader" comes to the capital letter N. As the slit passes the first upright part, the combination of high and low tones is heard. Then it traverses the upper part of the diagonal and a high-pitched note is heard, which slides down the scale

as the stylus is moved. At the second vertical leg the combined tone is heard again. This combination of sounds is characteristic of N and the user learns to recognize it. Reading speeds better than 10 words a minute have been attained, and it was believed that these could ultimately be raised to about 60 per minute.

While new electronic tubes, such as the klystron, were developed to operate at extremely high frequencies, producing waves of the order of a few inches in length, such tubes cannot be used for high amplification except with a very narrow range of frequencies. Some of the most promising uses of these microwaves, however, such as television, require amplification over a very wide frequency range. This can be done with a new "travelling-wave" tube devised by the Bell Telephone laboratories.

A stream of electrons from a heated filament is aimed down the long tube in a narrow beam. For nearly a foot of the length, the electrons pass through a closely wound helix of wire which carries the signal current. This progresses as a wave down the helix, and the electrons travel along its axis a little faster. The complicated interaction between the electrons and the travelling wave in the helix produces amplification. It can be roughly compared with the building up of waves in water by the wind. The electrons form a sort of "electric wind" which blows past the wave as it travels and so strengthens it.

A new electronic device that was likely to be important in future studies of the atomic nucleus had its debut in 1946. This is the synchrotron, invented independently by V. Veksler, a Russian physicist, and E. M. McMillan, of the University of California. A small synchrotron, modified from a betatron, another type of atom smasher, was placed in use in England. The first to be designed as such, as far as known, was a 70,000,000-volt machine which began operation in October at the General Electric Research laboratory in Schenectady, N.Y. A 300,000,000-volt synchrotron was under construction at the University of California's Radiation laboratory.

Electrons are accelerated in a doughnut-shaped vacuum tube, located between the poles of a large electromagnet. They are injected from a heated filament. The magnet operates on alternating current and as the cycle progresses the magnetic field builds up and the electrons are whirled around faster and faster within the tube, gaining energy on each revolution. When they have attained energies of a few million volts, they are moving at constant speed, which is practically that of light, beyond which they can not be accelerated. This operation is identical with that of the betatron.

However, at this stage another means of acceleration takes over. One segment of the tube is a metal cavity, a double-walled tube with a slit inside. This is connected with an oscillator like that of a radio transmitter so that electrons surge back and forth within it. The interaction of these with the electrons encircling the tube is such as to give them a push each time they pass. When they reach maximum energy the oscillator is turned off and the orbits of the electrons contract. Then they hit a tungsten target they previously missed, and so generate a stream of high-energy X-rays which can be used in nuclear research.

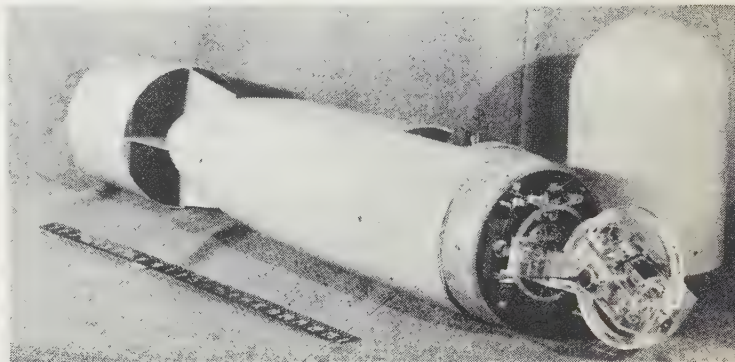
The synchrotron overcomes one limitation of the simple betatron, which has been built to give radiation of 100,000,000 volts energy. That is that as the electrons move with higher and higher energies they radiate away much of their energy in electromagnetic waves. The mechanism is similar to radiation of radio waves from an antenna where electrons also are moving back and forth. This loss is finally so great that the electrons can not be given additional energy.

With the synchrotron, however, any loss of energy of the electrons causes them to move in a smaller orbit and they return



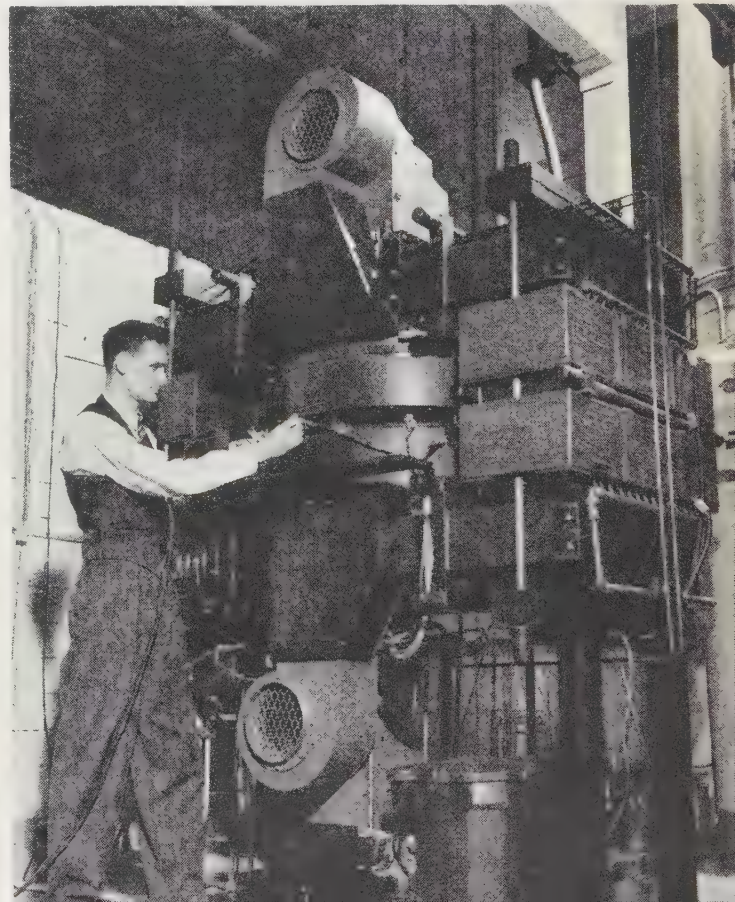
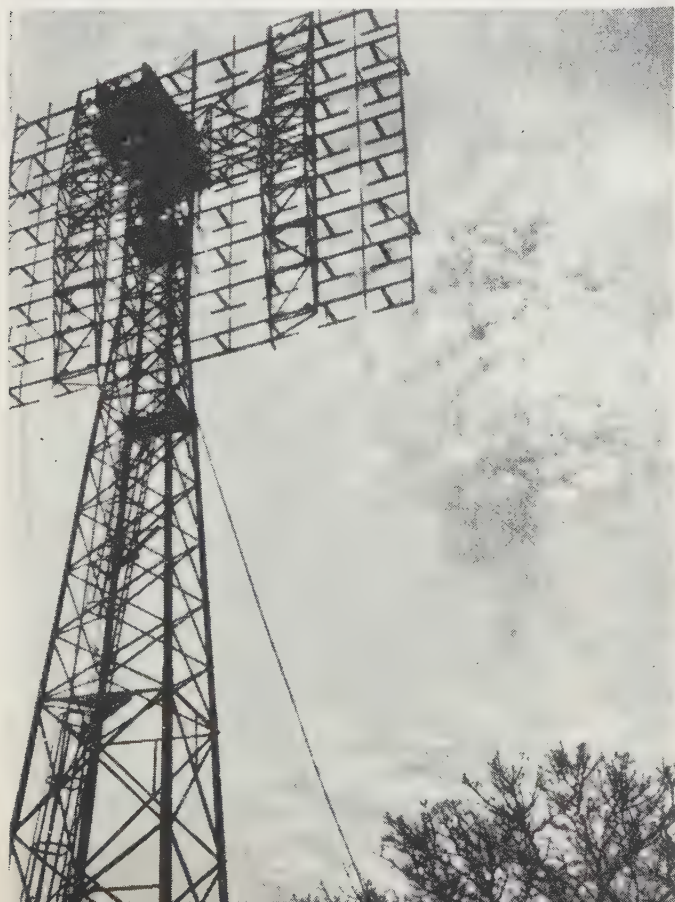
Above: **ELECTRONIC READING AID** for the blind, under development in 1946 by Dr. V. K. Zworykin and L. E. Flory of RCA laboratories, Princeton, N.J. The hand-held stylus, containing a scanning light beam, is moved across a line of printed type thereby converting letters and words, into recognizable sounds

Right: **"AERIAL DOODLEBUG,"** electronic device which was effectively used by U.S. navy planes during World War II in finding and tracking enemy submarines. It was revealed by the navy on June 1, 1946, and was expected to find peacetime application in aerial prospecting for oil and mineral deposits



Lower right: **SYNCHROTRON**, a new atom smasher placed in operation in the General Electric Research laboratory at Schenectady, N.Y., Oct. 24, 1946. This machine, built under a contract with the office of naval research, U.S. navy, delivers a beam of 70,000,000 volt X-rays

Below: **RADAR ANTENNAE** used by U.S. army signal corps technicians in making radar contact with the moon on the night of Jan. 10, 1946, at Belmar, N.J.



to the gap sooner than normally. This causes them to get more than their ordinary quota of energy, and so they are compensated for the loss. On the other hand if they get too much the orbit is enlarged, they return to the cavity late and receive a smaller increase of energy. Also, compared with the betatron, the synchrotron is smaller for the same energy. For example, the 100,000,000-volt betatron has a magnet weighing about 135 tons, while that for the 70,000,000-volt synchrotron weighs only 8 tons. (See also ATOMIC ENERGY; CHEMISTRY; PHYSICS.)

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Elementary Education: see EDUCATION.

Elks, Benevolent and Protective Order of: see SOCIETIES AND ASSOCIATIONS.

Ellice Islands: see PACIFIC ISLANDS, BRITISH.

El Salvador: see SALVADOR, EL.

Embassies, Great Britain: see AMBASSADORS AND ENVOYS.

Embassies, United States: see AMBASSADORS AND ENVOYS.

Emery: see ABRASIVES.

Emigration: see IMMIGRATION AND EMIGRATION.

Employment. **United States.**—The civilian labour force (people available for gainful employment) numbered 60,000,000 in Aug. 1946; 5,650,000 more than in Aug. 1945, the increase being a result of the return of servicemen and -women minus the number of women and older men who withdrew from the labour market. Of these the unemployed numbered approximately 2,040,000 (3.4%) in Aug. 1946 compared with 830,000 in Aug. 1945.

Males in employment in Aug. 1946 numbered 42,830,000 and females 17,170,000. Females constituted 29.4% of the gainfully employed persons in Aug. 1946, a decline from 35% in 1945. This decline resulted from an increase of 7,810,000 in the number of males in the labour supply and a decline of 2,160,000 in the number of females in the labour market.

Employees in nonagricultural establishments numbered 39,881,000 in Aug. 1946, 661,000 more than in May 1946 and 779,000 more than in July 1945. From Aug. 1945 to Aug. 1946 there was a decline of 433,000 in the number of people working in manufacturing establishments and a decline of 543,000 in federal employees, but an increase of 43,000 in construction workers; 45,000 in mining; 140,000 in trade; 494,000 in financial institutions and 14,000 in transportation and public utilities.

Examination of the employment figures and indexes in Table II reveals the respective growth and recession trends in the various types of industries during the earlier reconversion period which followed V-J day. Some of the heavy industries, such as steel and electrical machinery, were characterized by declining employment, while many consumers' goods industries, such as furniture, pottery, textiles and paper products, were expanding their employment rapidly.

Table I.—Number of Employees in Nonagricultural Establishments, by Industry Division, United States*

Industry Division	Number of employees (estimated) in thousands			
	Aug. 1946	July 1946	June 1946	Aug. 1945
Total estimated employment†	39,881	39,265	39,056	38,172
Manufacturing‡	14,586	14,244	14,098	15,019
Mining	829	815	807	784
Contract construction and federal force-account construction	2,109	1,976	1,874	927
Transportation and public utilities	4,000	3,962	3,917	3,860
Trade	7,803	7,747	7,749	6,979
Finance, service and miscellaneous	5,160	5,152	5,131	4,666
Federal, state and local government excluding federal force-accounting construction	5,394	5,369	5,480	5,937

*Distribution of labour force by sex, see *Monthly Labor Review*, Oct. 1946, p. 618.

†Estimates include all full- and part-time wage and salary workers in nonagricultural establishments who worked or received pay during the pay period ending nearest the 15th of the month. Proprietors, self-employed persons, domestic servants and personnel of the armed forces are excluded.

‡Estimates for manufacturing have been adjusted to levels indicated by final 1944 data made available by the bureau of employment security of the Federal Security agency. These estimates, which are comparable with the production worker estimates in Table II, supersede those shown in mimeographed releases dated prior to July 18, 1946, and in issues of the *Monthly Labor Review* dated prior to Aug. 1946. Data from Jan. 1943 forward were affected by this revision. A complete series from 1939 to date is available upon request.

Table II.—Number of Production Workers and Indexes of Production-Worker Employment in Manufacturing Industries, by Major Industry Group, United States*

Industry group	Number of production workers Estimated in thousands		Production-worker indexes, (1939=100)	
	Aug. 1946	Aug. 1945	Aug. 1946	Aug. 1945
All manufacturing	11,581	12,179	145.0	148.7
Durable goods	5,997	6,779	166.1	187.7
Nondurable goods	5,884	5,400	128.4	117.9
Iron and steel and their products	1,433	1,490	144.5	150.3
Electrical machinery	520	640	200.7	246.8
Machinery, except electrical	1,051	1,076	199.0	203.7
Transportation equipment, except automobiles	453	1,468	285.4	925.2
Automobiles	731	556	181.8	138.3
Nonferrous metals and products	392	378	171.0	165.1
Lumber and timber basic products	625	524	148.7	124.7
Furniture and finished lumber products	388	330	118.1	100.5
Stone, clay, glass products	404	317	137.8	108.1
Textile-mill products and other fibre	1,197	1,049	104.7	91.7
Apparel and other finished textiles	1,049	897	132.9	113.6
Leather and leather products	354	313	102.9	90.2
Food	1,166	1,102	136.5	129.0
Tobacco manufactures	86	79	91.7	84.3
Paper and allied products	366	311	137.8	117.0
Printing, publishing and allied industries	385	322	117.3	98.3
Chemicals and allied products	475	600	164.9	208.3
Products of petroleum and coal	152	135	143.4	128.0
Rubber products	227	191	187.5	158.0
Miscellaneous industries	427	401	174.4	163.9

*The estimates and indexes presented in this table have been adjusted to levels indicated by the final 1944 data made available by the bureau of employment security of the Federal Security agency.

In durable goods the shrinkage of the index of employment was from 195.3 in July 1945 to 161.0 in July 1946; in non-durable goods there was a rise from 118.0 to 124.9 (1939 = 100). The number and indexes of manufacturing employment in July 1946 and July 1945 are shown in Table II.

Table III.—Indexes of Employment and Pay Rolls in Selected Nonmanufacturing Industries, United States, July, June, May 1946 and July 1945
(1939 average=100)

Industry group and industry	Employment indexes				Pay roll indexes			
	July 1946	June 1946	May 1946	July 1945	July 1946	June 1946	May 1946	July 1945
Mining:								
Anthracite	82.2	79.8	81.0	77.6	155.7	187.1	180.4	142.7
Bituminous	89.3	89.3	69.6	87.1	190.5	239.1	100.2	190.7
Metal	74.8	74.4	67.7	74.6	128.0	126.9	106.4	121.1
Iron	135.9	132.8	100.5	119.6	247.9	239.5	144.4	201.6
Copper	74.1	61.8	65.2	84.9	138.1	106.8	110.6	141.7
Lead and zinc	73.2	94.7	94.0	87.2	127.8	180.5	179.8	162.1
Gold and silver	28.7	28.8	28.6	21.0	38.6	41.5	39.6	26.0
Miscellaneous	62.5	58.4	57.2	68.1	96.7	95.5	92.1	113.8
Quarrying and nonmetallic	101.2	98.9	95.7	81.3	212.3	206.8	189.9	161.9
Crude petroleum production	95.1	93.7	92.8	83.8	143.2	146.6	145.4	135.7
Public utilities								
Telephone	177.7	171.7	167.6	131.9	268.8	259.9	254.0	177.0
Telegraph	112.4	112.1	113.5	119.3	178.6	174.9	175.6	175.7
Electric light and power	101.2	99.9	98.6	83.6	150.2	148.4	144.2	119.6
Street railways and buses	128.9	128.7	127.6	116.8	206.7	199.5	195.2	177.1
Wholesale trade								
Wholesale trade	107.5	106.9	106.0	94.9	174.5	172.6	169.6	144.7
Retail trade								
Food	106.3	107.2	107.2	94.9	172.6	171.2	166.2	136.4
General merchandise	101.3	103.5	105.0	100.0	171.5	170.0	166.1	145.5
Apparel	117.6	121.0	121.9	107.9	187.1	188.8	108.5	148.0
Furniture and housefurnishings	107.8	114.3	114.3	99.9	177.5	186.9	181.0	150.0
Automotive	78.1	77.5	76.7	61.8	129.2	125.7	123.3	91.1
Lumber and building materials	93.4	91.3	90.0	69.4	156.8	152.9	148.7	108.3
Hotels (year-round)	111.1	104.4	107.7	92.2	180.1	177.2	173.5	138.7
Power laundries	119.0	119.9	119.9	109.4	204.5	205.0	204.6	171.2
Cleaning and dyeing	113.7	112.3	110.7	108.3	193.3	190.9	186.2	169.7
Class I steam railroads	130.1	131.6	129.6	121.2	231.4	236.6	227.0	197.7
Water transportation	136.6	131.6	132.3	146.9	...	...	...	...
	228.2	229.0	250.6	310.0	490.1	467.4	486.3	755.5

Employment on construction work, including both private contract construction and federal force-account construction, remained almost stationary from July 1945 to July 1946, gaining insignificantly.

Table III gives indexes of employment and pay rolls of selected nonmanufacturing industries in May, June and July 1946 and July 1945.

Great Britain.—The total working population of Great Britain increased from 19,750,000 in mid-1939 to 21,337,000 in Sept. 1945 and decreased to 20,402,000 by Sept. 1946, as indicated in Table IV.

Table IV.—Total Working Population, Males and Females, Great Britain: Sept. 1946 and Sept. 1945

	Sept. 1946	Sept. 1945
Total working population excluding indoor, private domestic service		
Males	14,596,000	14,831,000
Females	5,806,000	6,506,000
Total	20,402,000	21,337,000
Ex-members, His Majesty's forces, unemployed	490,000	260,000
Insured persons registered as unemployed	359,000	173,000
In His Majesty's forces, national fire service, police and industry		
Males	13,853,000	14,531,000
Females	5,700,000	6,373,000
Total	19,553,000	20,904,000

Table V.—Supply, Distribution by Industries of Labour, Great Britain: Sept. 1946

Number employed in industry	
Manufacturing of equipment and supplies for armed forces	530,000
Manufacturing for home market	
Metal and chemical industries	2,452,000
Other manufacturing	2,453,000
Manufacturing for export	1,410,000
Basic industries and services	5,531,000
Building and civil engineering	1,240,000
Distributive trades	2,254,000
Other services	1,938,000
Total	17,808,000
Civil defense, National fire service and police	88,000
Armed forces and auxiliary services	1,567,000
Ex-members, His Majesty's forces, unemployed	490,000
Insured persons registered as unemployed	359,000
Total working population (exclusive of indoor, private domestic service)	20,402,000

Canada.—The general employment index (1929 = 100) averaged 146.3 for 1945 and 140.8 for the first quarter of 1946.

South Africa, Union of.—The South Africa general employment index (1929 = 100) averaged 160.5 for 1945 and reached 172.0 in Jan. 1946.

Australia.—The employment index (1930 = 100) averaged 136.5 for the first eight months of 1945. Later figures were not available.

South America.—Argentina's statistics (1929 = 100) averaged 132.5 in 1945 and remained at that level during the first two months of 1946. Very little change occurred in the index of Argentine employment throughout 1942-45. The index for Chile (1929 = 100) was 128.3 during the last quarter of 1945. Employment had remained at approximately that level after 1941.

Sweden.—The Swedish index of industrial employment, contrary to those of other countries, showed lower employment in the first half of 1945 than obtained in 1935-44. It then rose sharply to approximately 120 through the first quarter of 1946 (1929 = 100).

Switzerland.—The Swiss index (1929 = 100) reached 92.7 in March 1946, the highest level of employment in Switzerland after 1930.

None of the other countries published employment statistics in 1945-46. (D. D. L.)

Enderbury Island: see PACIFIC ISLANDS, U.S.

Endocrinology. The multiple activities of the adrenal cortex received a great deal of attention during 1946. It had been known for some time previous that the large

number of physiologically active steroids which had been isolated from the adrenal cortex could be divided into three functional groups: (1) those which primarily affect sodium and potassium balance (*e.g.*, desoxycorticosterone), (2) those which predominantly influence the metabolism of foodstuffs (the so-called C_{11} steroids) and (3) those steroids which, in structure and function, resemble the active hormones of the testis and of the ovary.

Despite this knowledge it was difficult to make any quantitative assessment of derangements of adrenal cortical function in man because the methods for determining the titre of the various steroids in blood and urine were laborious biological procedures of doubtful accuracy.

During 1946 four methods were proposed for the determination of the C_{11} group of steroids. Three of the methods were purely chemical procedures which, although not too specific or accurate, give consistent results.

The fourth is a biological method which depends upon the ability of the C_{11} adrenal steroids to aid in the deposition of liver glycogen in test animals. While none of these methods could be said to yield really exact figures regarding the level of a specific steroid in the blood or urine, they at least gave consistent comparative results. They might, therefore, make possible the further exploration of variations in adrenal function induced by physiological and pathological states, and thus aid in the study of the dynamics of cortical function.

It had been well established that the adrenal cortex normally contains a large amount of ascorbic acid (vitamin C). Its function in the gland was a matter of speculation. None of the many hypotheses proposed had received any experimental proof. It had been shown that when the adrenocorticotrophic hormone of the pituitary (A.C.T.H.) was given to intact animals, chemical changes occurred in the cells of the adrenal cortex. The high cholesterol and ascorbic acid contents of the gland decreased sharply in the first hours of A.C.T.H. action. Since cholesterol was probably the "mother substance" of the steroid hormones, its decrease was thought to be a result of the stimulation of the cortex to secrete and manufacture steroids. It now appeared that a similar consideration might apply to the ascorbic acid changes. B. E. Lowenstein *et al.* reported the isolation of an active steroid from the adrenal which contains ascorbic acid as the principal side chain.

It had been realized that the relation between hormones and vitamins must be an intimate one, since they both act either as essential parts of cellular catalytic systems or as modulators of such catalytic activity. However, the precise nature of such relationships was far from clear. The work of E. P. Ralli and of others during 1946 shed some light on this problem. It was, of course, well known that, given an adequate diet, adrenalectomized rats could be kept alive by the administration of sodium chloride alone. The above workers demonstrated that when the diet was deficient in pantothenic acid (one of the B vitamins), sodium chloride therapy was of no avail. Even the administration of potent cortical hormones did not maintain life for long in the deficient adrenalectomized animals. Sodium chloride and the steroids again showed their usual activity when pantothenic acid was restored to the diet.

These results indicated that salt and/or the cortical steroids probably act upon one or more catalytic systems in which pantothenic acid is active.

As noted, among the steroids manufactured by the adrenal cortex are some possessing "sex activity." Usually, when the activity of these steroids was manifested, their effects resembled those of the male sex hormones. Thus, certain adrenal cortical tumours caused the well-known syndrome of masculinization in women. Feminization of men as a result of an adrenal corti-

cal tumour was extremely rare. However, during 1946 J. Schiller demonstrated that the administration of A.C.T.H. would lead to vaginal cornification in ovariectomized rats, indicating the activity of oestrogenic steroids originating in the adrenal cortex. In order to get consistent results he had to remove portions of liver from his animals, since the small amounts of oestrogen secreted were inactivated by a normal amount of liver tissue. These experiments also suggested that the production of sex steroids by the adrenal cortex need not be a manifestation of glandular derangement, since in this work the oestrogenic effect was produced in response to a normal stimulus of adrenal cortical activity.

Spleen.—From time to time it had been claimed without satisfactory substantiation that the spleen was capable of certain endocrine functions. However, the work of G. Ungar must be given more serious attention. It was known that during the "alarm reaction," when the adrenal cortex was stimulated to great activity, there was an increase in the clotting propensities of the blood as evidenced by a diminution in bleeding time. Ungar demonstrated that the administration of the corticotrophic hormone of the pituitary, or of adrenal cortical extracts, evoked a similar reaction in normal animals but not in animals from which the spleen had been removed. He also showed that a substance prepared from spleen would decrease the bleeding time in all types of animals, even in those deprived of the hypophysis, adrenals or spleen. If these results were substantiated, it would establish the spleen as an organ of internal secretion, participating in the chain of endocrine responses initiated by the pituitary.

Ovary.—It had been known for some years that the follicle-stimulating hormone (F.S.H.) of the hypophysis led to growth of the Graafian follicle of the ovary, and that the addition of luteinizing hormone (L.H.) matured the follicle and led to the escape of the ovum from it (ovulation). In 1946 F. L. Hisaw succeeded in reproducing the phenomenon of ovulation in the test tube. When a piece of a frog ovary was suspended in a suitable solution in a test tube, and the correct proportions of F.S.H. and L.H. were added to the solution, ova ruptured out of the follicles and fell to the bottom of the test tube. Besides demonstrating the direct action of gonadotrophic hormones on the ovary, this work seemed to offer a promising method for the further study of the intimate nature of the ovulatory process.

Further knowledge was gained concerning the nervous control of gonadal function. It was known that in certain species (e.g., rabbit) ovulation occurred following stimulation of the cervix of the uterus. It was thought that the stimulus proceeded to the central nervous system and was then transferred to the anterior lobe of the pituitary, leading to the release of luteinizing hormone which acted upon the ovary. But since there are at most few nerve fibres leading from the hypothalamus to the anterior pituitary, it was difficult to trace the ovulation reaction in its entirety. Following previous work which indicated a humoral link between the hypothalamus and the anterior pituitary gland, J. E. Markee showed that well-controlled electrical stimulation of hypothalamic areas caused ovulation in rabbits. Similar direct stimulation of the pituitary did not elicit ovulation. He concluded that under physiological conditions the nervous stimulus arrived in the hypothalamus, and that some substance was secreted there which humorally affected the pituitary. The significance of this work was wider than the problem of ovulation, since it lent support to the concept that the hypothalamus was an area of the brain, the function of which was intermediate between that of nerve tissue and that of an endocrine organ.

The oestrogens, as well as the other steroids, are highly insoluble in water. The problem of their transport in blood had never been elucidated. In 1946 C. M. Szego and S. Roberts presented evidence that the oestrogens were bound to one of the serum protein fractions. This might be the means by which they were made soluble and transportable in the aqueous medium of the blood.

Thyroid.—After 1943 a series of antithyroid drugs were used clinically in an effort to treat hyperthyroidism without resorting to surgery. One of the major objections and obstacles to success was the toxic reaction to drugs such as thiouracil, exhibited by 10% of the patients treated. These reactions ranged from mild fevers to fatal depressions of the normal production of the white blood cells. A simple chemical modification might remove this toxic danger, as would appear from the work of E. B. Astwood. He treated 150 patients with propyl-thiouracil without any toxic reactions. (See also *PHYSIOLOGY*; *ZOOLOGY*.)

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England: see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

English Literature. The first year of peace brought no immediate relief to publishing houses hampered by paper rationing; this was, in part, the reason few outstanding books appeared in 1946. A deeper cause was the fact that younger writers had mature experience of little but war and were anxious to report their experiences. Personal records of the war appeared one after the other, covering practically every rank in every service. Most of these books were little more than journalism but, among a long list ranging from the war correspondent's summing up such as d'Arcy Dawson's *European Victory* to the more intimate adventure books like W. Jones's *Twelve Months with Tito's Partisans*, a few works stand out. There was an underlying assertion of faith in humanity in John Coast's *Railhead of Death*, modesty and clarity in Martin Lindsay's *So Few Got Through* and, finally, fine writing and an understanding of the jungle which made the second of Bernard Fergusson's accounts of the Chindits, *The Wild Green Earth*, a work of serious literature. War books of a different kind were Alan Moorehead's biography of Field Marshal Montgomery, Lord Wavell's *Allenby: Soldier and Statesman* and one more work of a leading military writer, General J. F. C. Fuller's *Armament and History*. Among books on the political aspects of the war and its causes were Lord Templewood's *Ambassador on Special Mission*, an intriguing account of his work in Madrid, and Professor E. M. Carr's *The Twenty Years' Crisis, 1919-1939*, a work of more enduring scholarship. The peril in which liberal humanist thought is placed by the revolutionary results of total war was made clear in the serious warning of *Victors, Beware*, by Salvador de Madariaga, and Victor Gollancz's broadsheet, *Our Threatened Values*.

Under this catafalque of war books, works of creation and imagination were somewhat subdued. In a lean year for the novel, both Somerset Maugham and J. B. Priestley, among older writers, produced works that received praise: *Then and Now*, and *Bright Day*. Gerald Bullett published *Judgment in Suspense* and Arthur Koestler *Thieves in the Night*, which proved more of a tract than a novel. Christopher Isherwood sustained but did not increase his reputation with *Prater Violet* and Henry Green's *Back* disappointed. Mary Lavin won notice with *The House in Clewe Street* and Walter Allen with *Rogue Elephant*. The reverse of subdued was the painter Mervyn Peake's *Titus Groan*, as startling in its magnitude as in its bid to out-revive the Gothic revival with a work of castellations and gargoyles. Among several translations, Cyril Connolly's version of Albert Camus's *The Outsider* introduced the existentialist novel to Britain.

Short stories, an increasingly popular art form, were numerous and of high quality. They included Elizabeth Bowen's *The Demon Lover*, N. Heseltine's *Tales of the Squirearchy*, Rosamund Lehmann's *The Gipsy's Baby* and the slick *Better Than a Kick in the Pants* and *Nine Men of Soho*, by J. Maclaren Ross. V. S. Pritchett added to his reputation as a leading English master of the medium with *It May Never Happen and Other Stories*. Short stories rather than poetry distinguished the increasing number of little reviews. *New Writing and Daylight*, *Penguin New Writing* and *Transition* were joined by *The Windmill*, *Orion* and other collections of mixed importance. A more serious review, *Polemic*, was also launched.

Poetry published included Edwin Muir's *The Voyage and Other Poems*, a work of merit, Dorothy Wellesley's *Desert Wells*, Gavin Bone's *Beowulf in Modern Verse*, Robert Graves's *Poems 1938-45*, a work of studied craftsmanship, Henry Reed's *Map of Verona*, Geoffrey Grigson's *The Isles of Scilly* and V. Sackville-West's slender *The Garden*. Most interesting of all was the appearance of *Deaths and Entrances*, by Dylan Thomas, poems remarkable for their intensity and compact structure.

Among biographies and memoirs, many were grateful for a *Shorter Ego*, I and II, by James Agate. Richard Aldington's *Wellington* failed to become the standard biography and Edmund Blunden published a learned but unadventurous book on Percy Bysshe Shelley. D. B. Wyndham Lewis wrote richly on Pierre de Ronsard, and also on James Boswell in *The Hooded Hawk*. Statesmen's lives were recorded in such "premature obituaries" as Trevor Evan's *Bevin* and R. Broad's *Winston Churchill, 1874-1945*. The most publicized biography of the year, Professor Keith Feiling's *The Life of Neville Chamberlain*, suffered from a prose style lacking the clarity which that statesman most admired. More notable, Sir Osbert Sitwell published the second volume of his autobiography, *The Scarlet Tree*, sustaining a delicacy of style appropriate to a record of a past age, and Bishop D. Mathew's *Acton: The Formative Years* was a major work on a great Victorian.

In *The Mind of Heart and Love* Father M. C. d'Arcy made an important contribution to religious psychology. Robert Graves and H. J. Schonfield treated learnedly of the beginnings of Christian history in *King Jesus* and *The Jew of Tarsus*. Historical works included Harold Nicolson's *The Congress of Vienna, a Study in Allied Unity, 1812-1822*, a title not without irony, the profound and moving *The Discovery of India*, by Jawaharlal Nehru and C. V. Wedgwood's *Velvet Studies*. Rose Macaulay's *They Went to Portugal* was a fascinating chronicle.

Forrest Reid published *Milk of Paradise*, essays on poetry ranging from William Wordsworth to Robert Bridges and Walter de la Mare; Professor L. C. Knights published *Explorations*, J. Lavin *An Introduction to the Russian Novel* and Dr. H. Granville Barker (who died in August) a preface to *Othello*. Other books included Roy Fedden's *Syria*, which was outstanding for its sympathetic and informed portrayal of a difficult country, Stephen Spender's report on Germany, *European Witness*, and C. Benn's *Mozart on the Stage*. Norman Douglas's *Late Harvest* appeared as a leisurely epilogue to his many works. Art books were more notable for their reproductions than their texts. Professor T. Bodkin, however, published *The Approach to Painting*, a work of sensibility save for aberrations in the final chapter.

The year was, above all, distinguished by the appearance of the long-awaited *History of Western Philosophy*; monumental and comprehensive, though in part controversial, it was worthy of Bertrand Russell's prestige. (See also AMERICAN LITERATURE; BOOK PUBLISHING.) (F. G. G.)

Entomology. The teaching of entomology in colleges and universities, like all other sciences, was greatly stimulated by the G.I. Bill of Rights following the close of World War II. As graduate students the veterans were a high type. They knew what they wanted and worked hard to attain their aims. These serious-minded, somewhat over-aged scholars, were making records such as had never been made before. They were the makings of what promised to be the best-trained and most reliable and conscientious group of Ph.D.'s ever graduated in the history of higher education. They raised the levels of graduate work and the standards of educational training and responsibilities.

What was apparently the first short course embracing pest



TURBINE BLOWER being used experimentally in July 1946 to spray trees with DDT insecticides for the control of gypsy moth caterpillars and other defoliating insects

control problems of sanitary inspectors and other public and private agencies interested in that general field was held April 29 to May 3, 1946, at Purdue university, Lafayette, Ind. There were 87 registrants from 17 different states. The school was under the direct supervision of Prof. J. J. Davis, head of the department of entomology.

Insects of the Year.—A nation-wide survey of the distribution of the potato tuber moth, *Gnorimoschema operculella* (Zeller), resulted in the finding of the insect in the field or in storage in 26 states. This was a much greater spread than had generally been realized and the report was expected to have an important influence in determining quarantine regulations governing the movements of potatoes in the future.

The lesser migratory locust, *Melanoplus mexicanus* (Sauss.), comprised about 75% of the locusts and grasshoppers which migrated over the entire areas of southern Arizona and Texas in the latter part of May. Cool rainy weather retarded development in southern California.

The development of the European corn borer, *Pyrausta nubilalis* (Hbn.), was ahead of normal the latter part of May in Indiana, Illinois, Kentucky and Iowa. Heavy infestations by the middle of July were reported in New York.

Severe infestations of the Hessian fly, *Phytophaga destructor* (Say), occurred in parts of Kansas, Oklahoma, Illinois and Kentucky.

Heavy infestations of the plum curculio, *Conotrachelus nenuphar* (Hbst.), were reported from parts of Georgia, North Carolina, Mississippi, Virginia, Kentucky, Indiana and Illinois with considerable abundance of the weevil in New Jersey, New York and Missouri.

The Mexican bean beetle, *Epilachna varivestris* (Muls.), was abundant and destructive in parts of Florida, Alabama, Georgia and South Carolina. Its northward distribution reached Long

Island, N.Y. It was discovered on beans in Ventura county, Calif., July 22, 1946. It was later found at considerable distances from the focal point of infestation and strenuous attempts were made to eradicate the insect. A new infestation was also found north of Gainesville, Fla.

The citrus white fly, *Dialeurodes citri* (Ashmead), was unusually abundant on gardenias in the Norfolk district of Virginia.

Several colonies of *Kaloterms snyderi* (Light), were found in Forrest county, Miss.

The European red mite, *Paratetranychus pilosus* (C. & F.), was most abundant and destructive on record in western New York. It was also abundant in fruit orchards in the Hudson valley, N.Y., and in New Jersey, Virginia, southern Indiana, western Kentucky, western Tennessee, northeastern Georgia and middle California.

An introduced species of thrips, *Dendrothrips ornatus* (Jabl.), was discovered on privet at College Park, Md.

A new infestation of the vegetable weevil, *Listroderes obliquus* (Klug), was discovered infesting tomatoes and tobacco at Murfreesboro, Tenn., in June.

Because of the drought several species of cutworms, including the red-backed cutworm, *Euxoa ochrogaster* (Guén.), and the pale western cutworm, *Agrotis orthogonia* (Morr.), were very injurious to wheat, barley and pear in Manitoba and Saskatchewan, Canada.

June beetles, *Phyllophaga anxia* (Lec.), and *P. fusca* (Froe.), were quite abundant and injurious in Ontario.

Wireworms, especially *Ludius aereipennis destructor* (Br.) and *Agriotes mancus* (Say), caused serious damage in western Saskatchewan and southern Ontario.

The sweet clover weevil, *Sitona cylindricollis* (Fabr.), heavily damaged sweet clover in northwestern Manitoba.

Flea beetles, *Phyllotreta* spp., and *Epitrix cucumeris* (Harris), were abundant and very injurious to field and vegetable crops in many parts of eastern Canada and were especially numerous on Prince Edward Island.

The elm leaf beetle, *Galerucella xanthomelaena* (Schränk), found for the first time at St. Catharines, Ontario, had spread more than a mile in extent.

The satin moth, *Stilpnotia salicis* (Linn.), increased its spread and injury in New Brunswick. The introduced parasite, *Apanteles* sp., was increasing rapidly and following the progress of the moth.

The forest tent caterpillar, *Malacosoma dissstria* (Hbn.), and the western tent caterpillar, *M. pluvialis* (Dyer), were prominent and destructive in western and south central Canada.

The hemlock looper, *Lambdina fiscellaria lugubrosa* (Hulst.), caused severe defoliation of west coast hemlock and Douglas fir in the coastal areas of British Columbia.

One of the heaviest infestations for many years of the larch casebearer, *Coleophora laricella* (Hbn.), occurred throughout southern Ontario.

The worst outbreak of the black fly, *Simulium arcticum* (Mall.), in the history of the cattle industry in Saskatchewan, occurred in the first half of June. Losses from sickness and death were heavy.

A severe and destructive locust invasion occurred in Sardinia during the summer of 1946. The Moroccan locust, *Dociostaurus moroccanus* (Thunberg), which occurs throughout the Mediterranean region and ranges east into northern Persia and Turkestan, has often wrought devastation in those areas. Clouds of winged adults were still to be seen in August after which the locusts disappeared. It was estimated that one-tenth of the grain crop was destroyed by the insects. To assist the Sardinians in their struggles to save their crops, the United Nations

Relief and Rehabilitation administration provided nearly 300 vehicles and flew supplies of the deadly new insecticide gam-mexane or "666" from England.

Insecticides.—DDT (dichloro-diphenyl-trichloroethane) and sabadilla, rarities two years previously, were among the regulars in 1946. DDT was generally used throughout the U.S. during the year for codling moth on apples and pears; oriental fruit moth on peaches; bollworm on cotton; lima bean pod borer on bush lima beans; grapeberry moth on grapes; Colorado potato beetle and flea beetles on potatoes; insects attacking livestock and poultry (flies, mosquitoes, lice, fleas, sheep ticks, etc.); household insects (flies, mosquitoes, lice, silverfish moths, cockroaches, ants, etc.); grape leaf hopper, beet leaf hopper, lygus bugs on alfalfa, cotton, lima beans and other field crops; onion thrips, bean thrips, grass thrips, citrus thrips and many other insects.

Never before had there been so many insecticide formulations for the treatment of livestock and pests for the control of flies, mosquitoes, lice, mites, ticks, etc. These included (1) DDT, usually applied at 2.5% dilutions as wet-table water sprays and dips. Oil sprays were being extensively advocated for the same purpose although there was some evidence of injuries caused by these oil-soluble materials. DDT was also applied as a smoke or vapour directly to the animals and to buildings and pastures—the latter chiefly for the elimination of mosquitoes. (2) DDT was being extensively recommended for the treatment of livestock. (3) Lethane, in many formulations, was being widely tested and used for livestock sprays as well as for general insecticides and fungicides.

Velsicol 1068 was a new insecticide which gave promise for the control of household insects as well as for the control of some insects infesting agricultural crops.

Hexachlorocyclohexane (benzene hexachloride, gammexane, or "666") was one of the favoured new insecticides in Great Britain. It had been extensively experimented with in North America and elsewhere for two years. It was therefore becoming better known and its place as an insect spray and dust was gradually being determined. Its disagreeable odour, which had not yet been successfully eliminated, restricted its uses on berries, fruits, leafy vegetables and similar crops.

Thanite and Thanasol 70 are water-miscible sprays especially designed for livestock. Mixed with DDT they were recommended for a quick knockdown of flies in barns, milkhouses, warehouses and human habitations.

Following the cessation of hostilities the insecticide situation cleared somewhat. The most noticeable deficiencies during 1946 were nicotine and rotenone compounds. The adoption of DDT was most rapid—so much so that the large war stock pile was apparently completely depleted and after mid-summer the material was at times difficult to obtain. The small package trade in this material was unprecedented. In California alone more than 500 different trade brands were offered for sale by almost every type of retail business throughout the entire state. A similar situation occurred throughout the United States.

According to the Nov. 1946 reports, the supply of various insecticides for the winter of 1946-47 was as follows: borax—adequate; calcium arsenate—uncertain; calcium caseinate—tight; cresols and cresylic acid—tight; cryolite—tight; DDT formulations—adequate; dinitro compounds—tight; fish oil soaps—tight; cyanide—adequate; ethylene dichloride—tight; methyl bromide—adequate; chloropicrin—adequate (but tightening); carbon bisulphide—tight; paradichlorobenzene—tight; carbon tetrachloride—tight; lead arsenate—tightening; nicotine—tight; oils (soluble and spray)—adequate; Paris green—adequate; phenols—tight; pyrethrum—ample; rotenone—improving; sabadilla—critical; sulphur—adequate; wettable spreaders, dispersants and emulsifying agents—tight.

Fumigants.—Methyl bromide continued to gain favour for fumigating plant materials such as nursery stocks, potatoes, vegetables, fruits, stored cereals, nuts and seeds, and for rodent control. Its handling and application had been made safer and greatly simplified by many types of easily-regulated containers.

An emulsion of the fumigant, dichlorethylether, was being recommended for dormant soil treatment for the control of the plum curculio and other subterranean insect larvae; in a water solution for wireworms, white grubs, sodworms, and lawn moths and in a mineral oil for corn-ear worm control.

Ethylene dibromide was rapidly gaining favour for the control of wireworms and nematodes in the soil. Specially-constructed powered soil applicators enable the effective treatment of large acreages of bare land.

The following fumigant mixtures were found useful: (1) a mixture of ethylene or propylene dichloride with carbon tetrachloride and methyl bromide, especially for bulk storage of grain, beans, peas and other seeds; (2) a mixture of ethylene dichloride (75%) and carbon tetrachloride (25%) for grain and seeds; (3) a mixture of methyl bromide in combination of some of those indicated above for soil treatment; a mixture of dichloropropane-dichloropropene for soil nematodes; the last two mixtures dissipate rapidly and will permit planting within 4 or 5 days; (4) ethylene oxide and carbon dioxide were extensively employed for industrial fumigation.

Ethylene dichloride emulsions were successfully used for the control of the eastern peach tree borer and for other wood borers and as soil fumigants.

Outstanding New Entomological Publications.—*Insect Pest Survey*, U.S. department of agriculture bureau of entomology and plant quarantine, was well under way again; S. J. Carpenter, W. W. Middlekauff and R. W. Chamberlin, "The Mosquitoes of the Southern United States East of Oklahoma and Texas," *Am. Midl. Nat. Mon.*, No. 3; Edward A. Steinhaus, *Insect Microbiology*; Cynthia Westcott, *The Gardener's Bug Book*; R. A. Kellogg, "A Century of Progress in Smithsonian Biology," *Science*, 104, No. 2693, 132-141 (Aug. 9, 1946). The National Research council, Insect Control committee, Washington, D.C., issued a number of important abstract bulletins dealing especially with insecticides and their uses in the control of insect pests and rodents. (E. O. E.)

Entomology and Plant Quarantine, Bureau of: see AGRICULTURAL RESEARCH ADMINISTRATION.

Enzymes: see BIOCHEMISTRY.

Epidemics and Public Health Control.

Viral infections of the respiratory tract may be spread by direct contact and by air-borne transmission since the virus may float in the air. This latter means of spread is more common. The viral diseases may attack any part of the respiratory tract. A final classification of viral diseases could not be made with the limited knowledge available up to the close of the year. Except for influenza, specific preventive measures were not available. Specific therapeutic measures did not exist for the entire group. Management had to be suited to the needs of the patient.

Army and navy statistics for World War II revealed a total of 572,950 reported admissions for malaria. If reporting were complete there would probably have been closer to 1,000,000 admissions. Outstanding developments were:

(a) Quinacrine hydrochloride which afforded complete protection against *Plasmodium falciparum* and temporary protection against *Plasmodium vivax*. However, it stained the skin and needed daily administration. (b) Chloroquine needed only weekly administration, did not stain the skin. It afforded complete protection against *falciparum* and temporary protection against *vivax*. (c) There was still a need for a drug for the *vivax* type. Searches were being made. The drugs developed by the end of 1946 had certain disadvantages.

W. J. Morginson reviewed the literature on penicillin and pointed out that the drug might produce toxic reactions as: (a) direct toxin and primary irritant, (b) antigen, (c) therapeutic shock excitant and (d) indirect action on pathologic processes. It seemed from this article that penicillin should not be used indiscriminately (as it was sometimes used).

Lewis B. Flynn, *et al.*, in an excellent study pointed out that para-aminobenzoic acid was found effective in the treatment of ten cases of Rocky Mountain spotted fever. Controls were used for comparison. Other rickettsial diseases were favourably treated with this drug.

Regarding the antibiotic drugs, there was a large decline in mortality of the degenerative cardiac, renal and other diseases as a result of the control of incidental infections.

Penicillin, as distributed in 1946, contained about 95% G. There were at least four chemical types, G, X, F and K, which appeared in varying combination and proportion. Strains of group A haemolytic streptococci, pneumococci, gonococci and meningococci were from two to eight times more sensitive to the penicillin X than to penicillin G.

Streptomycin seemed to be of most value when used for certain infections of the urinary tract with gram-negative bacteria, for clearing the intestine temporarily of certain gram-negative bacteria, for tularaemia, for *Haemophilus influenzae* meningitis, for bacteraemia with gram-negative bacilli and for certain infections of wounds.

Streptomycin seemed to have a limited suppressive effect in tuberculosis. Other antibiotic substances were being investigated in tuberculosis such as mycoidin which has a bactericidal effect on this germ.

Determination of the means of spread of poliomyelitis continued a confusing problem. Several publications tended to clarify the doubt, including the work of A. E. Casey, W. I. Fishbein and H. N. Bundesen, which showed the probability that poliomyelitis was highly contagious in children under three and one-half years and that patient-to-patient contact was the biggest factor in the spread.

Gamma globulin was found effective in prevention of infectious epidemic hepatitis. (See also BACTERIOLOGY; ENTOMOLOGY.)



ATTENDANT preparing serum in a public health tent on a Tokyo street in 1946. For a nominal charge residents could have chest X-rays and be immunized for cholera, tuberculosis, whooping cough and smallpox. It was part of a program set up by the Metropolitan Rehabilitation league and the Association for Tuberculosis Prevention, assisted by medical students of the Japanese Doctors federation

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Episcopal Church: see PROTESTANT EPISCOPAL CHURCH.

Eritrea: see ITALIAN COLONIAL EMPIRE.

Espionage: see FEDERAL BUREAU OF INVESTIGATION.

Estonia. One of the Baltic states of northeastern Europe, north of Latvia, south of Finland, 16th republic of the U.S.S.R. Area, 18,371 sq.mi.; pop. (est. 1939) 1,122,000.

Chief towns: Tallinn (capital, 146,400); Tartu (60,100); Narva (24,200); Nõmme (19,700); Pärnu (21,500). Language, Estonian, a Finno-Ugrian tongue. Religion, Christian (Lutheran 78%, Greek Orthodox 19%). Chairman of the council of ministers in 1946: A. Veimer.

History.—Estonian citizens both at home and abroad continued to live in an anomalous situation through 1946. Internally Estonia functioned as the 16th republic of the U.S.S.R., yet both Great Britain and the U.S. carefully refrained from recognizing this sovietized status of Estonia and its sister Baltic republics of Latvia and Lithuania, and many of the Estonian diplomats of the independent state of 1939 continued in their positions abroad.

The shuttle of fate had indeed dealt strangely with the small republic. The U.S.S.R. demanded strategic bases in the country on Sept. 29, 1939, and occupied the land in June 1940. Elections of July 1940 approved the entry of Estonia into the U.S.S.R. A year later German armies overran the country. By Nov. of 1944 the soviets had reconquered the land from the Germans and the position of 1940-41 was resumed. The soviets felt that the elections of 1940, plus the previous centuries of Russian rule in Estonia, fully justified the new arrangements. But many of the people, passionately attached to independence, abhorred the soviet as well as the German control. Hundreds had escaped to Sweden during the war; thousands had gone in forced labour groups to Germany. The United Nations Relief and Rehabilitation administration estimated that in 1946 there were 29,978 Estonians in the U.S., French and British zones of occupied Germany—and most of these men and women did not want to return to soviet Estonia. Further unknown numbers had been transported into central Russia and Siberia during 1940-41 and later.

Particularly dramatic was the flight to the U.S. from Sweden of 47 Estonian refugees and one Finn. They sailed in small boats: the 38-ft. sloop "Inanda" arrived Aug. 21 at Miami, Fla., with 18 persons aboard; the 40-ft. "Brill" arrived on Sept. 19 with 12; the "Linda" reached port on Sept. 28 with 18. Men, women and children had crossed the Atlantic safely by the southern route. Immigration laws then denied them entrance to the U.S. and for weeks they waited until Pres. Truman, spurred on by aroused public sentiment, on Nov. 2 authorized the little band to stay until "in due course" immigration visas could be obtained for them. Sixteen others had in similar fashion reached Norfolk, Va., on Dec. 15, 1945. Gifts of canned goods, fruit and milk piled up; offers of jobs and land were numerous; and a Miami woman fell in love with one of the men and married him. The courage and faith of the group had won the hearts of the U.S. people.

Education.—There were 1,224 elementary schools, 58 middle schools, 39 technical schools and 30 agricultural schools in 1937-38. Tartu (the former famous Dorpat) university had 3,219 students and 217 professors. Despite wartime disintegration the soviet regulations continued to require universal education.

Trade and Communication.—Imports in 1939 totalled 101,351,000 kroons (the kroon at par was worth 26.7 U.S. cents); exports in 1939 were valued at 118,217,000 kroons. Principal imports were raw cotton, sugar, woollen yarns and thread, iron and steel. Principal exports were butter, wood, paper, cotton goods, cellulose, flax and tow, meat products and eggs. Imports were chiefly from Germany, Great Britain, Sweden, the U.S. and the U.S.S.R. Exports went chiefly to Great Britain, Germany, Finland, the U.S. and Sweden.

Agriculture.—Production of the leading crops for the year 1940-41 was as follows: wheat, 760,000 quintals; barley, 830,000; rye, 1,910,000; oats, 1,480,000; potatoes, 10,470,000. As

of 1938 the livestock census listed: cattle, 660,890; sheep, 649,730; pigs, 384,580; horses, 219,020; chickens, 1,596,570. There were 40,000 landless peasants reported to have received land in 1945-46.

Manufacturing and Mineral Production.—The value of all manufactured goods in 1937 was 166,238,000 kroons, nearly one-third of which was the product of the great cotton mill at Narva. One of the first postwar projects was to get at least 25,000 spindles of that plant operating again; it was one of Europe's largest mills. Shale oil production had risen rapidly to 209,437 short tons in 1939. Approximately 60,000 people were employed in industry in 1938. Industrial production in 1946 was reported up 58.4% above 1945, and electric power was greater than prewar.

As in Latvia, great efforts were being made in 1945 and 1946 to rehabilitate industry, and factories, shipyards, lumber mills and machine plants were resuming operation.

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Etching. With the return of artists all over the world from military service to civilian life, 1946, the first postwar year, showed a marked increase of activity in the field of etching, as in all other branches of pictorial art. Societies which had virtually suspended operation during the war years resumed their usual functions, exhibitions that had been given up were renewed and multiplied and publication of new work was made by many artists of established reputation who had long been absent. Although the art of etching reflected the altered conditions attendant upon a return to normalcy, the change was less generally apparent in it than in other forms of creative expression. An examination of the whole history of the art from the 16th century to the present day will reveal that this was natural and consistent. Of all forms of graphic art it is, by the very nature and process of the medium, the most highly technicalized and therefore the more difficult of mastery. Its very exactions tend to discourage the would-be worker in its field and only the serious minded who possess a natural affinity for the process and for its particular form of expression are drawn to it and remain to adopt it as their chosen medium.

With the great and determining role the U.S. played in the universal upheaval that was World War II, the advent to its shores of so many artists of various nationalities, the availability of materials and facilities denied to artists of other lands and the variety and unlimited range of subject matter offered by it, that country became, in 1946, virtually the capital of the world in graphic art. Etching, however, changed little, for, though the freest and therefore the most autographic of all the pictorial arts, the technical difficulties of the medium render it less susceptible to influences of the moment than are others at the service of the more casual and undisciplined worker. Hence the so-called "modern" movement has found many more supporters and practitioners among serious artists in other fields than it has in that of etching, which, of all, has most consistently conformed to a single great tradition throughout its history.

The usual large national print exhibitions were held in the U.S. during 1946, with that of the Library of Congress, open to printmakers working in all media, and of the Society of American Etchers, open to workers in those of the metal plate only, being the most comprehensive and representative. A newly organized national print competition, sponsored by the Associated American Artists, provided a fresh stimulus to the increasingly widespread interest in, and appreciation of, the art. More regional exhibitions were conducted by the Chicago Society of Etchers, the Southern Printmakers, the Print Makers Society of California, the Northwest Printmakers, the California Society of Etchers, the Prairie Print Makers and others. There was



"BROOKLYN LANDSCAPE" by Stephen Csoka was the Society of American Etchers associate membership presentation print for 1946

apparent in these exhibitions, as was the case after World War I, a reaction against subjects inspired by the war and by social consciousness, and a return to more traditional subject matter.

The world of American etching lost three distinguished representatives in 1946 in the persons of Kerr Eby, Frederick G. Hall and Albert Sterner, the last named one of the oldest practising printmakers in the country. Outstanding among American etchers during the year were Isabel Bishop, Cornelis Botke, Samuel Chamberlain (but recently returned from military service overseas), Federico Castellon, John E. Costigan, Stephen Csoka, Ralph Fabri, Isac Friedlander, Sue Fuller, Douglas W. Gorsline, Elias M. Grossman, Harold M. Hahn, Stanley W. Hayter, Arthur W. Heintzelman, Eugene Higgins, Irwin D. Hoffman, Alfred Hutty, Max Jaediker, Gene Kloss, Luigi Lucioni, Blanche McVeigh, J. Jay McVicker, Jackson Lee Nesbitt, Martin Petersen, Fermin Rocker, Ernest D. Roth, Carl M. Schultheiss (equally eminent in the field of engraving), Sam Thal, Reynold H. Weidenaar, Keith Shaw Williams and George H. Wright.

The loss of Sir Frank Short and Sir David Young Cameron, coupled with the transfer of James McBey to U.S. citizenship, left vacancies in the ranks of British etchers not likely to be filled. However, many outstanding performers remained to carry on the great tradition and high standards of the English school in 1946, among them the veterans Winifred Austen, Robert Austin, Katharine Cameron, Paul Drury, W. Russell Flint,

H. A. Freeth, Sydney Lee, W. Westley Manning, W. P. Robins, D. I. Smart, Eric Taylor and Henry Wilkinson. More recent in the field were John M. Aiken, Anna Airy, Ruth Aspden, Wendela Boreel, Denise L. Brown, Eveleen Buckton, R. E. J. Bush, Alan Carr, Esmé Currey, W. D. Brokman Davis, Greta Delleany, R. Stanley G. Dent, E. G. Earthrowl, W. Fairclough, R. R. Gill, E. H. Groom, Jean Harper, Hazel W. Harrison, Erlund Hudson, Gwen May, John C. Moody, John Nicholson, Russell Reeve, Marion Rhodes, R. Spence, C. H. Spencer, Sara Sproule, C. W. Taylor, E. Heber Thompson, Harold Thornton, and Leslie Ward. The two principal annual British print exhibitions, those of the Royal Academy and the Royal Society of Painter Etchers and Engravers, the latter including in its ranks all the more important etchers of the country, took place as usual.

After the cessation of hostilities French etchers were very active, though many of them, like the burinists, were chiefly engaged in book illustration. H. G. Adam, Yves Alix, Jean Deville, Anthony Gross, Joseph Hecht, André Jacquemin and Charles Walch, all members of "La Jeune Gravure Contemporaine," published independently in 1946.

The Society of Canadian Painter-Etchers, under the able and progressive leadership of Nicholas Hornyansky, and with headquarters in Toronto, continued its normal activities in 1946. Prominent etcher members were Wendell P. Lawson, Wilbur K. Peacock, Dr. E. B. Sisley, Harry D. Wallace and W. J. Wood. A truly national group, these artists did much to bring to their fellow countrymen not only a consciousness of fine prints but

also a greater realization of the unusual natural beauties of their land.

Conditions were still too chaotic throughout the rest of the world for any appreciable amount of significant work in bitten line to emerge from the afflicted countries, though a considerable group of etchers in Sweden, a few in Norway and isolated individuals in Italy, Australia, Mexico, Uruguay and Argentina, produced interesting prints during the year. (J. T. AR.)

Ethical Culture Movement. A religious and educational movement emphasizing the centrality of ethics in human relations, started in New York city in 1876 by Felix Adler, and established ten years later in London by Stanton Coit. In 1946 societies were active in New York city, Westchester, Brooklyn, Philadelphia, St. Louis and Chicago, and groups were meeting regularly in Washington, D.C., and New Jersey. There were four societies meeting in London and one in Birmingham, England. Contact was re-established with the remaining members of the Vienna society which, as was the case with the Berlin group, had been suppressed by the nazis.

The Ethical Culture societies conduct Sunday and weekday services and a variety of educational and community activities. University Settlement, the first neighbourhood house in the United States, was an enterprise of the movement, which was also responsible for significant efforts in child labour reform, visiting nurse associations, legal aid societies, housing, race relations, child study and progressive education. During the year the movement celebrated its 70th anniversary with special conferences and institutes on religion and public education, labour-management problems and international relations. The English and U.S. societies devoted themselves to training of youth for democratic citizenship, spearheaded in the U.S. by a six-weeks' Encampment for Citizenship. This encampment, held at the Fieldston school of the Ethical Culture schools in New York, brought together young people of diverse religious, national, economic and educational backgrounds from all parts of the country, and was devoted to intensive study and discussion of key problems and techniques of democratic living. Extensive programs in adult education, fuller realization of Negro rights and efforts aimed at the improvement of the public school system were among the activities of the various societies. The Conference on the Scientific Spirit and Democratic Faith held its annual meeting at the meetinghouse of the New York society.

Exposition of the movement's principles was to be found in Felix Adler's *An Ethical Philosophy of Life*, David Saville Muzzey's *Ethical Religion* and Horace J. Bridges' *Some Aspects of Ethical Religion*. *The Standard*, edited by George E. O'Dell, was published each month at 2 West 64th St., New York 23, N.Y. The American Ethical union, of which Robert D. Kohn was president in 1946, had offices at the same address. The offices of the English Ethical union, of which John Laird was president, and H. J. Blackham executive secretary (1946), were at 4A Inverness Terrace, London W2. (J. NN.)

Ethiopia. A kingdom of northeast Africa. Area: c. 350,000 sq.mi.; pop. (est. Dec. 31, 1939): 9,500,000; cap. Addis Ababa; religion: Christian (Copt) and Mohammedan; languages: Amharic and Arabic; ruler: Emperor Haile Selassie I.

History.—Ethiopia made great progress during 1946. A Land act, establishing a single tax and abolishing all feudal charges, and an agricultural credit bank opened a new era of prosperity for the peasant. Industry advanced and exports increased. Ethiopian National Air lines, for internal and external transport, were established. The national revenue reached £5,000,000.

Ethiopia was represented at United Nations conferences in

London and New York. At the Paris Peace conference it was awarded £6,250,000 reparations from Italy. Its delegates claimed the ex-Italian colonies, Eritrea and Somaliland, formerly Ethiopian provinces, and presented a memorandum showing how they would be administered under Ethiopian government. Great demonstrations for this reunion assembled repeatedly in Ethiopia and in the ex-colonies. Ethiopia presented 110,000 short tons of cereals and 66,000 short tons of coffee to U.N.R.R.A.

Emperor Haile Selassie laid the foundation stone of the Princess Tsehaye Memorial hospital on June 6, and on July 23 unveiled a memorial to Bishop Petros, who was executed by the Italians for refusal to sign an act of submission.

Ethiopia became an independent archbishopric of the Alexandrine Christian church and would elect its own patriarch. A Holy Synod was to be formed in Ethiopia. The archbishop of York visited Addis Ababa bearing a letter of greeting signed by himself and the archbishop of Canterbury.

Appointments included: Ras Imru, the emperor's cousin, to be Ethiopian minister in Washington; Blatta Ephrem Medhen, minister in London; Ato Tesfaye Tegagne, minister in Paris; Ato Makonnen Desta, president of the chamber of deputies; Ato Abeba Retta, minister of health.

Education.—Scholars in government schools (May 1946) 34,000; in Ethiopian Christian church schools 47,500. Government schools were elementary, secondary (seven in Addis Ababa alone), teacher-training, commercial, technical, arts and crafts, agricultural and theological.

Trade and Communication.—Chief exports: hides and skins, coffee (14,300 short tons in 1937–38) and gold. Roads (1940) c. 4,340 mi.; railways (Addis Ababa to Jibuti in French Somaliland) 486 mi. (E. S. Pr.)

European War: see WORLD WAR II.

Evangelicals, National Association of: see NATIONAL ASSOCIATION OF EVANGELICALS.

Evatt, Herbert Vere (1894–), Australian statesman, was born April 30, in East Maitland, New South Wales. He studied at St. Andrew's college and won his degree as doctor of philosophy from Sydney university in 1924. He practiced law in New South Wales, became justice of the federal high court of Australia and left the bench in 1940 to enter politics. Elected to the Australian parliament on the Labour party ticket (1940), he was appointed attorney general and minister of external affairs in the first Curtin cabinet in Oct. 1941.

During World War II he insisted on Australia's right to sit in the Pacific War council as a co-equal to Britain and the U.S. He was the Australian delegate to the United Nations conference in San Francisco in 1945 and soon established himself as a champion of the small "voiceless powers" and as a vigorous critic of the veto, and on Nov. 16, 1945, he called for a "more democratic procedure."

In 1946 Evatt attended the U.N. conferences in New York and the Paris peace conference, at which he continued his campaign against the veto. Later, he emphasized that while he was not opposed to the principle of unanimity itself, he did object to what he termed the abuse of the veto in practice.

Events of the Year: see CALENDAR OF EVENTS, 1946, pages 1–16.

Exchange Control and Exchange Rates.

Although 1946 was a year of relative stability in exchange rates, it was amply evident that the dollar value of many cur-

rencies was maintained only by means of strict controls which marshalled the supply of foreign exchange and rationed its use. It was also evident that the need for such controls in some countries might become greater once the sellers' market in world trade disappeared unless adjustments of exchange rates were made. Considerable attention, therefore, was focused on the establishment of the International Monetary fund and on its decisions concerning the initial par values of the currencies of member countries. A first step in the direction of greater convertibility of currencies was taken with ratification of the Anglo-U.S. financial agreement.

Several exceptions to the general condition of stability occurred during the year. Most notable among these were the hyperinflation in Hungary, which was brought to an end by the establishment of a new currency; continued severe depreciation of the currencies of Rumania and China; downward adjustments in the value of the Greek drachma, Italian lira and Turkish pound and, in sharp contrast to these, the increasing strength of the Canadian dollar and Swedish krona, which led to a writing up of their exchange value.

On Dec. 18 the International Monetary fund announced that it had

accepted initial par values based on existing exchange rates for all but 9 of its 39 member countries. Eight countries—Brazil, China, the Dominican Republic, Greece, Poland, Yugoslavia, France in respect to French Indo-China and the Netherlands in respect to the Netherlands Indies were granted more time to determine their initial par values; and decision on the ninth, Uruguay, was postponed "pending the completion of certain legislative proceedings" in that country. In its statement announcing these decisions the fund recognized that in many instances existing exchange rates did not serve to equilibrate national price and wage levels and that subsequent exchange adjustments might be required. The price disparities involved at existing rates were regarded as of little significance, however, so long as they did not serve as a brake on exports. Moreover, imports for reconstruction were so badly needed by many countries that selective controls were preferable to the blanket effect of raising the price of foreign currencies. Such countries were usually faced also with the danger of internal inflation, which would only be aggravated by currency devaluation. Finally, it was expected that price disparities would tend to diminish as productivity was restored in the war-ravaged countries. Exchange rate adjustments could, therefore, be made more wisely and with greater benefit after this transition period was completed.

The fund announced that it would begin exchange transactions on March 1, 1947, at the initial par values indicated. It was likely that the fund would have to meet a strong demand for U.S. and Canadian dollars. The theoretical limit on drawings from the fund during the first 12 mo. of operations would be \$760,000,000, or its equivalent in other currencies (excluding the drawing rights of the United States, Canada, United Kingdom and Union of South Africa, countries which might be regarded as least likely to exercise their rights). This figure would be increased as new members were accepted into the fund—the immediate entrance of Italy, Turkey, Syria and Lebanon being conditional only upon legislative action within each country.

Establishment of the fund did not mean that all exchange controls were to be abandoned. On the contrary, the articles of agreement authorized "such controls as are necessary to regulate international capital movements," providing payments for current transactions were not restricted (and the latter limitation might be held in abeyance during the postwar transitional period and subsequently be lifted under special circumstances). A number of member countries, therefore, made arrangements in 1946 for placing emergency controls on a more permanent basis—among them Canada, Czechoslovakia and the United Kingdom. The agreement not to restrict the availability of exchange needed for current transactions would in some cases probably lead to greater use of direct import licensing systems, and accordingly it was sought to limit such practices through the proposed International Trade organization.

The Fund Countries.—The United States.—Although the United States initiated no exchange rate changes in 1946 (the dollar price of gold remaining at \$35 per ounce, as communicated to the International Monetary fund on Sept. 18), adjustments made in July by 2 other countries, Canada and Sweden, were primarily for the purpose of writing down the value of the U.S. dollar in terms of their own currencies. This was a consequence of the actual and threatened further rise of internal prices in the United States. Many currencies, however, appeared to be overvalued vis-à-vis the dollar, and the rapid rise of prices in the United States served merely to lessen the degree of overvaluation. Because the United States remained the chief supplier country in the world, the dollar continued to be in great demand and was probably the most widely accepted currency. Par values announced by the fund on Dec. 18 were expressed both in terms of gold and of U.S. dollars, the latter having come to be regarded as an international standard of value.

The list of foreign currencies regularly quoted in New York was expanded during 1946 to include again Czechoslovakia, Denmark, Norway, Portugal, Spain, Sweden and Switzerland. Regular quotations for most central European

Table I.—Initial Currency Par Values For Members of the International Monetary Fund*

Country	Currency	Currency units per U.S. dollar	Country	Currency	Currency units per U.S. dollar
Belgium	Franc	43.8275	India	Rupee	3.30852
Bolivia	Boliviano	42.0000	Iran	Rial	32.2500
Brazil	Cruzeiro	↑	Iraq	Dinar	0.248139
Canada	Dollar	1.00000	Luxembourg	Franc	43.8275
Chile	Peso	31.0000	Mexico	Peso	4.85500
China	CN dollar	↑	Netherlands	Guilder	2.65285
Colombia	Peso	1.74999	Netherlands Indies	Guilder	1.88585
Costa Rica	Colón	5.61500	Surinam and Curaçao	Guilder	1.88585
Cuba	Peso	1.00000	Nicaragua	Córdoba	5.00000
Czechoslovakia	Koruna	50.0000	Norway	Krone	4.96278
Denmark	Krone	4.79901	Panama	Balboa	1.00000
Dominican Republic	↑	↑	Paraguay	Guarani	3.09000
Ecuador	Guine	13.5000	Peru	Sol	6.50000
Egypt	Pound	0.241955	Philippines, Republic of the	Peso	2.00000
El Salvador	Colón	2.50000	Poland	Zloty	2.048139
Ethiopia	Dollar	2.48447	Union of South Africa	Pound	0.248139
France	Franc	119.107	United Kingdom	Pound	0.248139
Possessions in Africa (exc. N. Africa)	CFA franc	70.0628	British West Indies	BWI dollar	1.19107
Possessions in the Pacific	CFP franc	49.6278	British Honduras	BH dollar	1.00000
French Indo-China	Piastre	↑	Hong Kong	HK dollar	3.97022
Greece	Drachma	↑	Malaya	Mal. dollar	2.12691
Guatemala	Quetzal	1.00000	United States	Dollar	1.00000
Honduras	Lempira	2.00000	Venezuela	Peso	↑
Iceland	Króna	6.48885	Yugoslavia	Dinar	↑

*Including important non-metropolitan currencies not at par with the metropolitan currency.

†Determination of initial par value postponed.

‡New currency to be introduced in 1947.

§To be determined in 1947. Venezuela entered the fund after Dec. 18, when initial par values were announced.

Table II.—Foreign Exchange Rates

Note.—Includes only currencies regularly quoted in New York during 1946. Averages of certified noon buying rates for cable transfers in cents per unit of foreign currency.

Country	Unit quoted and type of exchange	1938	1945	1946	March	June	Sept.	Dec.
Argentina	Peso							
	Official	32.60	29.77	29.77	29.77	29.77	29.77	29.77
	Special export	—	25.12	25.12	25.12	25.12	25.12	25.12
Australia	Pound	389.55	321.17*	321.34	321.41	321.41	321.38	321.07
Belgium	Franc	3.38	2.29*	2.28	2.28	2.28	2.28	2.28
Brazil	Cruzeiro†							
	Official	5.84	6.06	6.06*	6.06	6.06	—	—
	Free	—	5.18	5.28	5.18	5.19	5.41	5.41
British India	Rupee	36.59	30.12	30.15	30.12	30.18	30.17	30.15
Canada	Dollar							
	Official	—	90.91	95.20	90.91	90.91	100.00	100.00
	Free	99.42	90.49	93.29	90.75	90.60	96.25	95.44
Colombia	Peso	55.95	57.01	57.02	56.98	57.01	57.01	57.14
Czechoslovakia	Koruna	3.47	—	2.01*	2.01†	2.01	2.01	2.01
Denmark	Krone	21.83	—	20.88*	20.88	20.88	20.88	20.87
France	Franc	2.88	1.97*	.84	.84	.84	.84	.84
Italy	Lira	5.26	—	.44*	.44§	.44||	—	—
Mexico	Peso	22.12	20.58	20.58	20.58	20.57	20.58	20.58
Netherlands	Guilder	55.01	37.93*	37.81	37.80	37.80	37.80	37.79
New Zealand	Pound	392.35	323.46	322.63	322.70	322.70	322.67	322.36
Norway	Krone	24.57	—	20.18*	20.20	20.16	20.16	20.16
Portugal	Escudo	4.43	—	4.05*	4.05	4.05	4.05	4.05
South Africa	Pound	484.16	399.05	400.50	400.50	400.50	400.50	400.50
Spain	Peseta	5.60	—	9.13*	9.13	9.13	9.13	9.13
Sweden	Krona	25.197	—	25.86*	23.85	23.85	27.82	27.82
Switzerland	Franc	22.87	—	23.36*	23.36	23.36	23.36	23.36
United Kingdom	Pound	488.94	403.02*	403.28	403.38	403.37	403.32	402.94
Uruguay	Peso							
	Controlled	64.37	65.83	65.83	65.83	65.83	65.83	65.83
	Noncontrolled	—	55.16	56.28	56.29	56.27	56.27	56.27

*Average of daily rates for that part of the year during which quotations were certified.

†Prior to Nov. 1, 1942, the official designation of the Brazilian currency unit was the milreis.

‡Based on quotations beginning March 9.

§Based on quotations beginning March 22.

||Based on quotations through June 12.

and far eastern currencies were not available.

Foreign short-term dollar balances in the United States (net) declined from \$6,490,000,000 at the end of 1945 to \$5,888,000,000 on Aug. 31, 1946, reflecting the adverse commercial trade balance which the rest of the world had with the United States (\$1,761,000,000 during the first 8 months of 1946). In addition to this decline of \$602,000,000 in foreign-held dollar balances there occurred a net liquidation of long-term U.S. securities held by foreigners in the amount of \$307,000,000. Europe, Canada and Asia together more than accounted for the total decline in both types of dollar assets but were partly offset by Latin America's gains. During the same period the United States added \$278,000,000 to its gold holdings from foreign sources and paid out \$970,000,000 on government credit to foreign countries (excluding lend-lease "pipe-line" and surplus property credits). It seemed apparent that U.S. government lending supplied an important part of other countries' dollar requirements for commercial imports.

Additional dollar funds were made available for use by the unfreezing of assets in the United States belonging to the Netherlands, Czechoslovakia, Luxembourg, Denmark, the Philippines, Greece, Switzerland and Liechtenstein. By the end of the year the only countries whose assets in the United States remained entirely blocked were Germany, Japan, Portugal, Spain, Sweden and Tangier. Countries permitted to transfer the proceeds of current transactions, but not, without special licence, existing assets, included Albania, Austria, Bulgaria, the Baltic countries, China, Hungary, Italy, Poland, Rumania, Turkey and Yugoslavia. Polish assets were to be released entirely as of Jan. 7, 1947, as the result of an agreement announced on Dec. 28. China and Turkey were to be added to the free list on the first day of 1947.

Canada and Newfoundland.—One July 6 the Canadian dollar (which was also the currency of Newfoundland) was restored to parity with the U.S. dollar for the first time after 1939. This involved an appreciation of the Canadian dollar's official exchange value from about 91 to 100 U.S. cents, an increase of about 10%. The timing of this adjustment was clearly influenced by the expiration of price control authority in the United States on June 30. Together with the retention of domestic price and rent controls (wage controls were lifted on Nov. 30) revaluation undoubtedly helped to prevent the spread of rising prices from the United States to Canada. Through the first 10 mo. of the year, the Canadian general index of wholesale prices rose by only 6%, compared with a rise of 25% in the United States. The dampening effect on Canadian exports, which might ordinarily be expected from exchange appreciation, was hardly operative during a year when Canadian products were in such great demand; in fact, the higher price for Canadian currency put upward pressure on world prices of some important Canadian exports such as woodpulp. In order to diminish the adverse effect of a lower price for gold on Canada's important gold-mining industry, however, it was necessary for the government to reduce certain taxes and minting charges.

One of the factors which had contributed to the strength of the Canadian dollar was the very substantial influx of capital funds from the United States. Net withdrawals by U.S. investors for the purpose of profit-taking after the revaluation were probably not substantial but may have partly accounted for the decline in the free rate for the Canadian dollar in New York, following its initial rise from 91 to 98 U.S. cents. Exchange control regulations prevented capital withdrawals except in Canadian currency, and the full effect of such withdrawals, therefore, was felt in the New York free market, rather than on Canada's official reserves of foreign exchange. The free rate in New York dropped during the course of the remaining months of 1946 to as low as 95 cents, which for a time gave rise to devaluation rumours.

Foreign exchange control, begun in Sept. 1939, was used in 1946 principally for controlling capital movements. In August the parliament authorized its continuance until 1949 by passing the Foreign Exchange Control act, to be effective Jan. 1, 1947. Under new regulations, effective the same date, sterling was to be acceptable in payment for exports to members of the British commonwealth and to about 22 other countries, including the United States, from which payment in U.S. dollars was previously required.

Substantial government credits were extended to a number of foreign countries, including \$1,250,000,000 (of which perhaps half was disbursed in 1946) to the United Kingdom, and lesser amounts to France, the Netherlands, Belgium, Norway, China and the Netherlands Indies. Canada's trade deficit with the United States (\$354,000,000 through September) was financed partly by drawing down dollar reserves and partly by exporting both new gold and gold acquired from other countries.

Latin America.—All but 2 Latin American countries had joined the International Monetary fund by the end of 1946, Cuba, El Salvador, Nicaragua and Panamá having entered in March, and Venezuela on Dec. 30 (bringing the total number of member countries to 40).

Latin American exchange rates remained generally stable throughout 1946, supported in some cases by favourable trade balances and in others by drawing down part of the generally large accumulations of reserves. All countries except Cuba, the Dominican Republic, El Salvador, Guatemala, Mexico and Panamá continued to exercise control over foreign exchange transactions, and in several cases such control was tightened. The demand for most Latin American export commodities continued strong, but several countries encountered exchange difficulties as a result of crop failures and strikes and of the greater availability of imports. The general level of prices continued to rise in nearly all countries, although in most cases by less than in the United States. The effect of higher prices for goods imported from the United States would probably be noticed more in the early part of 1947.

Brazil, with an export surplus and rising reserves of gold and foreign exchange, undertook to abolish her system of multiple exchange rates which had prevailed from 1939. In February the amount of foreign exchange required to be delivered by exporters to the Bank of Brazil at the official rates was reduced from 30% to 20% of the proceeds from

their exports, and the "special free market" was abolished. The tax on exchange sales was reduced from 5% to 3%. On July 22 the official market was abolished, and thereafter only a single, free market rate was quoted. It was announced that the purpose of this move was to conform with the Bretton Woods agreement. The tax on exchange sales was also entirely eliminated in July. The net effect of these changes, and of a subsequent movement on the free market, was an almost 7% increase in the exchange value of the cruzeiro for buyers of foreign currencies and a 4% increase in its cost to sellers of foreign currencies (the decrease in the spread between buying and selling rates being the result of abolition of the tax). The Bank of Brazil continued to transact the majority of exchange business and was in a position to wield considerable influence over the free market rate.

The demand for Brazilian exchange was partly met by Brazilian government credits extended in 1946 to France, Finland and Czechoslovakia. As a means of immobilizing excess purchasing power after July 31 Brazilian exporters were required to accept treasury bills for 20% of the f.o.b. value of their exports. Import permits, where required, were granted freely, and after Aug. 26 there were no restrictions on the repatriation of foreign capital or on the remission of interest, profits or dividends to foreign investors.

Chile, Uruguay and Venezuela continued to use multiple exchange rate systems. Of the 4 types of rates quoted in Chile the so-called *disponibilidades propias* ("D.P.") (private funds) rate of 31 pesos to the dollar was most generally applicable and was used as the basis for establishing the initial par value of the currency by the fund. Chile lost a considerable amount of gold and foreign exchange during the year, the result primarily of strikes in the copper and nitrate mines, and found it necessary to maintain fairly stringent exchange controls. In December Argentina extended to Chile a credit of 700,000,000 Argentine pesos (roughly \$175,000,000). Separate rates for imports and for other purposes prevailed in Uruguay throughout the year. Venezuela's system of exchange control, with its wide range of buying rates applicable to the proceeds of different types of exports, remained substantially unchanged. Determination of the Venezuelan currency's initial par value by the fund was to be made in 1947.

Bolivia, like Chile, suffered a drain on its international reserves and continued tight control over imports and foreign exchange. Exchange control regulations in Colombia were relaxed somewhat in February, but at the same time direct import controls were tightened. Costa Rica, faced with a large balance of payments deficit (owing to heavy imports as goods became more available, the decline of U.S. government expenditures in Costa Rica and a poor coffee crop), reimposed exchange rationing in June in an effort to stop the loss of its reserves.

Ecuador raised the cost of foreign exchange by doubling (to 4%) the tax on exchange sales in February and by further increasing the tax by one sucre per dollar in May. The effective selling rate thus reached 15.04 sucres per dollar, although the official rate (on the basis of which the currency's initial par value was established by the fund) was 13.50 per dollar. Because of an unsatisfactory sugar crop, a decline in such exports as balsam and rubber and of large imports, Ecuador had to use part of its gold and foreign exchange holdings to meet a balance of payments deficit.

Beginning in February Mexico also experienced a loss of gold and foreign exchange, chiefly because of a substantial increase of imports, together with a decline in remittances from Mexican workers in the United States. In June an increase in the domestic price of gold coin started speculation that the peso would be devalued, and a capital flight ensued. Mexico's large accumulations of reserves were more than adequate to meet the outflow, however, and it was not considered necessary to introduce exchange control. Gold coin continued to be sold to the public as an anti-inflationary measure, and it was believed that substantial amounts found their way to other countries where gold was at a higher premium for hoarding.

In November the Bank of Paraguay reduced the so-called "free-market" rates to the level of the official market (3.12 guaraníes per dollar) by eliminating the premium paid for certain categories of foreign exchange. The auction market was retained.

Exchange control in Peru, first introduced in Jan. 1945 following a capital flight, was strengthened in July 1946 by a decree requiring gold and bank deposits in foreign currencies to be sold to the Central bank in order to make available funds needed to pay for increased imports.

The Sterling Area.—The entire British empire (except Canada and Newfoundland), all British mandated territories, protectorates and protected states, Egypt, the Anglo-Egyptian Sudan, Iraq, Trans-Jordan, Iceland and the Faeroe Islands continued to make up the sterling area, as defined by the Defence (Finance) (Definition of the Sterling Area) order 1946, and by the Exchange Control bill introduced in Nov. 1946. All members of the sterling area, except Australia and New Zealand, were also members of the International Monetary fund, either in their own right or through the adherence of the countries to which they were bound.

Sterling balances held by members of the sterling area could generally be used for any payments within, but not outside, the area. Likewise, sterling balances belonging to certain countries outside the area could, by agreement with the United Kingdom, be used for payments anywhere within the area, but otherwise were blocked. Dollars and other hard currencies earned by members of the sterling area were pooled and re-allocated. This system, begun during World War II, was continued in 1946, but the first steps were taken toward making sterling receipts from current transactions of sterling area countries freely available for current transactions anywhere, and toward abolishing the so-called dollar pool. Under the terms of the Anglo-U.S. financial agreement, ratified in July, these conditions were to be established by July 1947.

An Anglo-Swiss monetary agreement, concluded in March, provided reciprocal credit arrangements which would in effect probably increase Swiss holdings of sterling by £15,000,000. In April a similar agreement



A CATHOLIC NUN CHANGING HER MONEY at a currency exchange in Shanghai, China, in 1946. Although the exchanges were really black markets, they were licensed by the municipal government to thwart illegal money changers

was signed with Portugal, permitting credits of £5,000,000 in either direction. Agreement was reached with Sweden in May, whereby Sweden would accept up to an additional £15,000,000-£16,000,000 in sterling balances through April 1947.

When the Anglo-Portuguese monetary agreement was signed, it was indicated that discussions had been held regarding disposition of the approximate £80,000,000 accumulated by Portugal during World War II, and that Portugal was willing to defer settlement for a considerable time, but there was no indication that a reduction had been agreed upon. A settlement with Argentina was signed in September, providing that out of Argentina's £131,000,000 in accumulated balances, £10,000,000 would be transferred to Brazil in settlement of an Argentine debt, £5,000,000 would be freed in each of the next 4 years for conversion into other currencies and the remainder might be drawn upon for repaying Argentine indebtedness to Britain or for buying out British investments in Argentina. The outstanding amount of accumulated sterling was to bear interest at the rate of $\frac{1}{2}\%$ per year. No provision was made, however, for scaling down the accumulated balances. All current earnings of sterling by Argentina were to be immediately free for conversion into any currency.

Although the organization of the dollar pool remained unchanged, its operation was somewhat relaxed. The dominions were freely allowed dollars, and those countries receiving a definite yearly ration (e.g., Egypt, Iraq and some of the colonies) in some cases received increased allocations. India, which had been the largest net contributor to the pool throughout World War II, became for the first time a net drawer on the pool.

Britain's gold and dollar holdings (gross) as of June 30 were reported to be \$2,200,000,000, as compared with \$2,400,000,000 at the end of June 1945. Approximately \$1,200,000,000 was drawn in 1946 against the Canadian and U.S. dollar lines of credit, which became effective in July and together totalled \$5,000,000,000.

In November an Exchange Control bill was introduced in the British parliament for the purpose of codifying the wartime exchange control regulations. It was stated that in order to ensure adequate control over capital movements and so prevent capital flight, it was necessary to supervise current transactions as well because they could be used to conceal capital movements. It was not intended, however, to perpetuate restrictions on current transactions, even though their supervision would be necessary. Current transactions were held not to include tourists' expenditures, and these were to be subjected to strict control. Capital movements within the sterling area would continue to be unimpeded, and it was recognized that the effectiveness of British exchange control would depend on the effectiveness of controls established by other members of the area.

Exchange rates remained stable throughout the sterling area. Market rumours in June that sterling would be devalued were abruptly followed, after the Canadian and Swedish revaluations in July, by rumours that sterling would be revalued, neither of which proved true. All initial par values approved by the fund for sterling area currencies were based on rates which had been in effect throughout the year.

Continental Europe.—European countries which were members of the International Monetary fund in 1946 included Norway, Denmark, Bel-

gium, Luxembourg, the Netherlands, France, Czechoslovakia, Poland, Yugoslavia and Greece.

In Poland and Yugoslavia foreign trading was in the hands of the government. Poland announced in April that an official exchange rate of 100 zlotys to the dollar had been established. Most of Poland's foreign trade was conducted on the basis of barter arrangements, however, and valuations were usually expressed in other currencies. The practical application of the rate was therefore limited chiefly to remittances and the expenditures in Poland of diplomatic delegations and visitors. It was generally acknowledged that this rate greatly overvalued the zloty, although the black market rate, which varied around 450 zlotys per dollar, undoubtedly gave too low a value to the currency. Likewise, the official Yugoslav rate of 50 dinar to the dollar, established in 1945, appeared to give an artificially high value to the dinar but had only limited practical significance.

In Greece the inflation was finally brought to an end in January after dollar and sterling credits were obtained by the Greek government. The market value of the gold sovereign, which circulated freely and was used by businessmen for calculating prices, had risen from 12,500 drachmas in June 1945 to 172,000 drachmas. After stabilization the gold sovereign dropped to 130,000 drachmas, which was close to the price quoted by the Bank of Greece. The official price for the dollar, set on Jan. 25, was 5,000 drachmas, 10 times the figure set in June 1945. At this rate of exchange gold had a value in Greece about three times the dollar price of gold.

Norway and Denmark were adversely affected by revaluation of the Swedish krona in July, not only because Sweden was an important source of imports to those countries, but also because they had accumulated substantial debts to Sweden. In Denmark the Swedish revaluation had the effect of putting an end, for a time at least, to pressure for devaluation of the Danish currency, although this question was revived later in the year when it became apparent that Denmark's difficulty in adjusting prices to the British market persisted. A tightening of exchange and trade controls, however, was considered preferable to devaluation.

All these countries except Czechoslovakia had large import surpluses but at the same time needed to encourage imports and to retain as much as possible of domestic production. Efforts were therefore made to limit imports of luxuries and exports of essentials.

The Near East and Africa.—Iran and Ethiopia were the only independent members of the fund in those regions which were not also included within the sterling area. The Ethiopian dollar, which was introduced in July 1945, had not gained complete acceptance throughout the country, and the old Maria Theresa dollar continued to circulate. In Iran sterling was freely exchanged at the official rate, but dollars could be bought only on the free market at a price considerably above the official value. The cost of dollars in the free market dropped, however, from 65 rials per dollar in Oct. 1945 to about 45 rials in Sept. 1946.

The Far East.—China abolished in March the long-irrelevant official exchange rate of 20 Chinese national dollars per U.S. dollar and declared a new official rate of CN \$2,020 per U.S. dollar, which fell within the range of unofficial quotations. At the same time, all foreign exchange transactions were made subject to licence. The new rate survived until Aug. 19, when it was replaced by a rate of CN \$3,350 to U.S. dollar. By the end of the year the unofficial price for U.S. dollar notes was CN \$6,500 per dollar although the official rate for dollar exchange remained stable. Separate currencies continued to circulate in the Communist areas, in Manchuria and in Formosa. Redemption of the currency (Central Reserve bank notes) issued in south central China by the former Japanese puppet regime was completed early in 1946, at the rate of CRB \$200 to CN \$1.

No change was made in the official value of the Philippine peso when the republic was established in July 1946. The Philippine government entered into an executive agreement with the United States providing that the value of the peso would not be changed, the convertibility of the peso would not be suspended and no restrictions would be imposed on the transfer of funds from the Philippines to the United States, except by agreement with the president of the United States. In September the Philippine government established its own foreign funds control office to perform the functions formerly carried out by the U.S. treasury department's foreign funds control office in the Philippines. General foreign exchange controls, however, did not exist.

In the Netherlands Indies the new Indonesian republic on Oct. 30 began the issue of its own currency, the rupiah, and on Dec. 1 declared its value to be 1.9 per U.S. dollar, which was approximately the rate for the Netherlands guilder before World War II.

Non-Member Countries.—**The U.S.S.R.**—Although the soviet union was eligible, prior to the end of 1946, to become a member of the International Monetary fund by signing the articles of agreement, it did not do so. The official value of the ruble remained at 5.30 rubles to the dollar, but actual transactions; e.g., the expenditures of diplomatic representatives, took place at rates which placed a lower value on the ruble. Foreign trade was generally conducted on the basis of barter with valuations made in terms of other currencies, principally the dollar.

The Former Neutrals.—Effective July 13 Sweden reduced its official selling price for the dollar from 4.20 to 3.60 kronor, or approximately 14%. This move was intended as an offset to the rise in prices of imports from the United States. Although to some extent the desired effect was achieved, a number of adverse repercussions were felt, as illustrated below in the discussion of its relations with Switzerland. Swedish losses of gold and foreign exchange throughout the second half of 1946 were substantial, and plans for the introduction of import controls early in 1947 were discussed. Swedish lending to other countries, including a credit of 1,000,000,000 kronor (\$278,000,000) granted to the soviet union effective Dec. 10, tended to increase upward pressure on prices in Sweden.

The Swiss franc, contrary to general expectations, was not revalued,

and the result of the changed relationship between these two important currencies was a heavy excess of imports from Switzerland to Sweden, for which Sweden tried to pay in gold. Swiss francs were generally in very great demand, however, and in August the Swiss National bank decided to limit the amounts of gold which it would accept from other countries in an effort to prevent the drain of goods from Switzerland. In October an agreement was reached providing that Switzerland would continue to accept certain limited amounts of gold from Sweden each month and that Sweden would share with the Swiss government the cost of issuing securities for the purpose of sterilizing the gold inflow. Switzerland's official gold holdings increased by \$70,000,000 during the first 9 months of the year, and there was probably also a substantial increase in the amount of gold held by the public.

Occasional reports of an impending devaluation of the Spanish peseta appeared throughout the year, and on Aug. 26 the Spanish government established preferential rates for tourists and for family remittances, but the rumours of a general change in the rate did not materialize. The Portuguese escudo was one of the currencies mentioned at the time of the Canadian and Swedish appreciations as likely also to be revalued, but the rate remained stable throughout the year.

The Defeated Countries.—The hyperinflation in Hungary far exceeded that which occurred in Germany after World War I. The official exchange rate for the pengő increased from about 6 per dollar on Dec. 1939 to 141,550 per dollar at the end of 1945, and to 1,835,000,000,000,000 per dollar on June 30, 1946. The unofficial rate on July 27, 1946, was 115.5 octillion (115,500,000,000,000,000,000,000,000,000) per dollar, probably the highest exchange ratio in the history of money. On July 31 the pengő was demonetized and replaced by a new currency unit called the forint. The official rate for the new currency was declared to be 11.74 forints to the dollar, and it remained unchanged through the rest of the year. At the time of the stabilization \$32,000,000 in gold was returned to Hungary by the U.S. armed forces in Germany, which served to give psychological support to the new currency.

In Rumania stabilization of the currency was not yet in sight at the end of 1946. The unofficial quotation for 1 U.S. dollar climbed from about 30,000 lei in January to 160,000 lei on Dec. 11. Negotiations were begun with Sweden in December for a credit of 50,000,000 kronor.

The official value of the Bulgarian lev, which had been quoted at 120 leva per dollar in Oct. 1945, was 286 leva per dollar in Nov. 1946, but had been at this figure for several months, and the finance minister declared that stabilization was impending.

In Germany Allied military marks continued to circulate in the four zones at par with the reichsmark, and the rate for military transactions remained at ten Allied military marks to the dollar, but beginning in September U.S. and British troops were paid in scrip which they were required to use in all dealings with military institutions, so that the military rate ceased largely to be applicable. For certain transactions; e.g., freight charges, special rates were established. Private remittances to Germany continued to be prohibited. Exports from the British and U.S. zones had to be paid for in dollars by the importing country. After economic fusion of these zones, effective Jan. 1, 1947, sterling also could be accepted, according to the directive of the Joint Export-Import agency. According to the merger agreement, signed Dec. 2, 1946, the exchange value of the German mark was to be established "as soon as this is practicable," and unofficial reports indicated that a rate of approximately 3.3 marks per dollar was under consideration.

Italy established in January a uniform premium of 125%, in effect bringing the official exchange rate (100 lire per dollar) to 225 lire per dollar. Beginning in March exporters were permitted to dispose of half their foreign exchange proceeds at free market rates on the condition that such foreign exchange be used in payment for specified imports within 90 days after acquisition. At the outset the free market rate was about 340 lire per dollar, but subsequently it rose to about 575 lire per dollar. Currency reform, previously rejected by the government, appeared to be scheduled for sometime early in 1947. The issuance of Allied military currency ceased in January, and military currency was gradually being withdrawn from circulation.

The Bank of Finland's official exchange rate of 136 Finnish marks per dollar, established in Oct. 1945, remained unchanged throughout 1946. A limited currency reform initiated on Jan. 1 required the temporary conversion of certain currency holdings into government bonds, but the net effect on total note circulation was not considerable.

For military transactions the Japanese currency continued to be valued at 15 yen per U.S. dollar, but commercial transactions and remittances were prohibited. Japanese exports generally required payment in dollars.

Other Non-Member Countries.—Argentina's system of multiple exchange rates was further complicated in November by the application of a special rate which in effect gave a subsidy to meat exporters. The whole structure included not less than 8 principal rates, ranging from 3.35 pesos per dollar (buying rate for regular exports) to 4.92 pesos per dollar (special selling rate for imports of luxuries). The demand for Argentine currency continued strong, the country's foreign exchange holdings increased considerably and there were frequent rumours of revaluation.

The currencies of Australia and New Zealand remained stable throughout the year. As members of the sterling area both countries participated in the dollar pool. Australia's sterling balances probably exceeded £165,000,000 by mid-1946, and New Zealand's holdings were reported to have reached £100,000,000 by November.

In Austria, an official exchange rate of ten schillings per dollar, corresponding to the former military rate, was established. An exchange equalization fund was set up to compensate for the disparity between the Austrian and the world market price level. On July 15, the Albanian government re-established the Albanian franc at an official rate of 2.77 francs per dollar. Re-establishment of the currency followed a drastic monetary reform which involved scaling down all money claims, prices

and wages to one-fifth their former value. In connection with an agreement for economic union between Yugoslavia and Albania, signed on Nov. 27, unofficial reports indicated that the two countries might adopt a common currency.

Turkey, on Sept. 7, devalued its currency in effect by 33%, although the new rate was about 53% below the old official rate which had only limited application. The new official buying rate was set at 2.80 pounds per dollar. (See also GOLD; INTERNATIONAL MONETARY FUND.)

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Exchange Rates: see EXCHANGE CONTROL AND EXCHANGE RATES.

Exchange Stabilization Funds. During the 1930s a number of countries which did not adopt exchange control, notably the United States, Great Britain, France, Switzerland and the Netherlands, established exchange stabilization funds for the purpose of preventing undesirable fluctuations in exchange rates through active and large-scale purchases and sales of foreign exchange and gold. Stabilization funds were also nominally set up in certain exchange-control countries, such as Argentina, Spain, Latvia, Czechoslovakia and Colombia, but these funds were either inactive or operated only on a minor scale. With the virtual elimination of the remaining free-exchange markets early in World War II the basic rationale of the stabilization fund technique disappeared. Some funds were consequently wound up, but even those that continued in existence either were dormant or acted merely as agents holding part or all of the external monetary reserves of the countries concerned and passively carrying out special gold and foreign exchange transactions in an essentially controlled market.

This pattern remained basically unchanged during 1946 in view of continued widespread resort to exchange controls. Latin American stabilization funds, such as those of Argentina and Cuba, were believed to have taken no active part in external monetary transactions. Some activity was reported on behalf of the French and Dutch stabilization funds in the form of sales and purchases of gold and foreign exchange, but virtually nothing was known of these operations. The British Exchange Equalization account continued to hold the bulk of Britain's external monetary reserves and to dispose of these reserves abroad when needed to meet that country's deficit in its international balance of payments. The nature and extent of these operations were also shrouded in secrecy.

During 1946 the U.S. Stabilization fund continued to purchase and sell gold from and to foreign central banks and governments. Since the fund's active working balance was only about \$250,000,000 it could be presumed that the fund, as before 1946, sold gold to the treasury whenever necessary to acquire dollars for purposes of gold purchases from foreign authorities, and, conversely, sold dollars to the treasury whenever necessary to acquire gold for sale to foreign authorities. The fund's published balance sheets, available for Dec. 31, 1945, and June 30, 1946, indicated that between these two dates its gold holdings rose from \$18,000,000 to \$71,000,000, while its dollar holdings fell from \$230,000,000 to \$194,000,000. The fund also held in its inactive account on June 30, 1946, \$1,800,000,000 of gold, which was pledged as part payment for the U.S. subscription to the International Monetary fund.

Commencing in 1937 the U.S. treasury had entered into a series of special agreements with various foreign countries whereby the fund contracted to purchase their respective currencies and/or to sell gold to these countries, up to specified amounts. Only three of these agreements—those with Brazil, Mexico and Cuba—were known to have been still in existence

in 1946. According to the agreement with Brazil of July 1937 (later revised) the fund agreed to purchase up to \$100,000,000 of cruzeros and to sell that country up to \$300,000,000 of gold. It was not known, however, if any recourse to that agreement was made in 1946. It was also not known if the fund purchased during 1946 any of the \$40,000,000 of pesos up to which it had contracted to buy from Mexico according to an agreement of Nov. 1941. The fund's balance sheets indicated, however, that the sum of \$5,000,000 owing on Dec. 31, 1945, to the fund from the government of Cuba as a result of gold sales to that country under an agreement of July 1942 was liquidated during the first half of 1946. During the same period, moreover, the fund's aggregate holdings of foreign exchange declined from \$4,900,000 to \$3,900,000. (See also EXCHANGE CONTROL AND EXCHANGE RATES; GOLD.) (A. I. B.)

Exhibitions and Fairs: see SHOWS.

Expenditure, Government: see BUDGET, NATIONAL.

Exploration and Discovery. With the formation of the Arctic Institute of North America representing both the United States and Canada, a program of most urgently desirable polar research was developed and was in progress during 1946.

Among the more noteworthy activities in the arctic were several large-scale naval, military and air exercises. Detailed reports might eventually be made available to explorers and scientists. But apart from their military aspects these exercises showed that even with the aid of the most recent technical equipment, success of any venture into the arctic depended on the resourcefulness of the individual. Initiative, endurance and adaptability, which were required for the methods of an earlier age, had not yet been outmoded by the push button or the automatic pilot.

Patrol Vessel "St. Roch."—The patrol vessel "St. Roch," 80 tons, 12½ feet draught, 300 h.p. auxiliary schooner, under Sgt. (later Inspector) H. A. Larsen, in 1940-42 made the first successful Northwest passage in an easterly direction by re-tracing Roald Amundsen's passage in reverse. In the summer of 1944 Inspector Larsen again brought the "St. Roch" through the Northwest passage, returning the ship from Halifax to Vancouver, a stirring event in the arctic, for it was not only the first passage made in a single season but it was also by a new and probably better route via Barrow strait and Melville sound.

"Aries" Flight.—On May 17, 1945, the R.A.F. Lancaster plane "Aries," under Wing Commander D. C. McKinley, flew from Reykjavik, Iceland, to the north pole, circled it (outside temperature, -30° C.) and returned. Two days later, the plane flew over the charted position of the north magnetic pole in Boothia peninsula and continued north for 200 mi. to a point where the dip compass registered 89½°, but balanced compasses continued to point north-northwest.

On May 25, while in lat. 74° N., long. 110° W., on its nonstop flight from White Horse, Yukon, to Shawsbury, England, the plane's compasses registered a dip of more than 89° but pointed south.

"Pacusan Dreamboat" Flight.—On its nonstop flight from Honolulu, Hawaii, to Cairo, Egypt, Oct. 4-6, the U.S. Superfortress B-29 plane "Pacusan Dreamboat" under Col. C. S. Irvine, crossed the Boothia peninsula supposedly about 100 mi. north of the north magnetic pole. Here the plane's magnetic compasses still pointed north and calculations at the time placed the magnetic pole some 200 mi. north of its usual charted position.

Exercise "Musk Ox."—A joint U.S.-Canadian army test of ground transportation and equipment left Churchill, Man., Feb. 15 under Lt. Col.



RUSSIAN GEOLOGICAL EXPEDITION in the Pamir mountains in Central Asia during early 1946. Exploration was for possible deposits of minerals and oils in that region

P. D. Baird to study performance of snowmobiles, caterpillar tractors and other heavy transportation equipment, suitability of various foods and clothing and feasibility of air supply of ground forces under arctic conditions. Representatives from Belgium, Chile, France, Norway, Peru, Russia and the United Kingdom accompanied the exercise. Setting out in a temperature of -43° F. the trek proceeded 900 mi. north to Cambridge bay on Victoria Island, thence 900 mi. west via Coppermine to Ft. Norman on the Mackenzie river over territory never before traversed by mechanical means and largely unmapped. Supplies were dropped en route by parachute and by glider freight planes of the U.S. and Royal Canadian air forces.

Leaving Ft. Norman April 16, the trek proceeded 1,200 mi. south to its destination, Edmonton, where it arrived May 6. During the final few weeks, travel had to be made by night to avoid difficult thawing conditions when the daytime temperatures rose to 54° F.

Participants in the exercise were found to have fitness scores equivalent to those of Harvard athletes, according to the Harvard Fatigue Laboratories whose representative made physical fitness tests before and after the exercise.

Operation "Frost Bite."—The 45,000-ton U.S. naval aircraft carrier "Midway" under Rear Adm. J. H. Cassady, accompanied by 3 destroyers, left Hampton Roads, Va., on March 1 for 4 weeks of manoeuvres in Davis strait between northern Labrador and southwest Greenland to test clothing, personnel and techniques of carrier operation in icing conditions. Radar and loran (radio-beam shore stations) were found highly effective in avoiding icebergs and in determining position in periods of low visibility.

Operation "Nanook."—During the months of July, Aug. and Sept., the U.S. coast guard cutter "Northwind" under Capt. (later Rear Admiral) R. H. Cruzen, accompanied by five other naval vessels, conducted manoeuvres in ice pack navigation in Baffin bay, Kane basin and Lancaster sound. The cutter "Northwind," a highly modernized icebreaker, reached Lat. 81°44' N. off Ft. Conger on Aug. 24, and on Sept. 2 had all but passed through the Northwest passage in McClure strait at 114° W. longitude, both passages being records for steel hull ships.

Operation "Iceberg."—A flotilla of five U.S. submarines under Rear Adm. R. R. McCann left Honolulu Aug. 22 for Bering straits and the Arctic ocean for tests in sea water layers of various temperatures. At lat. 70°21' N. a solid wall of pack ice was reported as blocking more northerly manoeuvres.

Soviet Arctic Activities.—Late in 1945, the N-331, piloted by M. A. Titlov of the Northern Sea Route administration, made several flights covering 20,000 km. in wide sweeps over the Arctic ocean, using Cape Chelyuskin as a base. The north pole was reached, but the chief objective was reconnaissance of ice conditions in the Laptev and Kara seas.

In March and April 1946, using the N-368, Titlov made eight flights

over Barents sea and the region north of Fridtjof Nansen Land, reaching lat. 85° N. Another plane, piloted by I. S. Kotov, investigated ice conditions in the East Siberian and Chukotsk seas.

In March 1946 the Arctic institute of Leningrad announced plans for the use of drifting automatic radio-meteorological stations to be set up or dropped at definite points in the arctic in such a way that approximately two years after their establishment the entire central arctic would be covered by a network of such stations. Meanwhile, a geophysical and oceanographic survey of unexplored sectors of the arctic was announced by Prof. Vladimir Vize of the Soviet Academy of Sciences, together with a five-year plan of hydrographic work to set up new lighthouses, radio beacons and radar stations. Ultimate objective was stated to be the conversion of the open sea polar route into a smoothly functioning shipping lane.

In Aug. 1946 it was announced from Moscow that Titlov had made the first map of the arctic ice pack, a chart of great value to spring navigation across the northern sea route between Archangel and Vladivostok. The Arctic institute was training personnel to co-ordinate the meteorological observations received from automatic radio weather stations, newly set up both on arctic islands and on drifting floe ice, and to prepare series of ice maps for the various passages along the northern Siberian coast.

In Oct. 1946 Prof. Igor Maksimov of the Arctic institute left Vladivostok on the soviet icebreaker "North Pole" for an attempt to push through for the first time from east to west along the northern sea route.

In Dec. 1946 it was announced from Moscow that large-scale restoration of the Spitsbergen coal mining facilities, belonging to Russia, was soon to begin. Groups of coal mining constructors and prospectors left Leningrad for Spitsbergen while another expedition to Spitsbergen was scheduled to leave Murmansk soon afterward with 16,000 tons of equipment and food for miners.

The Soviet Academy of Sciences continued an intensive investigation of the apparent gradual elevation of arctic temperatures and the corresponding increase in agricultural potentialities of permafrost areas. Extensive new areas of frost-resistant cereals and vegetables were reported, the record for northernmost crops being held by the Dolgan tribe who had successful vegetable crops during July at lat. 71° N. Archaeological evidence of the apparent northerly shrinking of the zone of permanently frozen soils came from the discovery in the spring of 1946 of a "well-stocked cemetery" of perfectly preserved mammoths along the Zyryanka river in the Magadan district of eastern Siberia. Siberia continued, however, to have cold winters, for it was reported that a new "cold pole" was found in a previously unexplored mountain section near Oimekon, Siberia, (lat. 63° N., long. 143° E.) where the temperature falls to -94.4° F.

Activities in the Antarctic.—From 1943 a British group apparently occupied a base at Marguerite bay in the Palmer peninsula that had been set up in 1940-41 by the U.S. antarctic service as its east base under Commander Finn Ronne. The British considered this region part of the Falkland Islands dependencies, and made numerous surveys there. Visits to the same spot were also made during World War II years by representatives of Argentina and of Chile, each of these latter nations claiming sovereign rights over this area. All three claims overlapped. The United States made no official claim for this region nor for any other part of the antarctic continent; nor did it recognize the territorial claims of any other nation for any part of the antarctic.

During Nov. 1946 12 British scientists led by P. L. Elliott left England in the nonmagnetic ship "Trepassy" for a two and a half years' stay in the Falkland Islands dependencies making geologic and meteorologic investigations in South Georgia, Grahamland, the South Shetland Islands and the South Orkneys.

Later in December, the Argentine naval transport, "Patagonia," was reported leaving for the antarctic to set up weather stations in Argentine territory.

At the same time, Moscow reports stated that the soviet explorer, Ivan Voronin, had left northern Russia with a ten-ship whaling flotilla for the antarctic; while reports from Johannesburg, South Africa, listed 14 separate whaling expeditions, mainly Norwegian and British, ready to enter antarctic waters.

Ronne Antarctic Research Expedition.—In Nov. 1946 the American Antarctic association announced that Commander Finn Ronne would lead a 20-man scientific expedition to the antarctic using his old base at Marguerite bay in the Palmer peninsula. The ship, "City of Beaumont, Texas," a diesel-powered wooden navy ATA-215 was specially chartered for the expedition by act of congress, and carried 3 specially designed army air force planes and 3 army "weasels" or snow tractors. Commander Ronne expected to freeze his ship in over the antarctic winter and would seek primarily to compile data on the performance of electronic equipment, climatologic reactions on the personnel, meteorologic and glaciologic conditions, and would make extensive ground and air surveys. The expedition included several antarctic veterans, among them Schlossbach, Gutenko and Darlington, and expected to return in June 1948.

Operation "High Jump."—On Dec. 2, the U.S.S. "Mt. Olympus," flagship of a fleet of 13 naval vessels comprising task force 68 under Rear Adm. R. H. Cruzen, left Norfolk, Va., for the antarctic with orders to examine the limits and character of the ice belt surrounding the antarctic continent, to explore the largest practicable area of the coast line and continent and to amplify scientific knowledge of the region, especially in hydrographic, geographic, geologic, meteorologic and electromagnetic fields.

The officer in charge of the project was Rear Adm. R. E. Byrd, tactical command being held by Rear Adm. Cruzen. The expedition included 4,000 men, naval vessels ranging from the submarine "Sennet" to the Essex class carrier "Philippine Sea," and aircraft from helicopters to the Lockheed Neptune plane which made the long distance record from Perth, Australia, to Columbus, O., in Sept. 1946.

The expedition fleet upon reaching antarctic waters proceeded to operate in three divisions: a central group off the Ross sea, a western group off Victoria Land and an eastern group off Ellsworth Land and Amundsen sea.

On Dec. 30 a Martin-Mariner plane on a photo-scouting mission over Ellsworth Land grazed an ice peak and exploded in mid-air, killing three of its crew of nine. The 6 survivors were rescued 12 days later by a sister plane from the eastern group.

The expedition, still beset by abnormally difficult ice pack conditions, planned to leave antarctic waters by March 1947. (D. Cn.; P. A. Se.)

Explosions: see DISASTERS.

Export Controls: see LEND-LEASE.

Export-Import Bank of Washington. Created in 1934, the bank was made a permanent, independent agency of the U.S. government by the Export-Import Bank act of 1945, approved July 31, 1945. The purpose of the bank was to aid in the financing and facilitating of exports and imports and the exchange of commodities between the United States and foreign countries. All of the operations of the bank were related to this fundamental purpose.

The act of 1945 vested the management of the bank in a board of directors consisting of the secretary of state and four full-time directors appointed by the president of the United States by and with the advice and consent of the senate. It also authorized an increase in the limit on outstanding loans and guaranties from \$700,000,000 to \$3,500,000,000 and removed the prohibition on loans by the bank to governments in default on their obligations to the U.S. government.

In addition to its reconstruction loans, the bank continued to finance foreign trade of the United States in two other principal ways. It financed specific export and import transactions on application of U.S. exporters and importers where the nature of the risk involved was such that private credit could not be obtained. It also made long-term loans to assist in financing the export of U.S. materials and equipment required for development projects in foreign countries.

The total amount of loans authorized by the bank from the time of its establishment in 1934 increased from approximately \$2,300,000,000 at the end of 1945 to \$3,500,000,000 at the end of 1946. Disbursements during 1945 were approximately \$1,030,000,000 and repayments were approximately \$40,000,000. As a consequence the outstanding loans of the bank increased from \$252,000,000 at the end of 1945 to \$1,242,000,000 at the end of 1946. (A. My.)

Exports: see AGRICULTURE; INTERNATIONAL TRADE; TARIFFS. See also under various countries.

Eye, Diseases of. **Nutritional Retrobulbar Neuritis.**—Numerous cases of retrobulbar neuritis were observed among British military personnel repatriated from the prison camps of Burma, Singapore, Thailand, China and the Philippine Islands. Central, cecentral and paracentral scotomas were the most common visual field findings. Pallor of the optic discs proportionate in degree to the duration and severity of the visual loss was noted. Polished rice was the principal item in the diet of these people. Some amount of recovery of vision was obtained with a high vitamin intake in those individuals in which the disease was not of long duration. In most instances the disease was believed to be the result of a nutritional disorder closely allied to beriberi, but the availability of methyl alcohol and strong tobaccos of native origin in some camps brought up the possibility of a toxic aetiology.

Plastic Socket Implants.—Several types of implants were devised during 1946 for use in sockets following enucleation. All of the implants were made from so-called plastics. It was

the object of all methods to provide a more movable and better appearing prosthesis. A. D. Ruedemann devised a plastic globe and anchored the implant to the rectus tendons by means of tantalum wire and tantalum paddles. Cutler implanted a lucite basket to which could be fitted a prosthesis with a projecting stud. This work opened up a new field in the use of plastics in the orbit.

Low Reflection Treatment of Ophthalmic Glass.—During World War II a method was discovered for reducing the reflected light from glass used in military instruments. In 1946 this method was applied to spectacles so that "ghost" images resulting from reflection were reduced. This was accomplished by evaporating magnesium fluoride from an electrically heated tungsten filament and condensing it on the surface of the glass. This film of magnesium fluoride was believed to be so adherent and so hard as to be unaffected by the ordinary methods used to clean spectacle lenses.

Eye Findings Observed Among Atom Bomb Casualties.—Although approximately 16 months had elapsed after the first atom bomb explosion in Japan, reports by medical investigators were sparse. K. B. Benkwith reported a case in which retinal haemorrhages were observed. Massive preretinal haemorrhages and haemorrhages into the nerve fibre layer of the retina were present in both eyes. The haemorrhages were located about the optic discs. Small, fluffy, white exudates were also scattered about the optic discs. In approximately five months' time the haemorrhages and exudates had absorbed so that very little evidence remained of the previous pathologic changes. The resolution of the eye findings coincided with the improvement in the patient's general health.

Diisopropyl Fluorophosphate (D.F.P.).—A promising new drug was reported in the treatment of glaucoma. Diisopropyl fluorophosphate seemed to be a more powerful antiglaucoma drug than miotics such as pilocarpine and physostigmine. Its effects were shown to be entirely because of the inactivation of cholinesterase and not to direct action on the iris and ciliary muscle. Since the drug was unstable in aqueous solution, peanut oil was used as the vehicle. For use in the eye 0.1% or 0.05% D.F.P. in peanut oil was recommended. No disagreeable systemic effects were noted, but spasm of accommodation sometimes occurred following the use of the drug in the eye. The effect of the drug was very prolonged, enabling patients to control the intra-ocular tension by instillation of the drug once daily and in some individuals by instillation once a week.

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Facsimile: see RADIO.

Fair Labor Standards Act: see CHILD WELFARE; LAW.

Fairs, State: see SHOWS.

Falk Foundation, The Maurice and Laura: see SOCIETIES AND ASSOCIATIONS.

Falkland Islands: see BRITISH EMPIRE.

Famines. Food scarcity was widespread in several areas in the world in 1946 including Europe, Japan, China and India. However, shortages because of crop failure to the extent of causing deaths from starvation were confined to a few areas. The vigorous efforts of all agricultural and relief agencies to increase food production as well as commerce in food supplies greatly improved conditions in European and Japanese



HUNGRY AND EMACIATED CHINESE FARMERS of Hunan province waiting for their ration of soft rice from the U.N.R.R.A. in 1946

war-damaged areas. The overpopulated districts of China and India, however, were on such a narrow margin of supplies that a slight crop decline reduced food supplies to starvation levels.

World food production as a whole in 1946 was estimated to be about 7% above the level of 1945 and above the prewar average. No widespread crop disasters such as drought, flood, etc., occurred during the year. Efforts to prevent famine were conducted on a greater scale than ever before. The United Nations Relief and Rehabilitation administration (U.N.R.R.A.) was in full operation, occupation armies were assisting the people of former enemy countries and emergency committees were giving attention to needs promptly as they arose.

The Hunan area in China, which suffered severely in 1945, continued in critical condition through 1946. Considerable supplies were moved in by U.N.R.R.A. and other agencies. An embargo on shipments to China was imposed in July because of the clogged condition of the ports which reduced the aid to this region. Local military operations also interfered with the distribution of supplies. Estimates of the number of deaths from food shortage varied widely. A survey by an agent of U.N.R.R.A. reported in July that 6,000,000 people in Kwangsi province and 10,000,000 in south Hunan were so weakened that thousands more than the usual death rate were dying. Crops in these provinces were only 25%-50% of normal which is disastrous, since full production is barely enough to maintain subsistence of the population. The cause of the crop shortage was the continued scarcities of water buffalo to work the land, seed, irrigation facilities and widespread malaria and other diseases among the people on the land.

In India the Bengal area, which experienced a severe famine in 1943, was again on the margin of subsistence. The movement of supplies from other areas, however, prevented large loss of life. Food production in India as a whole was estimated at about 10% above the prewar average.

A plague of locusts invaded Sardinia and some other Mediterranean areas early in the year. Supplies of poisons were sent by air to Italy and a vigorous campaign was waged for 130 days with successful results. The damage was restricted and the pests controlled. A smaller outbreak occurred in Albania. The gigantic Yellow river dike project to control the floods was expected to increase greatly food production in that area of China.

Plans by the United Nations for world-wide famine relief following the termination of U.N.R.R.A. activities in 1947 were

being discussed at the end of 1946 but no agreement was reached. The proposal of a World Food board was not accepted by the United Nations Food and Agriculture organization. The president's National Famine Emergency committee set up early in the year worked particularly to stimulate shipments of grain and other foodstuffs to ports and overseas. Former Pres. Herbert Hoover made a survey of the food situation in Europe and other areas and reported that mass starvation could be averted if U.S. exports were maintained. The Combined Food board was reorganized into the International Emergency Food council to direct international shipments to areas of greatest need. (J. C. Ms.)

Far Eastern Commission: *see* JAPAN.

Farm Co-operatives: *see* FARM CREDIT ADMINISTRATION.

Farm Credit: *see* FARM CREDIT ADMINISTRATION.

Farm Credit Administration. Farmers in the United States and their business co-operatives obtained loans totalling \$1,278,666,250 in 1946 from the institutions and associations operating under the supervision of the Farm Credit administration, compared with \$1,077,560,338 in 1945. These loans were used to finance farm and ranch operations, to improve and purchase farm land and to finance farm co-operatives through which farmers market their products and obtain farm supplies and farm business services.

Short-term or production credit went to farmers through their 500-odd co-operative production credit associations operating in all agricultural counties of the United States. Loans made to farmer-members in the year totalled \$614,612,987, compared with \$516,115,670 in 1945. The 1946 volume was the highest in any year after the production credit associations were organized in 1933 and 1934. Membership of 394,882 on December 31, 1946, compared with 372,043 at the end of 1945. This big increase in credit extended was largely the result of increased costs of supplies—seed, feed, material used in repairs and other items needed in farm operations.

Long-term or farm mortgage credit was obtained through about 1,600 national farm loan associations operated co-operatively by farmers. Farm mortgage loans amounting to \$145,196,566 were closed in the year. This total included 29,103 federal land bank loans for \$130,161,766. Land bank loans, except for the emergency period in 1933–35, reached the highest annual volume after 1927. Demand for loans to purchase farm land decreased with 38.8% of applications for land bank and commissioner loans received in the year requesting funds for this purpose, compared with 42.4% in 1945.

Pay-offs on land bank and commissioner loans made in previous years continued high with 119,390 borrowers repaying \$288,012,962 to complete payments on their loans. As a result, the amount of loans outstanding declined slightly despite the large volume of new loans closed.

Farmers' co-operatives, marketing, purchasing and business service associations obtained \$458,151,362 from the 13 banks for co-operatives, including advances under the Commodity Credit corporation, in the year compared with \$361,255,041 in 1945. Loans for operating capital funds and for buildings and equipment increased substantially over the two previous years. Demand for financing commodities in storage declined, caused largely by the rapid movement of staple commodities into consumption.

The 12 federal intermediate credit banks made loans and discounts totalling \$1,022,486,724 in 1946, for about 600 institutions making loans to farmers and stockmen and their co-operative associations. These banks were the principal source of production credit association loan funds.

The Farm Credit system made notable progress in 1946 in

repaying government-owned capital. The 12 federal land banks repaid \$91,238,570, the production credit corporations \$7,950,000, and the Federal Farm Mortgage corporation \$25,000,000. Government-owned capital in the system declined 37.8% in the year.

At the end of 1946, borrowers, farmers and farmers' co-operatives, had a net investment in capital stock in production credit associations, national farm loan associations, federal land banks and banks for co-operatives of \$108,464,793. (I. W. D.)

Farmers Home Administration. This new agency of the United States department of agriculture began operation Nov. 1, 1946. Established under authority of the Farmers Home Administration act of 1946, approved Aug. 14, it took over the work of two former agencies—the Farm Security administration and the emergency crop and feed loan division of the Farm Credit administration. Farmers who cannot obtain the credit they need from regular lending sources in their communities are eligible for loans. Borrowers receive, as needed, individual guidance in farm and home management.

The legislation gave permanent authorization for the type of short-term operating credit offered by FSA which congress had previously authorized on a year-to-year basis, and expanded the scope of the Bankhead-Jones Farm Tenant program to include 40-year loans for farm enlargement and improvement as well as for farm purchase. Interest on real estate loans was raised from 3% to 3½%. Mortgage insurance for private loans for farm purchase, enlargement and improvement was authorized for the first time, although funds for this purpose were not appropriated. War veterans were given preference in obtaining real estate loans and mortgage insurance.

Accounts of farmers using Farm Security or crop and feed loans were transferred to the new agency, and county offices continued their work without interruption. The demand for loans from war veterans and others continued heavy.

The year was marked by greatly increased lending activity. Early in 1946 congress provided additional funds to meet the demand from World War II veterans for farm operating loans, and by Oct. 31 FSA had advanced \$55,158,000 to 40,605 new borrowers in contrast with advances of \$24,679,000 to 22,119 new borrowers in the same period of 1945. Supplemental operating loans made to borrowers already using FSA credit amounted to \$42,576,000 or 15% more than in 1945.

In the farm ownership program FSA made 3,808 loans of \$29,429,000 in the ten months, compared with 1,110 loans of \$7,841,000 for the same months of 1945. Loan advances in the western states for water facilities were 54% higher than in the previous year.

A survey of Farm Security assistance to World War II veterans on Oct. 31 showed that in the last few years 23,570 former servicemen borrowed \$41,488,107 for farm operating needs, while 3,071 borrowed \$24,159,288 to buy farms.

Demand for crop and feed loans also rose in 1946. Through October, the emergency crop and feed loan offices advanced \$16,139,975 compared with \$15,526,925 in the first ten months of 1945. (D. B. L.)

Farm Income: *see* AGRICULTURE.

Farm Machinery: *see* AGRICULTURE.

Farm Mortgages: *see* AGRICULTURE; FARM CREDIT ADMINISTRATION.

Farm Purchase Loans: *see* FARMERS HOME ADMINISTRATION.

Farm Security Administration: *see* FARMERS HOME ADMINISTRATION.

Farouk I (1920–), king of Egypt, was born at Cairo, Feb. 11, the only son of King Fuad I. The failing health of his father forced him to interrupt his studies in England and to return to Egypt. On the death of Fuad I, April 28, 1936, Farouk became king under a regency. On July 29, 1937, the regency was dissolved and Farouk formally assumed his duties as king of Egypt. On Jan. 20, 1938, he married Farida Zulfikar, granddaughter of an eminent Egyptian statesman.

At the outbreak of World War II Egypt severed diplomatic relations with Germany and later Italy, but Farouk said his country would not enter the war except in the case of attack. It was later declared that the king's support of the Allies was only tepid at best and a postwar report, unconfirmed, said he had only agreed in early 1942 to appoint a pro-Allied premier when faced with a British ultimatum that he either do so or abdicate. In Feb. 1945 Farouk and other Arab leaders conferred with Pres. Roosevelt after the Yalta conference.

After the war Farouk, in an important statement of policy (Nov. 12, 1945), called for close relations between Egypt and Great Britain on a basis of "real equality"; he also asked for complete withdrawal of British troops and influence from Egypt. He conferred with Ibn Sa'ud in Cairo and on Jan. 16, 1946, the two monarchs issued a joint communiqué declaring that Palestine must remain an Arab country. The following June he gave sanctuary to Haj Amin el Hussein, grand mufti of Jerusalem, who had escaped from France.

Fascism. The total defeat in 1945 of Germany, Italy and Japan, the three countries which had formed the core of international fascism, caused a world-wide decline in the fortunes of fascism in 1946. The movement which had represented a distinct threat to world peace and to the liberties of mankind in the preceding decade had ceased to be a factor of major international importance. Under U.S. leadership the process of democratization made remarkable progress in Japan. In Germany much of the fascist or national socialist mentality remained but did not show itself openly in the elections in which only the democratic parties and the communists were allowed to participate. In Italy, however, a party resuming many of the fascist traditions and slogans gained a large number of adherents in the elections. It called itself *Il fronte del' Uomo qualunque* (The Front of the Common Man) and was led by Guglielmo Giannini.

In Great Britain the British fascists under Sir Oswald Mosley were revived without however gaining any importance. Hardly more important were the various minor fascist groups in the United States. One of them called Columbians with its centre in Georgia under the leadership of Homer Loomis Jr. and Emery Burke imitated all the details and paraphernalia of the German national socialists. In Dec. 1946 the government instituted proceedings against them as a subversive group.

Only in the Iberian peninsula and in Argentina were fascist or semi-fascist governments in power in 1946. The government of Generalissimo Francisco Franco in Spain was throughout the year the target of repeated condemnations by the United Nations organization. Its assembly passed in Dec. 1946 a resolution calling upon the Spanish people to remove the fascist government and to introduce a democratic regime. The resolution threatened Spain with a break of diplomatic relations should the fascist regime not come to an end there within a reasonable time and as a first step asked for the recall of all ambassadors and ministers accredited in Madrid. In Portugal Premier Antonio de Oliveira Salazar made a speech on Nov. 9 which was published on the front pages of all of Portugal's newspapers. In that address he denounced democracy as a failure while praising the soviet union's achievements in war and peace.

In Argentina Juan D. Perón was elected president of the republic in the elections of Feb. 1946. He was supported by the Argentine Labour party. He succeeded in winning the approval of the Argentinian masses by his socialist measures, his attacks on capitalism and plutocracy, and his order for a compulsory rise of roughly 30% in wages. On Oct. 21 President Perón opened the special session of the Argentine congress by reading a message which outlined his five-year plan for the industrialization of the country. The plan included an intensification of the official control over the nation's economy, complete reorganization of its transportation system, the introduction of large-scale irrigation and colonization schemes and an intensive technical education program. The plan also foresaw the introduction of woman suffrage. Argentina was to run its own air lines to Washington, Paris, Madrid and Rome. On Nov. 29 the Argentinian chamber of deputies passed a measure which made all Argentine men and women from 10 to 50 years of age liable to military training and military service.

Though all these measures of military training, socialization and industrialization recalled the methods of totalitarian governments, President Perón insisted that his government, formed as a result of the cleanest elections Argentina ever had, was not a dictatorship. The government officially declared that it would not interfere with the liberty of the press. The next day *Prensa*, the leading Argentinian newspaper, charged that judicial appointment and tenure were subject to political whims and interests and declared that the existing condition of the government encroaching on the liberties of the people was intolerable.

Perón's five-year plan establishes the close supervision of the government over the whole judiciary and educational system of the country, the freeing of the press from "capitalist" influence and the gradual abolition of the wage system for an economy which will give the workers their full share in all industrial, commercial and agricultural enterprises. To strengthen its military and economic power, Argentina hoped for a closer union with Chile, Bolivia, Paraguay and Uruguay. Means of economic pressure were used with that aim in mind. Argentina, a country with great food resources, is especially anxious to gain control of the mineral wealth of Chile and Bolivia and of the Pacific ports of Chile. On Dec. 13 a pact providing for a customs union and all-out economic collaboration between Argentina and Chile was signed in Buenos Aires. It was to be an exclusive pact barring all other nations, even those having most-favoured-nation treaties, from the special privileges granted in the pact which implies the closest political ties between the two countries. It permits the free use of the ports of each nation by the other, and assures to Argentina the minerals required for the five-year plan. Chile obliges itself to buy all machines, materials and implements from Argentina except if the latter country declares its inability to provide them. (See also ANTI-SEMITISM; ARGENTINA; COMMUNISM; DEMOCRACY; GERMANY; ITALY; JAPAN; RUMANIA; SPAIN.)

FILMS.—*Despotism* (Encyclopædia Britannica Films Inc.). (H. Ko.)

Fashion and Dress. The trend toward femininity, which became marked late in 1945, came into its fullest expression during 1946. After the long years spent in suits, women turned back to dresses again, and wore them shaped to their natural (or slightly idealized) figures, rather than heavily padded into curves, as had been the fashion in 1945. Day dresses were often in pastel colours, with demure Peter Pan collars, full gathered skirts, and sometimes ruffles or smocking. Sashes began to take the place of the brass-encrusted leather belts women had loved with their more tailored clothes. The wide-necked dress, extending low across the shoulders on either side, was a great favourite, for dinner

clothes and play clothes alike, especially for the young. Over these soft dresses the skirt-covering coat—the fitted full-length redingote—came back, after a long absence, as the most important coat fashion.

The ultimate in femininity was the emergence of the shoulders and bosom at the Spring Paris collections of evening clothes. Shoulders, backs and often a handsome part of the bosom were exposed, though always in a gentle, never a flamboyant, way. These dresses were willowy, poetic, trailing yards of cloth in the skirts. In a time when Paris was short of cloth, short of fuel, short of everything except talent, these bare-topped extravagances seem paradoxical. Yet it was all very reasonable—a logical facing of the fact that Paris was fighting for its position as an authority on style, and it put everything it had into building its great export—fashion.

Shades of 1913 turned up in the Paris collections and quickly became part of the Look of the Year. One of the most important of these was the uneven hemline. Mid-calf skirts for afternoon, and long skirts for evening began to dip in back, sway to one side, or fall into jagged petals all around, giving the ankles and feet more importance and allure than they had had in years. These uneven hemlines were only one expression of the asymmetrical lines which became popular in the year. Play suits, dinner and evening dresses appeared wearing one shoulder strap only. Swim suits had jersey tops pulled low over one hip, high over the other. Undoubtedly the fact that the asymmetrical line plays up the best in the feminine figure, and camouflages its faults, had a great deal to do with the popularity of this trend.

Another derivation from the 1913 silhouette was the cutaway suit, the jacket hem slanting backward, often softly flared, like a dipped peplum. Another very popular suit was the "bell-hop" suit, with a very short neat jacket, buttoned tight and fitted like wallpaper. While not overly feminine, this had a completely different look from the man-tailored suit, and was the counterpart of the redingote coat—giving a meticulous neatness to the figure, and emphasizing the natural waistline.

Play clothes took on ruffles. Instead of shorts, there were little round baby pants, the legs like puffed sleeves. The Kiltie, a short pleated skirt, was an extremely important fashion for play wear, both in a very short version, and a longer one just above the knees.

It was a year in which beautiful fabrics came back. England exported wonderful tweeds. Fine Irish linens returned, and were used very simply for little day dresses, and very lavishly, embroidered with lace, for evening wear. In the Fall collections, Paris made an extraordinary show of luxury fabrics—extraordinary both because of their great scarcity, and the spend-thrift way they were sewn—yard on yard of the precious goods made into a single skirt. "Court" fabrics, embossed velvets, rich brocades, heavy sombre satins, were used for even the young evening clothes. Embroidery was rampant—every kind of encrustation—*passementerie*, jet beading, lace appliques, silk tassels, ball fringe, worked in great magnificence. Colours were 18th century in their delicacy, pale and sweet, sentimental as *mignonette*—faded pink, white, ice blue, yellow, mauve, dark violet.

It was inevitable with all the love of furbelow that fine feathers should have been the fashion in 1946. Hats were trimmed with all the most flirtatious feathers, with precious old plumes like egret, and sometimes with little birds, or vulture feathers made to look incredibly airy and un-vulturish. Untrimmed hats were definite in shape, and intricate in their draping. The tricorne, the bicorne, the tiny pillbox were popular shapes.

The fall evening collections in Paris were more modest, gently alluring. *Décolletages* were cut less low, and shoulders were

often covered. The ankle-length evening dress came into greater importance than the great picture-skirted ball gowns. Over these shapely, slender dresses were shown the very smallest and the very biggest wraps. Shoulders were often covered by tiny boleros, sometimes extending just to the bustline. Voluminous capes went over day dresses and evening gowns alike, and often the capes wore loosely draped hoods of pastel wool. One of the most dramatic wraps of the year was a greatcoat cut like a cape, and lined with seal.

The changing skirt lines, the return of precious nylon stockings, the general mood of feminine allure all affected the appearance of shoes. They were designed for grace again, for a beautiful show of ankles, and the curve of arch on a slender high heel. Men welcomed them, after so many years of sensible down-to-earth shoes for women. Ankle straps grew more popular than ever for afternoon wear. The cut-out toe and heel were on the wane. Instead many of the prettiest shoes had little peek-a-boo cut-outs above the toes, showing the part of the foot where the toes begin instead of where they end. Even the low and medium-heeled shoes had an appearance of delicacy which looked new.

The lifting, in the fall of 1946, of the wartime regulation L-85 which controlled the yardage of cloth allowed in any one garment, gave U.S. designers freer scope and allowed them to use fabrics as lavishly as cloth-hungry Paris had in its big collections. It remained to be seen whether or not the U.S. *couture* would want to take advantage of this re-found freedom of design. (See also FURS.) (C. SN.)

FBI: see FEDERAL BUREAU OF INVESTIGATION.

FCA: see FARM CREDIT ADMINISTRATION.

FDIC: see FEDERAL DEPOSIT INSURANCE CORPORATION.

Federal Bureau of Investigation. During the fiscal year 1946 the armed hostilities of World War II ceased. This fact brought about a marked decline in the number of national defense complaints received by the FBI. Statistics in the general criminal field, however, reflected a definite upward trend in many categories. During the fiscal year there were 11,873 convictions in cases investigated by the FBI, which resulted in sentences of 26,624 years, 6 months, 13 days, and in addition, 5 life terms. Fines, savings and recoveries for the year reached a total of \$68,484,935.

There were 10,990 fugitives located and 11,458 stolen automobiles recovered in FBI cases. Investigations resulted in the conviction of 97.3% of the persons brought to trial. During the fiscal year, 6,223 fugitives were located through the identification of fingerprints in the FBI identification division.

Bank Robberies.—During the fiscal year 53 convictions resulted from FBI investigations under the Federal Bank Robbery act, with sentences totalling 377 years, 8 months and 1 day. Fines, savings and recoveries amounted to \$214,312.

Kidnapping.—Thirteen kidnappings occurred during the fiscal year, all of which were solved. There were no demands for ransom involved in these cases. Sentences of 207 years and 1 life term resulted from the 19 convictions in this category during the year. From the enactment of the Federal Kidnapping statute on June 22, 1932, to the close of the 1946 fiscal year, there were 292 kidnappings investigated by the FBI. Of this number 290 had been solved and the remaining 2 continued under active investigation. Forty-five life terms, 14 death sentences and terms totalling 6,701 years, 9 months and 9 days resulted from the 603 kidnapping convictions in state and federal courts from the passage of the act.

Extortion.—A definite increase in the number of cases involving the mailing of threatening letters coupled with a demand for money was noted during the fiscal year. Eighty convictions resulted from prosecutions with sentences totalling more than 261 years and fines amounting to \$12,250. From the passage of the Federal Extortion act in 1932 there had been 1,111 convictions in cases of this type which had been investigated by the FBI, and resulting sentences of more than 4,500 years had been imposed by the courts.

National Motor Vehicle Theft Act.—There were 3,614 convictions for violations of this statute during the fiscal year 1946, as compared with



Above: THE BALLET LENGTH evening dress was popular in 1946

Below: CUT-AWAY DANDY, popular silhouette in suits in 1946. With it, the new, long, skinny umbrella

Circle: THE MOST SIGNIFICANT shoe of 1946 had a closed toe, closed heel and cut-out over toe

Lower right: THE UNEVEN HEM line, long version, was a new fashion note in 1946



2,418 in the fiscal year 1945 and 2,282 in the fiscal year 1941. Eleven thousand, four hundred and fifty-eight automobiles were recovered during the year in cases investigated by the FBI, an increase of 3,566 and 6,787, respectively, over the recoveries in the 1945 and 1941 fiscal years. The convictions for the fiscal year 1946 resulted in sentences of more than 10,853 years. Fines, savings and recoveries amounted to \$9,261,912 and 1,100 fugitives were located.

Theft from Interstate Shipment.—Investigations and convictions coming within the purview of this statute continued at a high level during the 1946 fiscal year. There were 1,023 convictions for violations of the act which resulted in sentences of more than 2,221 years. Recoveries, fines and savings totalled \$436,853.

Theft of Government Property.—There were 1,472 convictions during the 1946 fiscal year for theft, embezzlement or illegal possession of government property, and fines, savings and recoveries amounted to \$664,762 in cases investigated by the FBI.

White Slave Traffic Act.—This statute was passed on June 25, 1910, and was designed principally to curb commercialized vice and prostitution effected through interstate or foreign commerce channels. There were 169 convictions for violations of this statute during the fiscal year ending June 30, 1946, with sentences totalling more than 562 years.

Federal Reserve Act.—More than \$2,250,000 was involved in the 263 cases of possible embezzlement reported during the 1946 fiscal year by banks covered by the Federal Reserve act. In the cases brought to trial there were 108 convictions with sentences totalling more than 410 years. Fines of \$42,752 were levied and savings and recoveries totalled \$620,799.

Antitrust and Anti-Racketeering Laws.—During the fiscal year 1946 the FBI assumed the responsibility for the investigation of all antitrust cases. One hundred and forty convictions resulted from prosecutions under these statutes. While jail sentences were small, fines imposed totalled \$405,700 and savings and recoveries amounted to \$31,248,000.

Bribery.—The control of prices, the necessity for securing priorities for scarce material and the controls placed upon the disposal of surplus war goods contributed to a material increase in the number of violations of the bribery statutes. Forty-one convictions resulted from prosecutions for violations of these statutes during the fiscal year. Sentences totalled more than 93 years, with fines of \$33,341 and savings and recoveries amounting to \$1,720.

Impersonation.—Two hundred and forty-five convictions resulted from prosecutions in this category during the fiscal year. Sentences totalled 568 years, 2 months and 3 days; fines imposed amounted to \$6,376; savings and recoveries totalled \$3,380; and 95 fugitives were located.

Illegal Wearing of the Uniform.—Sentences of 743 years, 6 months and 27 days were meted out in the 730 convictions for this violation during the fiscal year 1946. Savings, fines and recoveries amounted to \$9,284.

Interstate Transportation of Stolen Property.—On the 152 convictions under this act during the fiscal year, sentences totalled 570 years, 6 months and 9 days, while fines, savings and recoveries amounted to \$115,959.

Fraud Against the Government.—Prosecutions of this classification during the 1946 fiscal year resulted in 314 convictions with sentences of more than 419 years imposed. Fines, savings and recoveries amounted to \$9,411,402.

Escaped Federal Prisoners.—Five hundred and ninety fugitives were located through investigations conducted by the FBI under this category, including probation, parole and conditional release violators. Prosecutions resulted in 175 convictions and sentences of more than 407 years were imposed.

Sabotage.—During the fiscal year the FBI received 258 reports of suspected acts of sabotage. From the investigations which resulted in prosecution, there were 12 convictions with sentences totalling more than 53 years. As in the past, it was found through FBI investigations that persons responsible for acts of damage to war materials, equipment and machinery were not motivated by a desire to interfere with or obstruct the war effort, but were prompted by personal reasons such as jealousy, anger or a desire for revenge.

Espionage.—Three axis espionage agents were convicted during the fiscal year. Sentences in these cases totalled 21 years and 11 months. Savings and recoveries amounted to \$3,650,157.

Selective Training and Service Act.—There were 1,809 convictions during the 1946 fiscal year for violations of this act. Total sentences were more than 3,726 years, and fines, savings and recoveries amounted to \$75,110. Two thousand, three hundred eighty-three fugitives were located. A total of 563,703 cases under this act were closed from Oct. 16, 1940, through June 30, 1946. Major emphasis in the enforcement of this act was placed on making men available to the armed forces. Under this program prosecutions were instituted only in those cases which evidenced a wilful violation of the law.

Escaped Prisoners of War.—The escape of prisoners of war interned in the U.S. presented a threat to the security of the country because of their potentialities in the field of espionage and sabotage. For this reason, the war department and department of justice agreed that the FBI should be charged with the responsibility of co-ordinating investigative activities in locating and apprehending escaped prisoners of war. From Oct. 1942, when this agreement was reached, to the close of the 1946 fiscal year, 2,802 prisoners escaped from prisoner of war camps. All but 45 of these prisoners of war had been located or returned to the custody of military authorities as the year ended.

Servicemen's Dependents Allowance Act of 1942.—This act provides for the prosecution of women who illegally marry servicemen to receive allowance checks from the government. During the year 242 convictions resulted as compared with 215 convictions for the previous fiscal year.

FBI Laboratory.—An increase of 73.7% in the volume of work received by the FBI laboratory from state and municipal law enforcement agencies occurred in the fiscal year 1946 over 1945. A total of 67,229 examinations were performed during the fiscal year 1946, and 4,193 of these were for state and municipal agencies.

Identification Division.—In the fiscal year 1946, 5,216,633 fingerprint cards were received and retained by the identification division of the FBI. On June 30, 1946, there was a total of 101,578,578 fingerprint cards in the files.



"DON'T WE ALL LIVE IN GLASS HOUSES?" A humorous commentary by Shoemaker of the *Chicago Daily News* on the activities of international espionage systems during 1946

At the close of the 1946 fiscal year 76 foreign countries, territories and possessions of the U.S. were co-operating in the international exchange of fingerprints.

Uniform Crime Reporting.—Nation-wide police statistics had been received by the FBI from Sept. 1930. This co-operative phase of the work of the FBI is done at the request of the International Association of Chiefs of Police, and pursuant to an act of congress. The reports of local law enforcement agencies are summarized and published in the semiannual *Uniform Crime Reports* bulletin, and furnish a yardstick for interested officials to evaluate the extent and fluctuation of crime in individual communities. During 1946 there were 5,531 local agencies voluntarily participating in this program by sending reports to Washington, D. C.

Juvenile Delinquency.—An examination of the 543,852 fingerprint arrest records received at the FBI during the calendar year of 1945 reflected that age 17 stood out as the predominating age among arrested persons and age 18 was second. Arrests of males under 21 increased 10.1% in 1945 and although arrests of girls under 21 declined 10.6% in 1945 the figure still was 109.3% in excess of that for 1941, the last peacetime year. (See also CHILD WELFARE; CRIME; JUVENILE DELINQUENCY; KIDNAPPING; POLICE; SECRET SERVICE, U. S.) (J. E. H.)

Federal Communications Commission. Removal of wartime restrictions deluged the commission in 1946 with an unprecedented number of requests for radio facilities. Development of new apparatus and techniques made it possible to extend the radio spectrum from its prewar "ceiling" of 300 megacycles to 30,000 megacycles. This makes room for new services on the higher frequencies besides permitting expansion of some older systems.

The year closed with 1,200 licensees in the broadcast field, plus 1,400 additional authorizations and 1,000 applicants. In addition, there were 124,000 licensees in other radio services and 315,000 commercial operators. Regulation of common carriers involved consideration of 27,000 pages of tariff filings. Altogether, more than 200,000 applications of one type or another were received and nearly 200,000 authorizations were issued.

For the first time in the history of the commission, standard (amplitude modulation) broadcast stations passed the 1,000 mark, with more than 400 additional stations receiving construction permits. The newer FM (frequency modulation) broadcast service saw 100 stations on the air and more than 600 others under construction. Television had 50 authorizations for black-and-white broadcast and colour television was being considered

for commercialization. Noncommercial educational stations numbered 27 licensed or authorized, 37 stations continued international broadcast and 40 stations engaged in developmental work.

Survey of broadcast programs caused the commission to conclude that, while the listeners must primarily turn to stations and networks rather than to federal regulation for program improvement, the commission had the statutory responsibility of reviewing over-all service in the light of public interest and promises made in applying for the privilege of using the public's radio channels.

In the nonbroadcast field, two new services were established—one for railroad safety and the other for public utility use. Facsimile made marked experimental progress. Mobile equipment was being tested with a view to linking passengers in trains, buses, taxis, boats and aircraft with the telephone system, also for dispatching vehicles. Another contemplated service would enable individuals to use "walkie-talkies" and other portable two-way apparatus at home, work or play.

Telephone progress saw radio being used to serve communities too isolated for wire-line extensions. Following hearing the commission proposed that recording devices be made standard telephone equipment under adequate notice to telephone users that such apparatus was in use. Radiotelephone service was restored to 50 foreign points.

Faced with increasing airmail, telephone and other competition, the now unified telegraph system was granted a 10% rate increase and later asked for an additional 15% increase, while the commission undertook study of the future of this oldest form of electrical communications. Radiotelegraph service was resumed with 70 foreign points. The 120,000 mi. of U.S. cable remained unchanged.

The year saw total licensees in the various nonbroadcast radio services as follows: amateurs 100,000; aviation 11,000; ship 10,000; police, fire and forestry 4,000; experimental 1,200; mobile 1,000; coastal 700; special emergency 650; geological 500; utility 350; provisional 260; railroad 100; miscellaneous 200. (See also RADIO.) (C. R. D.)

Federal Council of the Churches of Christ in America.

In 1946 the council in the U.S. consisted of 25 national denominations, including most of the major Protestant bodies and three of the Eastern Orthodox group, and representing approximately 28,000,000 members in 140,000 local congregations. Two of the constituent denominations, the Evangelical Church and the United Brethren in Christ, united in Nov. 1946 to form "The Evangelical United Brethren Church." An additional denomination, the Czech-Moravian Brethren, became a member of the council.

A special meeting of the council was held in Columbus, O., March 5-7, 1946, to deal with the common responsibilities of the churches in the postwar period. On this occasion the council was addressed by Pres. Truman.

The biennial meeting of the council was held in Seattle, Wash., Dec. 4-6, 1946. At this time Charles P. Taft of Cincinnati, O., was elected president and Bishop John S. Stamm of Harrisburg, Pa., vice-president. Harper Sibley of Rochester, N.Y., was re-elected treasurer.

The program of relief and reconstruction in the neediest territories of Asia and Europe was carried forward through Church World Service, Inc., which raised about \$1,000,000 a month through the churches. On approval by the secretary of war, a liaison representative between the churches and the U.S. military government in Germany was appointed. The general secretary of the council Rev. Samuel McCrea Cavert, was the first

appointee, succeeded by Dr. Julius Bodensieck, president of Wartburg Theological seminary.

The council increased its program of evangelism on a community-wide basis through home visitation evangelism and special missions to educational institutions. It co-operated with the radio networks in presenting the challenge and inspiration of religion.

In the field of race tensions the council continued to develop race relations clinics in numerous cities, bringing together, under the initiative and auspices of the churches, the institutional and professional resources of the community to diagnose the causes of tension and to formulate plans for improving the community health.

The Commission on a Just and Durable Peace arranged an international conference of church leaders at Cambridge, Eng., in August, which resulted in the formation of a permanent "Commission of the Churches on International Affairs," sponsored by the World Council of Churches and the International Missionary council.

In October the Federal council issued a comprehensive pronouncement on "Soviet-American Relations." It also began preparations for a national study conference on "The Relation of the Churches to Our Economic Life."

In December the council brought Martin Niemöller, the antinazi German pastor, to the U.S. for a series of meetings of Christian witnesses in about 40 cities.

A new "Commission on the Ministry" carried on a program of co-operative effort in interesting young people, especially those who had been in the armed forces, in the Christian ministry as a lifework.

The usual programs in such fields as worship, home and family life, religion and health, industrial relations and research and education, were continued.

The *Federal Council Bulletin* (monthly), *Information Service* (weekly), *Interracial News Service* (bimonthly) and *Town and Country Church* (monthly) give current information about the work of the council. (S. McC. C.)

Federal Deposit Insurance Corporation.

Not a single bank failed in the United States during the year 1946, marking the second calendar year without a bank failure. The last failure occurred in May 1944. During 1946, as during each of the preceding three years, the Federal Deposit Insurance corporation made an advance to an insured bank which was in financial difficulty to facilitate its merger with a strong insured bank. In none of these cases did the depositors suffer any loss.

As of Dec. 31, 1946, the total capital and surplus of the corporation exceeded the \$1,000,000,000 mark for the first time in its 13 years of operation. The corporation therefore suggested that the initial capital of \$289,000,000, subscribed by the treasury and the federal reserve banks, be repaid to eliminate this subsidy to the banking system. However, this retirement of the original capital should be at such a rate as at no time to reduce the corporation's resources below an amount considered adequate to protect depositors in insured banks.

While during the year 1946 total deposits in the 13,500 insured banks decreased, the contingent liability of the corporation as an insurer of deposits in these banks continued to increase. The decline in total deposits occurred chiefly in deposits of the U.S. government which are protected to only a small extent by the \$5,000 maximum insurance coverage for each depositor, while the growth in insured deposits was caused by the increase in deposits of the general public, particularly in savings deposits, a large proportion of which are protected by insurance.

During 1946 the corporation granted charters to 157 new

federal credit unions, cancelled 151 charters and examined the majority of the 3,800 credit unions in operation.

Maple T. Harl, former state bank commissioner of Colorado, took the oath of office as chairman of the board of directors of FDIC on Jan. 5, 1946, succeeding Leo T. Crowley, who had resigned effective Oct. 15, 1945, after nearly 12 years of service. The death on Oct. 22, 1946, of Sen. Phillips Lee Goldsborough, who had served as a member of the board of directors from April 29, 1935, caused a vacancy on the board which had not been filled by the end of the year. Preston Delano, comptroller of the currency, continued as ex officio member of the board. (See also BANKING.) (M. T. H.)

Federal Home Loan Bank: see HOUSING.

Federal Housing Administration: see HOUSING.

Federal Income Tax: see TAXATION.

Federal Land Banks: see FARM CREDIT ADMINISTRATION.

Federal Power Commission. Natural gas expansion on a large scale was the outstanding feature of the year 1946 in public utilities regulated by the Federal Power commission. More than \$300,000,000 construction in new pipe lines and extensions of existing lines was authorized in 18 months, with nearly as much more involved in projects proposed and pending. New construction and operation authorizations to make available to 71 large cities and many smaller communities an additional volume of more than 1,000,000,000 cu.ft. of gas daily were included in the 90 certificates of public convenience and necessity issued by the commission between July 1, 1945, and Sept. 30, 1946. These involved 4,465 mi. of new gas pipe lines, and installation of 276,535 compressor h.p., at an estimated total cost of \$193,576,544. More than \$100,000,000 was involved in the large Michigan-Wisconsin pipe line authorized after that time, and in other extensions increasing the gas supply of Michigan, Wisconsin, Illinois and other midwest areas. El Paso Natural Gas company and Southern California distributors were constructing a 1,200-mi. pipe line from western Texas to California which would utilize vast quantities of the casinghead gas which were "flared" and wasted in oil production. Tennessee Gas and Transmission company was largely increasing the capacity of its 1,265-mi. line from eastern Texas to West Virginia and was operating the "Big Inch" and "Little Big Inch" pipe lines under temporary lease, supplying gas to midwestern cities and the Appalachian area. Natural Gas Pipeline Company of America and Texoma were providing for large increases in the gas supply of the Chicago area, Illinois and Iowa. Northern Natural Gas company was enlarging facilities to supply Iowa, Minnesota and Nebraska localities. United Gas Pipe Line company, Southern Natural Gas company and others were building new lines to meet southern demands, while Hope Natural Gas and other companies were enlarging facilities to supply Pittsburgh, Ohio cities, Pennsylvania and western New York. Panhandle Eastern Pipe Line company, Cities Service Gas company and other leading concerns were planning major extensions of their systems. There were numerous bidders for the government's war-built "Big Inch" and "Little Big Inch" oil pipe lines who planned to transport natural gas in vast volume from Texas east to New York and New Jersey.

After a year of hearings in the chief producing and consuming centres, the commission completed the most comprehensive investigation of the natural gas industry ever undertaken. State officials, producers, pipe-line executives, geologists, engineers, consumers, coal miners' union and railroad interests testified as to reserves, demand, consumption, markets, prices, costs and every phase of the industry, and were awaiting with interest the

commission's conclusions in its report to congress.

Power production for public use in 1946 rose slightly above 1945 to an estimated total of 223,339,000,000 kw.hr. Combined utility and industrial production was estimated at approximately 269,000,000,000 kw.hr. Installed generating capacity of plants in utility service on Nov. 30 totalled 50,257,598 kw., while industrial capacity was 12,734,776 kw., making the country's combined generating capacity 62,992,374 kw. After the coal strike ended, electricity demand rose rapidly, weekly output reaching, in the week ended Dec. 14, an all-time high of 4,777,943,000 kw.hr. Rate reductions were the largest in some years, the industry reported; nearly 2,000,000 customers were added, more than 500,000 farms connected to electric lines and average consumption per customer rose to 1,330 kw.hr.

Fifteen new applications for preliminary permits and licences were received by the commission during the fiscal year, five of which were for major projects aggregating 307,515 h.p. Power possibilities of 314 reservoir projects in the war department's river basin program were studied, bringing the total investigated from 1938 to 656 such projects in 44 states.

Closer co-operation with state regulatory commissions was assured by a revised plan recommended by the National Association of Railroad and Utilities Commissioners, adopted by 16 state commissions and approved by others. Simplified methods of procedures and new regulations were adopted, while pre-hearing conferences and other improvements expedited proceedings. River basin and power marketing studies were made in important areas. Electric plant accounting adjustments, involving write-ups and other charges in excess of the commission's original cost requirements, enforced after 1937, reached a total of \$1,111,604,052.

After almost continuous service for nearly seven years, Leland Olds, of New York, N.Y., resigned the chairmanship, remaining as a member of the commission. Nelson Lee Smith, of New Hampshire, was elected chairman and Richard Sachse, of California, vice-chairman. (J. W. JE.)

Federal Public Housing Authority: see HOUSING.

Federal Reserve System. Federal reserve authorities devoted much attention to the continuing implications for monetary and credit policies of the wartime growth in the public debt. It is possible for commercial banks to readily acquire reserve funds by sale of short-term, lower-yielding government securities to the reserve banks. Such additional reserve funds can support, on the present basis of reserve requirements, a sixfold expansion of member bank credit. Use of such additional reserve funds in the purchase of longer-term, higher-yielding government bonds in the market and the consequent further monetization of the public debt can result in a further increase in the stock of bank deposits and downward pressure on interest rates. On the other hand, application of restrictive central banking policies of the traditional type would increase the level of interest rates and raise formidable questions concerning the interest charge on the public debt and the market values of outstanding government bonds.

In its annual report, the board of governors of the federal reserve system outlined three measures for preventing further monetization of the debt which it believed worthy of consideration by congress. The first proposal, the "bond limitation" plan, would be to give the board power to place a maximum on the amounts of long-term marketable securities, both public and private, that any commercial bank may hold against its net demand deposits so as to restrict demands by the banks for longer-term government bonds and to strengthen their demands for short-term, lower-yielding securities. A second proposal, a "sec-

ondary reserve" plan would be to empower the board to require all commercial banks to hold a specified percentage of treasury bills and certificates as secondary reserves against their net demand deposits. The third proposal, the "primary reserve" plan, would give the board additional power to raise reserve requirements, within specified limits, against net demand deposits. These reserve requirements would apply to all commercial banks, member and nonmember, and would be held in the form of deposits with the reserve banks.

Federal reserve holdings of government securities stood at \$23,350,000,000 on Dec. 31, 1946, having declined \$912,000,000 during the year. Holdings of certificates of indebtedness, treasury notes and treasury bonds showed a decline, reflecting the debt retirement program, while holdings of treasury bills rose \$1,914,000,000. At the end of 1946 treasury bills held by the federal reserve banks comprised almost two-thirds of their government security holdings and seven-eighths of the treasury bills outstanding.

In April the federal reserve banks eliminated the wartime preferential discount rate of .5% on advances to member banks secured by government obligations due or callable in not more than one year. The preferential rate had been adopted in 1942 as a means of inducing the banks to utilize their reserves more fully in financing World War II expenditures. The rate was discontinued in order to discourage the undue use of reserve bank credit by member banks. The board of governors of the federal reserve system stated that discontinuance of the special rate, however, would not involve any increase in the cost to the government of carrying the public debt. The board gave assurance that the rate of .78% on one-year certificates would be maintained, if necessary, through open market operations.

Effective Jan. 21, 1946, the board of governors amended regulations T and U to raise margin requirements to 100% in order to dampen speculative activity in the stock market. These regulations are applicable to credit extended by brokers and banks to finance purchasing, carrying or trading in stock exchange securities. Margin requirements were continued at 100%.

The board of governors amended regulation W relating to consumer credit, effective Sept. 3, 1946, by making the regulation applicable to all consumer credits up to \$2,000 instead of only those up to \$1,500, and by reducing the maximum maturity from 18 months to 15 months for instalment loans that were not connected with the purchase of consumers' durable or semi-durable goods. Later in the year, effective Dec. 1, the board narrowed the scope of the regulation by focusing it on instalment credit and centring it on purchases of major consumers' durable goods. Charge accounts and single-payment loans were eliminated from the scope of the regulation. The list of consumers' durable goods to which down payment and maturity requirements apply was reduced from 36 categories to the 12 major categories of such goods. The provisions of the regulation were substantially simplified by the revision. In its annual report to congress, the board recommended that congress give consideration to legislation which would continue the regulation of consumer credit by the federal reserve system on a permanent basis to assist in the maintenance of economic stability at a high level of production and employment. (See also BANKING; CONSUMER CREDIT.) (J. K. L.)

Federal Savings and Loan Insurance Corporation: see HOUSING.

Federal Security Agency. Victory for the United States and its allies in World War II had its effects on the work of the Federal Security agency. Immediate steps were taken to conclude the several

special programs that had been assigned to the agency ancillary to the prosecution of the war. By June 30, 1946, most of these efforts had been brought to conclusion and liquidation was nearing completion.

The Office of Community War Services, which had through the war years carried the heavy load in looking to the war-created needs for the provision of health, medical care, welfare, recreation, education, social protection and related services, was the strong arm of the government in the security field. It demonstrated, in the stress of war, the validity of integrated effort for health, education and welfare.

The Surplus Property administration (later the War Assets administration) requested that the Federal Security agency assist it in seeking to implement the will of congress that surplus war property be disposed of to nonprofit institutions and instrumentalities at a value which would take into account benefits accruing to the United States from the use of such property by such agencies. To this end the Office of War Property Distribution, established in the Office of the Federal Security administrator, co-operated with and acted as the agent of the War Assets administration. Through facilities of the public health service, the office of education and the Social Security board, procedures and policies were fostered to aid distribution of needed property to health, educational and welfare agencies. In addition, this agency was concerned with donations of excess property by the army and navy to educational institutions under statutes other than the Surplus Property act. By the close of the fiscal year the mission of the Federal Security agency in this field was nearing completion.

With increasing freedom from wartime functions it was possible to turn more adequate attention to the agency's peacetime work carried on through its continuing units—the U.S. public health service, U.S. office of education, federal Food and Drug administration, Social Security administration, federal office of vocational rehabilitation, Saint Elizabeth's hospital for the mentally ill, Howard university, Columbia Institution for the Deaf, American Printing House for the Blind and Bureau of Employees Compensation.

Evidences of extensive interest in the security fields were in prominence during 1946. During the second session of the 79th congress there were under consideration several hundred bills seeking to improve the security programs. In subject matter these bills were about equally divided between education, health and welfare. Congressional committees held extensive hearings treating with these subjects, while President Harry S. Truman in three messages focused the attention of congress and the people on urgent, unmet needs. On Sept. 6, 1945, less than a month after the fighting stopped, the president called for legislation on the broad front to implement and give substance to what Franklin Roosevelt had called the "Economic Bill of Rights." This was followed by the historic Health message of Nov. 19, 1945. Again, in the State of the Union message of Jan. 21, 1946, the key importance of security needs was highlighted. Summarizing, the president said:

Our basic objective—toward which all others lead—is to improve the welfare of the American people. In addition to economic prosperity, this means that we need social security in the fullest sense of the term; the people must be protected from the fear of want during old age, sickness and unemployment. Opportunities for a good education and adequate medical care must be generally available.

The congress was responsive in its concern for health, education and welfare, and prior to sine die adjournment sent to the president four acts of far-reaching importance in these fields: (1) the National Mental Health act (P.L. 487), (2) the Vocational Education act of 1946 (P.L. 586), (3) the Social Security Act amendments of 1946 (P.L. 719) and (4) the Hospital Survey and Construction act (P.L. 725). (W. B. Mr.)

Federal Trade Commission. The Federal Trade commission, under congressional mandate, protects public and ethical business against unfair business practices. It administers the Federal Trade Commission act, portions of the Clayton act, the Wool Products Labeling act and the Webb-Pomerene act and makes general economic investigations at the request of the president, the congress, or upon its own motion.

The Lanham Trade-Mark act, approved July 5, 1946, to become effective one year later, delegates to the commission important duties in respect of proceedings looking toward cancellation of certain types of registered trade-marks.

In 1946 the commission issued 64 complaints alleging violations of laws under its jurisdiction, entered 78 orders to cease and desist from proved violations and accepted 137 stipulations wherein respondents agreed to discontinue unlawful practices. These proceedings were directed to preventing price-fixing agreements and restraint-of-trade combinations, unlawful discriminations in price and otherwise, misbranding of wool products and other unfair methods of competition and unfair or deceptive acts or practices in interstate commerce; and to safeguarding the public by preventing the dissemination of false advertisements of food, drugs, curative devices and cosmetics, particularly those which might be injurious to health.

The commission reported to congress its investigation of the wholesale baking industry, suggesting that the executive and legislative branches determine "what legislation, if any, is needed to permanently eliminate wasteful trade practices and predatory competition which threaten the existence of many small bakers, foredoom new ventures to failure and promote regional monopolistic control of the wholesale bread baking industry." Other reports dealt with international phosphate cartels and the cost of producing and distributing fish on the Pacific coast.

The commission conducted inquiries to determine whether several export associations organized under the Webb-Pomerene act were complying with law, and recommended that one engaged in exporting Florida pebble phosphate readjust its business to conform to law. Fifty-two export associations were registered with the commission.

In 1946, with approval of the president and congress, the commission adopted procedural policies looking toward industry-wide elimination of unfair practices wherever practicable, thus securing more effective co-operation of business in promptly and economically affording protection to business and the public against widespread unfair practices. Where circumstances warrant, corrective action on an industry-wide basis to eliminate unfair practices is fostered on a co-operative basis through establishment of trade practice rules or by simultaneous negotiation of voluntary stipulations to cease and desist.

Trade practice rules were approved during the year for these industries: construction equipment distributing, piston ring, masonry waterproofing products, artificial limb, wholesale confectionery (Philadelphia trade area) and saw and blade service. Proceedings for establishment of rules were in progress for the protein base fibre, baby chick, household dye and watchcase industries.

Noting a sharp increase in the merger movement after the end of the war, the commission recommended that congress amend the Clayton act to prohibit the corporate acquisition of another corporation's assets under the same conditions that acquisition of its capital stock had been declared unlawful in 1914.

It also recommended that Clayton act enforcement procedure be amended to conform to Federal Trade act procedure including similar violation penalties.

(R. E. F.)

Federal Works Agency. The Federal Works agency, whose constituent units are the Public Roads administration, the Public Buildings administration and the Bureau of Community Facilities, during 1946 sought two main objects: (1) holding public construction to a minimum to give right of way to pent-up demands for private construction, especially housing, and (2) stimulating the plan preparation of needed public works against the day when labour and materials should become available.

The advance planning program carried on through the Bureau of Community Facilities made rapid progress. The congress had appropriated a total of \$65,000,000 for advances to finance the complete plan preparation by states and their subdivisions of needed public works. Advances were to be repaid without interest when construction of the planned projects was begun. By the end of the year, more than \$43,000,000 had been advanced to finance the plan preparation of local public works with a total estimated cost of about \$1,717,000,000. Applications were on file for advances totalling more than \$35,000,000.

Passage in Aug. 1946 of the Mead act (Public law 697—79th congress) made the Federal Works administrator responsible for providing nonhousing facilities to public and nonprofit educational institutions overcrowded by veterans seeking education or training under the G.I. Bill of Rights. This was done by the conversion into classrooms, laboratories, etc., of government-owned surplus buildings, which in most instances were re-erected at the institutions, and by the re-use of suitable furniture and equipment from government surplus. The program was administered through the Bureau of Community Facilities. Of \$100,000,000 authorized for carrying out this program, \$75,000,000 had been appropriated. By the end of the year about 700 applications from educational institutions had been approved. They came from each of the 48 states, the District of Columbia and Puerto Rico and called for the expenditure of about \$52,000,000.

Construction of federal buildings by the Public Buildings administration was virtually suspended during the year. Under legislation enacted by the congress the preparation of plans and specifications for federal buildings on government-owned sites was begun, so that construction could be started without delay whenever authorized. The principal contracts let during the year were for five hangars at the Washington National airport for the Civil Aeronautics administration; Federal Office centre, Denver, and the West Central Heating plant, Washington, D.C. The total amount involved was a little more than \$10,000,000. During the 15 months ended Dec. 31, 1946, the Public Buildings administration did about \$12,000,000 of alterations and remodelling in space throughout the United States acquired for the Veterans' administration. It also did a substantial amount of alterations and remodelling to buildings on college and university campuses for the Bureau of Community Facilities, as part of the veterans' educational facilities program.

The states, in co-operation with the Public Roads administration, made a beginning on the largest highway construction program in the history of the United States; however, owing to adverse economic conditions, much less work was accomplished than had been anticipated.

At the request of the president the Federal Works administrator spearheaded a campaign to reverse the upward trend of traffic accidents. The campaign opened with a conference at Washington, D.C., of which the administrator was chairman, attended by governors of states, mayors of cities and police, motor vehicle and highway officials from all parts of the United States. It adopted an action program based on the "three E's" of enforcement, education and engineering. Subsequently state and metropolitan traffic safety conferences were held. Later, the administrator was made chairman of a federal committee on

highway safety to co-operate with state and local agencies in matters of highway safety. (See also HOUSING.) (P. B. F.)

Federated Malay States: see MALAYAN UNION AND SINGAPORE.

Federation of Labor, American: see AMERICAN FEDERATION OF LABOR.

Feldspar. Sales of crude feldspar in the United States rose from 366,697 short tons in 1944, to 417,820 tons in 1945, accompanied by an 11% increase in value as compared with a 14% increase in quantity. Sales of domestic ground spar totalled 372,377 tons, and of ground Canadian spar 9,351 tons, making a total of 381,728 tons, of which 65.5% was used in glass and 29% in pottery. In spite of a growing use of competing products in the making of glass, the consumption of feldspar in glass continued to expand.

Canadian shipments of feldspar rose from 23,509 short tons in 1944 to 28,047 tons in 1945, and to 14,637 tons in the first half of 1946. (G. A. Ro.)

Fencing. The end of the war and the return home of the hundreds of fencers from military service resulted in a great upswing in fencing throughout the United States. Four divisions of the Amateur Fencers League of America, inactive because of war, renewed their fencing activities, and two new divisions were granted charters.

The United States championships, held in New York city, June 8-14, 1946, had the largest number of entries after 1940. In the team events, the Calnan Memorial trophy for three weapon teams was won by the New York Athletic club team of Dernel Every, Henrique Santos and James Flynn. In the women's event the Fencers club team of Maria Cerra, Helena M. Dow and Ruth Maxwell retained its title. The men's individual championship was won by José de Capriles (Salle Santelli). Nathaniel Lubell of the Fencers club was second and Dernel Every (New York Athletic club), the defending champion, was third. The épée individual championship was won by Albert Wolfe (unattached) former French Internationalist in fencing. He was followed by former champion José de Capriles (Salle Santelli), with Tracy Jaeckel (Fencers club) third. The sabre individual championship was regained by Tibor Nyilas (Salle Santelli), followed by the defending champion, Norman Armitage (Fencers club), with José de Capriles third. Winning the bronze medal in sabre (the last event) made De Capriles the first fencer after 1924 to place in the national championships in all three weapons. After being out of competition for three years, the former U.S., Olympic and World champion, Helene Mayer (San Francisco Fencers club) returned to the tournaments to capture her 8th national title. She was followed by the former champion, Helena (Mroczkowska) Dow and Ruth Maxwell, third, both of the Fencers club.

The Pacific coast championships were held in Los Angeles. Edward Carfagno (Los Angeles Athletic club) retained his foil title but lost his sabre crown to Salvatore Giambra (Olympic club of San Francisco). Dell Reynolds, also of the Olympic club, took the épée event. Miss Helene Mayer (San Francisco Fencers club) won the women's title.

The midwest championships were held in Dayton, O.; Byron Krieger and Paula Sweeney, both from the Salle de Tuscan, Detroit, Mich., retained their foil titles in the men's and women's events respectively. R. Goldstein (Dayton Fencers club) won both the épée and sabre championships. (W. A. Dw.)

Fertilizers. While the undersupply of food that prevailed during 1946 in the defeated countries of World

War II arose partly from the food allocation policies of the victors, the terrific decrease in chemical plant foods available in the former enemy nations was directly responsible for much of the existing hunger and incidental unrest, disease and death.

How serious is the loss of, say, 2,500,000 tons of nitrogen, phosphoric acid and potash? From 1937 to 1946 the average plant food content of U.S. fertilizers was about 20%. Hence, 2,500,000 tons of plant food will produce about 12,500,000 tons of fertilizer. This is about 450,000 tons more than total U.S. consumption in 1944. The United States, with a population (1940 census) of 131,669,000, cultivates yearly about 360,000,000 ac. Well-informed government experts estimated that it would take 50,000,000 additional acres of reasonably fertile land to produce the crops resulting from fertilizer use. That is about 2,000,000 ac. more than the 47,916,000 ac. of arable land in prewar Germany which then was about 2½ times the size of Kansas and had a population of 79,375,000. In comparison, Japan had a population of 72,876,000 and only 14,918,000 ac. of arable land. The United States has about 7½ times as much arable land as Germany and 24 times as much as Japan.

Examples of the varying pressures of population on arable land are as follows:

	Square miles of arable land	Persons per square mile	Pounds of plant food per acre used prewar
United States	530,064	248	8.8
Germany	74,867	1,060	96.0
Japan (proper)	23,309	3,127	86.8

Next in interest to the decreases of plant food available in the defeated nations is the increase in fertilizer use in many of the victorious countries. Figures for the U.S.S.R. were not available in 1946, but the figures for three of the Anglo-Saxon countries disclose the situation.

Table I.—Consumption of Plant Food in U.S., U.K., and Canada (In short tons)

	Prewar	1945-46	Increase
United States	1,502,200	2,799,400	1,297,500
United Kingdom	338,300	712,300	373,700
Canada	78,600	143,500	64,900
Total	1,919,100	3,655,200	1,736,100

The outlook for quick recovery of the fertilizer industry in Europe was not good at the close of 1946.

Adequate nitrogen supplies are essential to intensive farming, especially on lands that have been cultivated for many centuries. Germany has a nitrogen-production capacity of 1,368,357 tons, only 119,700 of which is by-product, but production for 1946 promised to be only 137,500 tons. All other European countries except Italy showed some increases. Norway increased from 7,900 to 23,900 tons.

Life is impossible without phosphorus. Every living cell, both animal and vegetable, contains it. The United States, French North Africa and the U.S.S.R. own the world's greatest deposits of phosphate rock. Europe has practically none. Most European nations obtain their phosphates almost exclusively from that mineral. Ordinarily, Germany obtains about three-fourths of its phosphates from the basic slag wastes of its steel industry. As that industry in 1946 was paralyzed by lack of food and coal and of a unified reconstruction policy, farming too was prostrate.

For many decades Germany supplied the world with nearly all its potash. In 1946 soviet deposits were said to be about five times greater than those in the rest of the world. Even so, the Potsdam agreement assigned the soviet union nearly all of the Polish mines and 61% of the German mines. Of the remainder, 22% was in the British zone; 14% in the U.S. and 3% in the French. France, in addition, had the protection of the rich Alsatian deposits.

In the United States, some of the outstanding features of the fertilizer industry, aside from the tremendous gain in consumption (and hence production) already mentioned, were:

1. The great increase in nitrogen-fixation capacity, totalling 1,520,000 tons, as a result of the construction of 9 government plants under wartime authority and appropriations. Their capacity plus that of the government Tennessee Valley Authority plant at Muscle Shoals was 750,000 tons. During 1946 some of these plants were sold, some were leased and four were reactivated by the army to produce nitrogen for occupied areas in Japan, Korea and Germany. Private enterprise owned 9 synthetic plants with a capacity of 500,000 tons, and about 94 by-product ammonia plants which produced 215,000 tons when the steel industry was in a state of relatively high activity. In addition, private enterprise made about 50,000 tons of organic nitrogenates available yearly for fertilizer. Hence, the total supply private industry was able to provide in 1946 was about 765,000 tons. The U.S. capacity of 1,520,000 tons was almost identical with the German 1937 capacity of 1,505,000 tons. According to the War Production board, U.S. consumption was 631,000 tons for the year ended June 30, 1944, about 53% more than had been used in any prior year; and in 1945-46 it was 680,600 tons. Alongside U.S. capacity, Canada, using about 21,000 tons yearly, built up a production capacity of 250,000 tons in 3 privately built and 3 government-built plants. North America, with a consumption of almost exactly 700,000 tons in 1946, had a producing capacity of almost 1,800,000 tons.

2. The occurrence of local and sometimes regional shortages despite prodigious increases in production of plant food carriers. These resulted from the almost incredibly rapid growth in consumption, stimulated by high farm income, government-managed farm programs and spread of agronomic and economic information regarding fertilizer use. Export allocations of U.S. plant food carriers by the Combined Food board and its successor, the International Emergency Food council (a United Nations agency under the Food and Agriculture organization) necessarily took supplies that might otherwise have covered domestic needs. Fertilizer consumption increased from 7,707,000 tons in 1939 to about 14,000,000 tons in 1946. Production of superphosphate rose from 4,198,000 to more than 8,000,000 tons in 1945-46. Production of potash was 312,000 tons in 1939 and nearly 909,000 tons in 1945-46.

3. Removal of wartime controls. Price ceilings were terminated Nov. 10, 1946. Allocations of fertilizer materials to domestic purchasers had been discontinued Sept. 30, 1945, but their effect continued largely until June 30, 1946, because of contractual arrangements between buyers and sellers made prior to discontinuance of allocations. The only control effective Jan. 1, 1947, was potash allocation which had been reinstituted July 1, 1946, and which was under consideration for removal on March 31, 1947. As of Jan. 1, 1947, international allocations were still being continued. They were informal, inter-governmental understandings based upon recommendations made by the fertilizer subcommittee of the Food and Agriculture organization. To fulfil United States commitments, directives were issued by the Office of Temporary Controls (formerly Civilian Production administration) which required domestic producers of materials to set aside or to ship certain amounts of their production. (See also AGRICULTURE.) (C. J. BR.)

FHA (Federal Housing Administration): see HOUSING.

FHLB (Federal Home Loan Bank): see HOUSING.

Fiction: see AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; PRIZES OF 1946; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE;

SPANISH LITERATURE.

Fields, W. C. (CLAUDE WILLIAM DUKENFIELD) (1880-1946), U.S. comedian, was born Jan. 29, in Philadelphia, Pa. At the age of 11, he ran away from home. He entered the show business as a juggler, and after many years of hardship and privation, finally emerged as a great comedian in the 1920s when he was engaged for a between-the-acts stint for the Ziegfeld Follies. Shortly afterward, he entered the motion pictures, immediately achieving outstanding success. Possessed of a bulbous nose and a rasping and powerful voice, Fields was an accomplished mimic with a caustic wit, who seldom, it was said, ever followed the script. The one exception was in the role of Mr. Micawber in *David Copperfield*, one of his most memorable "straight" portrayals. His "dead-pan" expression and his "know-it-all" attitude, coupled with his sardonic remarks, made Fields a nationally known character and a well-loved comedian on the screen and over the radio. Openly boastful of his alleged capacity to consume large quantities of spirits, he at one time confided that he could not drink a certain effervescent sedative because he "couldn't stand the noise." His motion pictures included *Mrs. Wiggs of the Cabbage Patch*, *Poppy*, *You Can't Cheat an Honest Man*, *Six of a Kind* and *Never Give a Sucker an Even Break*. He died at Pasadena, Calif., Dec. 25.

Figs: see FRUIT.

Fiji: see PACIFIC ISLANDS, BRITISH.

Filberts: see NUTS.

Financial Review: see BUSINESS REVIEW.

Fine Arts: see MUSIC; PAINTING; SCULPTURE; etc.

Finland. An independent republic of northern Europe. Area, 134,000 sq.mi. (land area, 121,000 sq.mi.), after cession of 13,500 sq.mi. to the U.S.S.R. in 1940 and 1944. Pop. (est. Jan. 1, 1945) 3,947,702. Capital, Helsinki; pop. (est. Jan. 1, 1945) 331,192. Other principal cities: Turku (Åbo) (74,351); Tampere (76,730). Language and nationality, 90% Finnish, about 10% Swedish. Religion, Lutheran Christian. President (to March 1946): Carl Gustav von Mannerheim; president after March 1946: Juho K. Paasikivi. Paasikivi, who was prime minister until March, was succeeded in that post by Mauno Pekkala.

History.—Finland's troubles did not end when it made peace with the U.S.S.R. and Great Britain on Sept. 19, 1944. The reparations of \$300,000,000 were heavy (though but half the original demand); the contraction of territory by loss of the Petsamo area, Viipuri and the Karelian region meant a shift of more than 10% of Finland's population as well as loss of points of great economic importance. The lease of strategic Porkkala-Udd to the U.S.S.R. was painful both to pride and to the communications system.

The basic policy of the Finnish government, personified in Juho K. Paasikivi (premier until March, thereafter president), was one of internal reconstruction and conciliation with the soviet union. Paasikivi was able to hold together the widely differing factions within the country, and at the same time to steer a cautious course acceptable to the great communist neighbour. Essentially he was continuing the policy followed by Mannerheim from 1944.

The war criminal trials presented a major problem, because they were held on Russian insistence, and they involved some of Finland's outstanding political leaders. The numbers were kept to a minimum, however. An investigating commission was set up in 1945, and on Nov. 8, 1945, eight men were dramatically arrested. Trials began on Nov. 15. The leaders charged

with war guilt and their former positions were: Risto Ryti, president; Edwin Linkomies, premier; Johan W. Rangell, premier; V. A. Tanner, minister of finance and head of Social Democratic party; Tyko Reinikka, minister of finance; Henrik Ramsay, minister of foreign affairs; Antti Kukkonen, minister of interior; Toivo Kivimaeki, minister to Berlin. The first sentences of the Finnish supreme court were too light to satisfy Gen. A. A. Zhdanov and the control commission, and had to be revised. As announced on Feb. 21 the final verdict levied on Ryti a ten-year term at hard labour; Tanner, five and a half years; Rangell, six years; Kivimaeki, five years; Ramsay, two and a half years; Kukkonen and Reinikka, two years each.

On March 4, 1946, President Mannerheim submitted his resignation, and the cabinet was obliged to accept it, recommending that the diet elect a successor to fill out the term. Although he left office in a time of national tragedy, he was generally recognized as the great man of Finland's period of independence.

The diet, by a vote of 159 to 14, on March 9 elected as president the premier, non-party Juho K. Paasikivi, 75, who had so often negotiated with the Russians. He took the oath of office March 11, and then had to find a premier to succeed himself. After considerable difficulties Mauno Pekkala, former defense minister, formed a cabinet (March 24). Carl J. H. Enckell, an Independent, remained as foreign minister, six ministers were from the Popular Democratic party, which includes the communists, five were Social Democrats, five Agrarians and one of the Swedish party. It was more leftist than Paasikivi's cabinet.

Economic conditions were bad, yet the Finns, inured to misfortune, were making real recovery. The rubble of bombings was cleared away in Helsinki, houses were being built to care for the homeless Karelians and others and reparations payments were kept up to date. A U.S. credit of \$35,000,000 was granted by the Export-Import bank, trade was maintained with Sweden

and a trade treaty negotiated with the U.S.S.R. in May. In Aug. 1946 it was decreed that Finnish citizens must turn over to the Bank of Finland shares and bonds in foreign firms to give the government foreign purchasing power. The Finns were using every means available to rebuild their strength.

Toward the end of the year tension appeared to be increasing in Finland. Inscriptions on historical monuments were being revised, to eliminate references to battles with "Russian Devils." Attempts to placate the U.S.S.R. and appointments of leftists to an increasing number of diplomatic posts went too far for some, and the secretary of the Social Democratic party, V. Leskinen, openly attacked the government and threatened the eventual withdrawal of his party from the cabinet. The government was concerned on the other hand with the anti-Russian attitude of some newspapers and the prime minister warned them that they might be banned unless they could take a "correct and matter-of-fact attitude" toward the U.S.S.R. On Nov. 21 Gen. Ilmari Karhu, chief of the general staff, was arrested by the state police for hiding weapons; his trial and that of his colleagues already in custody could take place only after special legislation was passed.

Economic conditions were as strained as political affairs. The reparations burden weighed heavily, but little had been done to ease it, despite an appeal in Oct. by Herbert Hoover, the obvious wishes of many non-Finnish peoples and continued direct negotiations between Finland and the U.S.S.R. Only on Dec. 31 was it announced that the soviet union had promised Finland the use of transit facilities through Porkkala and the Saima canal. In December, Finland was seeking an additional loan in the United States.

On Nov. 5 the government won a vote of confidence, 93 to 72.

Defense.—Finland is permitted to train 34,000 soldiers per year, and there was evidence that the Russians were making efforts to see that this corps be indoctrinated with sympathy for the U.S.S.R.

The main airport of Helsinki, Malm, was returned to Finnish control on Dec. 30.

Finance.—Current revenue of the state in 1945 began to approach ex-

FINNISH COMMUNISTS marching through the streets of Helsinki to the parliament building in 1946, where they demanded more effective removal of collaborators from official positions



penditures. The foreign debt of \$177,400,000 was not considered excessive (though the figure of Dec. 1939 was only \$12,100,000), and economic reconstruction would demand still further increase in the debt. Savings were decreasing and credit demands were high.

Total public debt on Aug. 31, 1946, was 99,436,000,000 marks (75% internal and 25% foreign), as compared with a debt on Dec. 31, 1941, of 27,493,000,000 marks. Bank deposits were up from 8,281,000,000 marks in Jan. 1945 to 17,286,000,000 marks on Aug. 31, 1946. Notes in circulation were up from 9,442,000,000 marks in Jan. 1943 to 19,076,000,000 marks in Aug. 1946. The rate of exchange on New York, which was 49.35 marks to the dollar on Dec. 31, 1939, was kept from Dec. 31, 1945, through Sept. 30, 1946, at 136 marks to the dollar.

The progress of inflation was slowed down in 1946, but it was still there; the cost-of-living index, with Aug. 1938 to July 1939 as 100, had risen 49% in 1945 and 6.6% in the period May to Aug. 1946 to stand at a peak of 466.

Trade and Communication.—Imports and exports expanded considerably as indicated by the comparative statistics below:

	Imports	Exports
Jan.-Aug. 1945	3,181,000,000 marks	1,115,000,000 marks
Jan.-Aug. 1946	14,849,000,000 marks	11,967,000,000 marks

More than 10,700,000,000 marks of the 1946 export figure was in wood, pulp, paper, etc. In addition to this "free trade" reparation deliveries amounted in the same period to 4,645,000,000 marks and restitution goods to 655,000,000 marks.

Finland recovered most of the ships held in Germany, the United States and other countries during the war; it also bought 24 tugboats from the United States, 3 tank vessels from England, and 2 from the Netherlands. It built in 1946 four steamships, three motorships and some smaller vessels. An increase of 30,000 gross registered tons was in service by Sept., giving Finland 513 vessels of a total of 290,445 gross registered tons. Goods transported on the state railways was steadily up, to 1,363,000 tons in July 1946.

Manufactures.—Industry was rapidly expanding. As compared with 1935=100, the index for the first half of 1945 was 61 and for the first half of 1946 was 81. Home market industry was up 30% over 1945, and in special lines the figures were: sawn timber up 7%, cellulose up 50%, plywood up 100%, pulp up 40%, paper up 80%. The greatest checks to further progress were the lack of foreign valuta and the short supply of labour.

BIBLIOGRAPHY.—*Unitas*, quarterly review illustrating trade conditions in Finland; *The Baltic Review*. (F. D. S.)

Fire Insurance: see INSURANCE.

Fires and Fire Losses. The losses by fire, including lightning, in the United States as compiled by the National Board of Fire Underwriters for 1946 amounted to \$561,487,000. This compared with \$455,329,000 for 1945 and \$423,538,000 for 1944. The losses by

GUESTS descending a fire escape of the La Salle hotel in Chicago during the disastrous fire on June 5, 1946, in which 61 persons lost their lives



fire in 1946 were nearly approached by the losses in 1926 when they reached \$561,000,000 plus.

No outstanding fires were the occasion of this increase. The fires that brought attention were those primarily in hotels where there was a very large loss of life, particularly the one in Atlanta, Ga., where the loss of life was the largest that ever occurred in a hotel fire. This condition focused attention on the condition of properties where lives might be involved in a fire and remedial measures were at once instituted.

It should be emphasized that the increase in the losses by fire was in a measure the result of the higher prices of properties. The same number of fires in 1946 would naturally have brought a larger property loss than in previous years. (See also DISASTERS.) (E. R. H.)

Fires and Fire Prevention: see FIRES AND FIRE LOSSES.

Fish and Wildlife Service: see FISHERIES; WILDLIFE CONSERVATION.

Fisher, Geoffrey Francis (1887–), 99th archbishop of Canterbury (according to G. W. Searle, *Anglo-Saxon Bishops, Kings and Nobles*, 1899), primate of all England, is the youngest son of the Rev. H. Fisher, rector of Higham-on-the-Hill, Nuneaton. He was educated at Marlborough, Exeter college, Oxford, and Wells Theological college. He was assistant master at Marlborough (1911), and was ordained deacon (1912) and priest (1913) at Salisbury. In 1914 he became headmaster of Repton school in Derbyshire. In 1917 he married Rosamond Chevallier, granddaughter of Dr. S. A. Pears, formerly headmaster of Repton. In 1932 he was consecrated bishop of Chester, and in 1939 was translated to London, where his administrative ability left a great impression, particularly in the City. On April 19, 1945, he was enthroned as archbishop of Canterbury, in succession to Dr. William Temple. He played a leading part in church Assembly legislation, including the Diocesan Reorganization measure (1941) and the Church Commission measure (1946). In 1946 he attended the World Council of Churches at Geneva, and presided at the British Council of Churches in London. He also visited Canada and the United States. (A. J. MAC.)

Fisheries. For the fisheries of the world, the year 1946 was a period of readjustment after the devastation wrought by World War II. Throughout much of Asia and Europe, fishing fleets had been destroyed, harbours and shore plants wrecked and normal channels of distribution and marketing disrupted. All the affected countries made strong efforts during the year to rebuild their fleets and restore shore facilities for fishing with the result that world production probably was not far below normal (about 37,000,000,000 lb.) although means of distributing the catch remained far from adequate.

In the United States, the yield of the fisheries in 1946 was approximately 4,000,000,000 lb., according to figures released by the fish and wildlife service of the U.S. department of the interior at the end of the year. Although this yield was close to the peacetime average (4,400,000,000 lb.) the service characterized the year as one "marked by extremes of success or failure almost without parallel in the history of the fisheries." The major fisheries, almost without exception, experienced either extraordinarily successful or disastrously poor years. Rosefish on the Atlantic coast and tuna on the Pacific surpassed all previous production records. The total pack of salmon in Alaska and the Pacific coast states was the smallest after 1927. The menhaden catch was the largest on record; the pilchard catch one of the smallest.

In terms of pounds landed, the leading U.S. fisheries in 1946

were those for menhaden, pilchard, salmon, tuna, Alaska herring and rosefish, in the order named. These six fisheries were responsible for more than half of the total yield.

In an unexpected reversal of roles, the little known menhaden became the principal item among the products of the U.S. fisheries, while the pilchard, which had supported the leading fishery in the country for 12 years, declined to second place. The catch of menhaden rose to 900,000,000 lb., from 756,000,000 lb. in 1945 and 686,000,000 lb. in 1944. This large member of the herring family occurs in tremendous numbers along the Atlantic coast and has supported a fishery from colonial times. The entire catch is converted into fish meal and oil. Centres of the menhaden industry in 1946 were Lewes, Del., Reedville, Va., Port Monmouth, N.J., and Beaufort and Morehead City, N.C.

After maintaining an average production of about 1,000,000,000 lb. during the decade 1936-45, the pilchard fishery, which is centred on the California coast, landed only 491,000,000 lb. in 1946. This was approximately half the quantity landed the previous year, when some indications of impending scarcity became evident. Throughout 1946 pilchards were notably scarce in the waters of northern and central California, ordinarily the scene of a busy fishery. Most of the pilchard fleets operating out of San Francisco and Monterey were forced to turn to other types of fishing or to move to other ports. Almost the entire catch of pilchards during the fall season was made off southern California, where the fish were present in normal abundance.

Salmon was another Pacific coast fishery that fell far below normal yields. The pack of 4,396,684 cases by canneries in the U.S. and Alaska was the smallest after 1927. In 1945, also a poor year, 4,900,471 cases of salmon were packed.

Although the northern albacore fishery was almost a complete failure, tuna landings in California were so large that this industry set a new production record. The pack during the first 11 months of 1946 was within a few thousand cases of 1945's record pack of 4,237,000 cases; the year's total was therefore certain to reach a considerably higher figure.

Alaska herring, which along with menhaden and pilchard supplies the raw materials for the fish meal and fish oil industries, continued the increase in productivity begun several years before. From 113,000,000 lb. in 1944 and 120,000,000 lb. in 1945, the catch of herring in the territory rose to approximately 190,000,000 lb. in 1946.

Although the New England fisheries as a whole were slightly less productive in 1946 than in 1945, the major species in the catch, rosefish, made a gain of 38% compared with the previous year. From a little used and almost unknown species a decade before, rosefish, yielding 180,000,000 lb. in 1946, became one of the leading fishery products in the U.S. Landings of all species combined at the principal New England ports totalled 640,000,000 lb., compared with 670,000,000 in 1945.

The pack of mackerel by California canneries had reached 423,703 cases by the end of November, a slight decline from the 490,736 cases packed during the same period in 1945.

The Maine sardine industry, on the other hand, enjoyed a somewhat more successful season than the previous year in spite of a discouragingly small early season pack. The 1946 pack totalled approximately 2,800,000 cases, compared with 2,509,551 cases in 1945.

The leading fishing ports in the U.S. in 1946, in weight of fish landed, were San Pedro, Calif.; Lewes, Del.; Gloucester and Boston, Mass.; and Reedville, Va. In terms of the value of the landings San Pedro again held first place, followed by San Diego, Boston, New Bedford and Gloucester, in the order named.

San Pedro, which also held the title of leading U.S. fishing

port in 1944 and 1945, received most of the pilchards and mackerel landed on the Pacific coast and nearly half of the tuna. Landings totalled approximately 475,000,000 lb., with a value to fishermen estimated at \$17,000,000. Lewes rose from sixth place in 1945 to second in 1946 because of the tremendous increase in the landings of menhaden—from 175,000,000 lb. in 1945 to 276,000,000 lb. in 1946. Gloucester, among the three leading ports in the U.S. for two years in succession, received 218,000,000 lb. of which about 60% was rosefish. Landings at Boston amounted to 159,000,000 lb., consisting chiefly of miscellaneous ground fish like cod, haddock, pollock and flounders. Although Boston's landings were smaller than Gloucester's, their total value was greater: \$13,000,000 compared with \$11,200,000. Reedville received approximately 147,000,000 lb. of menhaden, its sole fishery product, compared with 80,000,000 lb. in 1945.

Although San Diego, with about 125,000,000 lb., ranked below the first five ports in volume of landings, the high value of the fish brought into this port (principally tuna) entitled it to second place in terms of value. The value of all fish landed there in 1946 was about \$15,000,000.

Fish landed at New Bedford—haddock, flounders and other species for the fresh fish markets—were valued at \$11,800,000. Compared with 1945, the volume of landings at this port declined about 10%, totalling 92,000,000 lb.

Production of fish meal during the first 11 months of 1946 by firms which normally account for 94% of the output of this industry was 162,882 tons, compared with 173,559 tons during a comparable period of 1945, while the production of fish oils amounted to 17,941,196 gal., or a 20% decline below the 11-month yield in 1945, according to figures reported by the fish and wildlife service. Because of the failure of the pilchard fishery in the Monterey and San Francisco districts, the peak production of fish oil during 1946 occurred in July. Normally the month of peak production is September or October. The menhaden fishery was the source of more than half the meal and oil produced during the year.

The fish and wildlife service also reported a considerable increase in the size of the U.S. fishing fleet during 1946, with more than 1,000 vessels documented during the year, compared with 739 the previous year. About 85% of these boats had been newly constructed in 1945 or 1946. Since the fishing fleet normally loses about 275 boats a year through obsolescence or marine disaster, the addition of a thousand vessels indicated a sharp increase in the productive capacity of the fleet.

In the field of conservation, the U.S. and Canada signed a treaty on April 2, 1946, to provide for the development, protection and conservation of the Great Lakes fisheries as a natural resource of mutual interest to the two countries. During November an international whaling conference was held in Washington, D.C., to develop more efficient and flexible means of regulating the whale fisheries of the world. (R. L. CN.)

Other Countries.—The main centres of civilization are in the temperate latitudes, and the greatest, most highly developed fishing industries are based upon the comparatively shallow and chemically rich temperate regions of the northern Atlantic and Pacific oceans, the richest known fishing grounds being those of the Atlantic slope of Europe, including the North sea, which is probably the most prolific of the greatest variety of fishes in the world.

A review of the fishing industry from 1914 onward explains the conditions and developments of 1946. Before 1914 the rapid development of the technique of fishing, especially the introduction of the steam trawler and the use of increasingly efficient fishing gears, had brought about serious impoverishment of the stocks of fish, which was reflected in a decline of the bulk of the catches and a steadily increasing proportion in

them of small immature fish. Paradoxically, modern warfare, so massively destructive on land, exercises a conservative influence over life in the sea. Mines and other dangers limit fishing operations to narrowly prescribed areas, and all the most efficient fishing vessels, being invaluable as naval auxiliaries, are requisitioned. During World War I, therefore, extensive fishing grounds enjoyed the immunity of sanctuaries, and the resumption of fishing after the war revealed a great recuperation of the fish stocks. The accumulated stocks were recklessly exploited and in 1939 conditions were even worse than in 1914. The protective measures embodied in the Fisheries convention of 1937 had come too late, or at least, had not had time to make their effect felt. But again war gave a respite to the overfished stocks, which, as estimated by catches in 1946, had increased to unparalleled abundance.

The governments of the countries chiefly concerned took steps in 1946 to prevent a repetition of the insane scramble for fish which followed World War I. Their delegates, accompanied by observers from the International Council for the Exploration of the Sea, met in London in the spring and agreed on certain measures for making the Fisheries convention of 1937 more effective. The chief points of agreement were that the meshes of fishing nets for bottom fish should be further enlarged and the size limits for market fish appropriately increased. As to other proposals involving global reduction of fishing tonnage, limitation of the time spent at sea, closed seasons for certain kinds of fish and the establishment of sanctuaries, particularly in the Faxe bay halibut nursery off Iceland, the conference did not reach agreement. It strongly recommended, however, the appointment of a standing advisory committee to study, and, within a year, to make proposals for the most suitable forms of regulation for the prevention of overfishing, in consultation with the International Council for the Exploration of the Sea. A largely attended meeting of this council, whose headquarters were in Copenhagen, was held in Aug. 1946 in Stockholm on the invitation of the Swedish government, and during the meeting these proposals were discussed and broadly approved.

Little more than half of the prewar number and tonnage of British trawlers had returned to fishing in 1946, and it is probable that other countries fishing these waters, especially Germany, were similarly short of vessels, but, at the same time, good supplies of fish were being landed.

The case of the great herring fisheries was very different from that of the bottom or demersal fish fisheries. The herrings had never shown signs of overfishing. The prosperity of the industry depended on the overseas market for pickled herrings. A great effort was made in 1946 to pickle the largest quantity possible to provide food for Germany. The target aimed at was 500,000 bbl., about 2,000,000 bbl. less than the average of the years 1911-13, and some 250,000 less than that of the years between the two world wars, when the great Russian market had been lost. The chief limiting factor in the 1946 output was lack of barrels.

The fisheries of the northwestern Pacific were exploited mainly by the Japanese, who had developed a considerable fish-canning industry. Little was known of the extent of fishing in those regions in 1946 but relaxation of fishing during World War II would have allowed stocks to increase.

The fisheries of the Mediterranean were not, in the past, of any great significance. The coastal shelves were not extensive and, apart from the tunny fisheries, there was little fishing of importance except along the coasts of North Africa and the Levant, Cyprus and some of the other islands.

There were great possibilities of development all along the west coast of Africa and at the Cape. In South African waters

good progress had been made before the war; but both here and on other parts of the African coast the produce of the fisheries was used mainly for local consumption, the waters being so remote from the markets of Europe that only by means of hard brine-freezing could fish be transported to those markets in fit condition for human consumption, or, at least, in such condition as to be able to compete economically with local supplies.

Meanwhile a conference on whaling sat at Washington, D.C., between Nov. and Dec. 1946. It was attended by delegates from 15 nations and observers from 4 others. The purpose of the conference was to codify, with or without amendment the existing agreements and protocols. If effect were given to the recommendations of the conference in this respect the existing agreements would be confirmed in codified form substantially as they stood, modified only to make their provisions more precise and effective. An important new provision suggested by the conference was the appointment of a permanent whaling commission with power to amend the agreements. The terms of any convention that might result from the conference would, in due course, be published by the U.S. state department. (See also MARINE BIOLOGY.) (H. G. M.)

Fiume: see TRIESTE.

Flax: see LINEN AND FLAX.

Floods and Flood Control. Exclusive of the large projects previously authorized for the alluvial valley of the Mississippi river and the Sacramento river, Calif., construction on the federal program for general flood control was begun in 1937 after the first funds for that purpose were appropriated by congress. By the end of June 1946, 50 reservoirs and 135 local protection projects were in operation throughout the United States. In addition to previous authorizations, congress, in the Flood Control act approved July 24, 1946, authorized expenditures by the war department amounting to \$772,000,000 for approximately 123 additional flood control and multiple-purpose projects. With the passage of the 1946 Flood Control act, Congress had approved authorizations totalling \$2,452,400,000 for the construction of about 770 reservoirs and local protection projects. In the period from 1937 through July 30, 1946, funds totalling \$835,421,900 were appropriated for flood control general purpose of which \$769,472,000 was for the construction and detailed planning of projects and the remaining \$65,949,900 was for maintenance of completed projects, surveys and miscellaneous items.

The authorized projects collectively constitute a comprehensive co-ordinated plan for the development of the river basins of the nation to provide economical flood protection and allied benefits for centres of industry and population, millions of acres of rich, agricultural land and vital lines of communication. In addition to their use for flood control, many of the reservoirs provide favourable possibilities for the development of hydroelectric power, stream flow regulation, water conservation, recreation and other water uses.

A number of projects were completed during 1946, including the Indian Rock dam in Pennsylvania and local protection works at East Peoria, Ill., Sauvie Island, Ore., and in the Skamokawa creek area, Wash.

Subsequent to the cessation of hostilities in the Pacific, congress appropriated \$84,659,000 in the First Deficiency act for the fiscal year 1946, and \$138,901,000 in the war department Civil Appropriation act for the fiscal year 1947, for continuing work on flood control projects deferred during the war emergency and for the initiation of new, urgently needed projects.

During the year, work was resumed on the flood protection



NIGHT VIEW OF MARKET SQUARE in Williamsport, Pa., inundated by flood waters of the Susquehanna river during the spring of 1946

projects in river basins throughout the nation which had been stopped during the war in order to conserve equipment, materials and manpower. These projects include the Lisle and Elmira, N.Y., local protection projects in the headwaters of the Susquehanna river; the Plymouth, Wilkes-Barre, Williamsport and York, Pa., local protection works along the middle and lower Susquehanna river; the Wallace lake dam and reservoir in the Red river basin, Louisiana; the John Martin dam and reservoir, Colorado, the Blue Mountain dam and reservoir, Arkansas, and the Canton dam and reservoir, Oklahoma, all in the Arkansas river basin; Clearwater dam and reservoir, Missouri, in the White river basin; local protection at the Kansas City and the Kanopolis dam and reservoir on the Smoky Hill river in Kansas, both in the Missouri river basin; local protection works at Cincinnati and Massillon, O., the Cache river diversion unit at Mounds and Mound City, Ill., and the Dale Hollow and Center Hill dam and reservoir projects on tributaries of the Cumberland river, all in the Ohio river basin; Los Angeles river channel improvement and the Santa Fe dam, both in the Los Angeles county drainage area, California.

Projects previously authorized and for which plans and specifications were prepared during World War II were initiated at the following localities: local protection at Nashua, N.H., in the Merrimack river basin; the Union Village dam and reservoir on the Ompompanoosuc river in Vermont; local protection works at Whitney Point, N.Y., and the Almond dam and reservoir, both units of the project for the headwaters of the Susquehanna river; Sunbury, Pa., in the Susquehanna river watershed; the Clark-Hill dam and reservoir project in the Savannah river basin, Georgia, and the Allatoona dam and reservoir in the Coosa river basin, Georgia; the Narrows dam and reservoir on the Little Missouri river, Arkansas; local protection for Shreveport, La., in the Red river basin; Hulah dam and reservoir in Oklahoma, Fort Gibson dam and reservoir, Oklahoma, Fall River dam and reservoir, Kansas, Wister dam and reservoir, Oklahoma, all in the Arkansas river basin; the Bull Shoals dam and reservoir, Arkansas, in the White river basin; Harlan County dam and reservoir on the Republican river, Nebraska, Cherry Creek dam and reservoir for the protection of Denver, Colo., local protection works at Kensler's Bend, Schuyler and Omaha, Neb., and Council Bluffs, Ia., and the main Missouri river dams at the Fort Randall and Garrison sites, all in the Missouri river basin; Delaware dam and reservoir, Ohio; Dewey dam and reservoir, Kentucky and the Conemaugh dam and reservoir project, Pennsylvania, local protection works at Newport, Ky., Punxsutawney, Pa., Parkersburg and Elkins, W.Va., all in the Ohio river

basin; and the Dorena dam and reservoir in the Willamette river basin, Oregon.

The separately authorized project for the Sacramento river and its tributaries, California, was to provide flood protection for cities and towns, fertile agricultural lands, and railway and highway facilities of great importance to the economy of the western United States. Work was continued on this project throughout 1946, including levee construction along the Sacramento, American and Feather rivers, and the clearing of obstructions in Butte slough and the Sutter by-passes.

Although the year 1946 was not a serious flood year from the national viewpoint, there were many flash floods which caused very serious damage to relatively small areas. The more important floods during the year included a very serious flood which struck the Willamette river basin in late Dec. 1945 and early Jan. 1946, and caused damages estimated at \$6,000,000. The reduction in damages credited to the operation of the completed Cottage Grove and Fern Ridge reservoirs was estimated at \$1,200,000. The Yazoo river had two floods in the spring of 1946 which closely approached the all-time record for that stream. The end of May saw the north and west branches of the Susquehanna river at near record flood stage. The October flood of the North Canadian river in Oklahoma inundated portions of Oklahoma City as well as other urban and agricultural land along that stream and its tributaries. (R. A. W.R.)

Great Britain.—The year was notable for the occurrence of frequent, widespread and severe floods. In March there was widespread flooding in the midlands. Stafford suffered severely. There was severe flooding in other parts of the midlands, in Wales and in the Severn valley. The midlands had severe floods again in mid-September. In the Peak valley the flood was one of the worst ever experienced.

There was some flooding in the west between Aug. 10 and Aug. 13, and streets in Bristol and Weston-super-Mare were under water. Floods in southern Ireland in the same month were caused by a rainfall which included from two and a half to three inches in 24 hours, a record for that region. In Lancashire the overflowing in September of the River Orwell, caused very serious flooding and the water rose at one point to 24 ft. above its normal level. A number of houses in Salford collapsed and many households were rescued by boats from upper floors and roofs. In Manchester the flooding of streets and riverside factories was serious and much damage was done.

In the middle of November continuous rain caused much flooding in the midlands. The River Tame overflowed and flooded a part of Birmingham. There were floods over many areas in south Wales, Devon and Dorset. Floods which were at their worst on Dec. 1 caused much damage in England and Wales. The River Thames rose about 4 ft. 8 in. above normal, the highest level after 1943, and the Thames valley was flooded in many places.

No important works of flood control were in progress in Great Britain in 1946, nor were reports of any such works reported from overseas. The need for the early adoption of a policy of flood and flow control of British rivers was, however, widely recognized. It was hoped that schemes for the rivers Severn and Thames, long since prepared, would be adopted by the authorities. The scheme for the Severn involved the creation, by means of dams, of five reservoirs, having a total capacity of 47,000,000,000 gal., for the control of floods. For the Thames six reservoirs were planned, having a total capacity of 16,500,000,000 gal. for the control

of floods, and four reservoirs, having a total capacity of 39,730,000,000 gal., for control of floods and assurance of London's water supply.

Other Countries.—Melbourne, Australia, was caught between two cyclonic centres in January. Heavy rain lasted for more than 24 hours and floods swept through the northern suburbs. Early in March a flood in the valley of the River Burdekin, north Queensland, isolated the township of Hone Hill for some days. At least six persons were drowned and many rendered homeless by floods in the western districts of Victoria and in Tasmania. Hundreds of sheep and cattle were drowned, crops were destroyed and roads and railways damaged.

Floods of July isolated the town of Silchar in eastern Assam. In the Chittagong area nearly 600,000 persons were seriously affected by floods, some villages being 15 ft. deep in water.

In August, 300,000 ac. of cultivated land in upper Egypt had to be flooded, in order to avert the destruction of crops over 4,000,000 ac. Floods in Palestine in January drowned 22 people and rendered many homeless. (See also DAMS; FORESTS; IRRIGATION; METEOROLOGY; SOIL EROSION AND SOIL CONSERVATION; TENNESSEE VALLEY AUTHORITY.)

(R. A. Rs.)

Florida. The extreme southeastern state of the United States, called the "Peninsula state" because of its peculiar outline. Its coast line, not taking into account its numerous bays and indentations, is greater than that of any other state, extending 472 mi. along the Atlantic and 674 mi. along the Gulf of Mexico. Area, 58,560 sq.mi., of which 4,298 sq.mi. are water surface; pop. (1940) 1,897,414, of which 1,045,791 were urban and 851,623 were rural; 1,384,365 white and 513,049 Negroes. Only about 60,000 were foreign-born. Capital, Tallahassee (16,240 in 1940). The larger cities are Jacksonville (173,065), Miami (172,172) and Tampa (108,391). By the state census (1945) Florida had a population of 2,249,649. Population figures for the three larger cities, Jacksonville, Miami and Tampa, were 206,442, 192,122 and 124,476 respectively.

History.—The state elective administrative officers in 1946, whose terms were to expire in Jan. 1949, were as follows: Mil-lard Caldwell, governor; R. A. Gray, secretary of state; J. Thomas Watson, attorney-general; C. M. Gay, comptroller; J. Edwin Larson, state treasurer; Colin English, superintendent of public instruction and Nathan Mayo, commissioner of agriculture.

Education.—The biennial report of the state superintendent of public instruction, 1942-44, the latest report available at the close of 1946, showed enrolment in the public schools for 1943-44 through grade 12 as follows: white 288,071; Negro 101,605; total 389,676. There were 1,766 elementary and 674 secondary public schools in the state, with instructional staffs totalling 13,305 teachers, of whom 9,993 taught in the schools for whites and 3,312 in the schools for Negroes.

Social Insurance and Assistance, Public Welfare and Related Programs.—Florida disbursed for state welfare \$19,267,587.40 in 1945-46. From grants by the federal government, the state received in 1945-46 for old-age pensions \$7,942,746.95; for dependent children \$1,346,673.64; and for pensions for the blind \$440,769.85. Disbursements for old-age assistance were \$15,282,356.50; for dependent children \$2,538,856.50; and for the blind \$853,345.50. The unemployment benefit receipts were \$5,025,890.34, with benefit disbursements of \$4,596,504.

Florida has no state penitentiary, but maintains a prison farm at Raiford, an Industrial School for Boys at Marianna and an Industrial School for Girls at Ocala. The appropriation for these institutions for 1945-46 carried the sums of \$630,600, \$220,880 and \$105,600 respectively. The state also supports a state hospital for the insane at Chattahoochee, the Florida Farm colony for the feeble minded at Gainesville and the Florida School for the Deaf and Blind at St. Augustine.

Communications.—The total highway mileage in the state in 1946, exclusive of roads built for military purposes, was about 49,184 mi., of which approximately 22,633 mi. were paved or hard-surfaced. Disbursements for the year ending Dec. 30, 1946, for maintenance and construction, amounted to \$18,315,472.44.

The state road department's tentative budget for 1947 for construction was \$49,813,431.10 plus \$3,473,499.88 for maintenance and other departmental costs. Florida in 1946 had about 6,000 mi. of railroads.

Banking and Finance.—On June 30, 1946, there was a total balance in the treasury of \$67,153,041.81. The state is constitutionally forbidden to incur a debt by borrowing except to put down rebellion or repel invasion. The constitution also prohibits the legislature from levying an income tax, forbids any state ad valorem tax on real estate, and exempts homesteads from taxation by local taxing units up to the value of \$5,000.

On June 30, 1946, there were within the state 60 national banks with deposits amounting to \$1,326,803,000 and 112 state banks and trust companies with deposits of \$499,392,000, representing total deposits of \$1,826,195,000, a gain in deposits of \$282,884,000 in the fiscal year.

Agriculture.—In 1940 the U.S. census showed that there were 62,248 farms with a total acreage of 8,337,708 ac. of which 1,751,275 were in crops; 462,248 were idle (fallow); 2,643,065 were in pasture; 1,649,960 were in farm woodland and the rest mainly in fruit.

Principal Agricultural Products of Florida, 1946 and 1945

Crop	1946	1945
Corn, bu.	6,910,000	7,755,000
Tobacco, lb.	22,251,000	20,082,000
Potatoes, bu.	6,249,000	5,285,000
Sugar cane, short tons.	1,156,000	1,042,000

The citrus production for the season 1945-46 and the estimates for 1946-47 respectively were as follows: oranges (including tangerines) 54,000,000 boxes and 67,200,000; grapefruit 32,000,000 boxes and 34,500,000.

On Jan. 1, 1946, the livestock resources of the state were as follows: 1,065,000 beef cattle and calves; 140,000 milch cows; 536,000 swine; 22,000 sheep; 21,000 horses; and 35,000 mules.

Manufacturing.—The more important manufactures of the state in 1946 were lumber, wood pulp, naval stores (turpentine and rosin) and cigars. There was a great expansion of shipbuilding after 1940, much of it in connection with the war effort.

The cigars manufactured in Florida are valued at around \$21,000,000 annually. Tampa and Jacksonville are the leading cities in this industry.

Florida's lumber production, mainly yellow pine and cypress, in 1945 was 465,000,000 bd.ft. The total estimated value of primary wood products for Florida in 1946 was more than \$100,000,000. Tung oil and the manufacture of paper and paper board were also important industries.

In 1939, according to the U.S. census figures (1940), the state had 2,083 manufacturing establishments, paying \$37,823,204 to 52,728 workers and producing \$241,238,534 worth of goods.

Mineral Production.—Florida had only limited resources in minerals, but had large and rich deposits of phosphates, lime and limestone and less extensive, though highly valuable, deposits of kaolin and fuller's earth. The estimated value of the state's mineral production in 1946 was about \$25,000,000.

(A. N. P.; J. M. L.)

Flour. The spring of 1946 saw flour millers adjusting their operations to conform to federal emergency measures plus the restrictions imposed by the U.S. Famine Emergency commission in co-operation with the United Nations Relief and Rehabilitation administration.

The major factors affecting grain available for milling during the year were: (1) export of at least 250,000,000 bu. of wheat to famine areas, (2) reluctance of farmers to market grain in view of probable higher grain prices and general inflationary market conditions, (3) governmental efforts to maintain adequate movement of grain for export and for domestic milling.

Wheat Flour Conservation Measures.—In order to meet the minimum export quota for 1946 of 250,000,000 bu. announced by Secretary of Agriculture Clinton P. Anderson, the following limitations on domestic wheat consumption were made effective early in the year:

- (1) OPA Supplementary regulation 14B (revised), effective, March 15, 1946, permitting reduction of the net weights of bread and rolls not to exceed 10% without corresponding price reductions.
- (2) Regulations limiting millers to 87.5% of the 1945 production of flour for domestic use.
- (3) U.S. department of agriculture ruling requiring the extraction of 80% flour from wheat, instead of the usual 68%-72%.
- (4) Regulations limiting brewers to 70% as much grain to manufacture beer for 1946 as in 1945.
- (5) Rules limiting distilleries to only three days (24 hours) operations for a month, instead of unlimited operations formerly permitted.
- (6) War Food order 144, making mandatory the reduction of flour millers' grind inventory from 45 to 30 days.

The net effects of these official orders and regulations were: (1) to curtail flour milling operations for a period of several weeks; (2) to limit and decrease the consumption of flour by the baking industry as a whole; (3) to make immediately available surplus wheat and flour for export.

The above program of grain conservation for export was additionally implemented by the department of agriculture's wheat bonus plan whereby all farmers would receive 30 cents per bushel above existing market prices for all wheat sold prior to May 25, 1946. Since much of this wheat could not be ground for domestic uses, it became immediately available for export to world famine areas, chiefly central and southern Europe, parts of France and Great Britain, China and India.

Voluntary co-operation by bakers with the government and the milling industry was manifest by the American Retail Bakers association, which on April 26, 1946, in convention at Chicago, agreed to a program of materials curtailment designed to cut white flour consumption by 40%.

Further recommendations for wheat conservation by Pres. Truman's Famine Emergency committee included the following:

1. To reduce by at least 10% the weight of all bakery products, especially bread.
2. To feature breads of smaller sizes.
3. To slice bread thinner.
4. To offer partial sized loaves, such as $\frac{1}{2}$ or $\frac{3}{4}$, to help prevent waste.
5. To save flour, as well as other ingredients, by avoiding spoilage and waste.
6. To serve corn or buckwheat cakes in place of wheat cakes.
7. To bake oatmeal bread, cakes, and cookies in place of wheat products.
8. To limit the number of crackers, etc., served with soups.
9. To eliminate three-layer cakes.
10. To use alternates for wheat cereal.

Starting Sept. 1, 1946, by order of Secretary of Agriculture Anderson, War Food order 144 was withdrawn, thus permitting the flour milling industry to return to normal operating conditions with respect to flour extraction. Limitations on U.S. flour production to 85% of the 1945 grind continued in effect.

Crops, Carry-over and Prices.—Fortunately for U.S. millers, as well as for the famine stricken areas of the world, the U.S. wheat crop for 1946 reached an all-time high of approximately 1,150,000,000 bu., about 9,000,000 greater than the 1945 record crop, and about 42,000,000 more than the official forecast. Wheat carry-over from the 1945 crop continued to drop steadily because of record flour production for that year combined with export shipments. The U.S. department of agriculture estimated that the wheat carry-over as of July 1, 1946, would drop to between 80,000,000 and 100,000,000 bu., said to be the smallest after the 83,000,000 bu. of 1937.

British Milling.—British millers and consumers of flour were much more severely harassed by governmental orders, resulting from the exigencies of war, than were millers in the U.S. or Canada.

Flour or wheatmeal milled in Great Britain after May 1946 was the 90% extraction product, a national wheatmeal containing 5% more branny substance than the 85% product initially milled in April 1942. The extraction rates from the outbreak of World War II varied both down and up from this 85% level. Starting with the prewar figure of approximately 72%, in April 1942 this was raised to 85%, then lowered, at first to 82½% in Oct. 1944 and later to 80% in Jan. 1945. An increase back to 82½% was ordered in Feb. 1946, up to 85% in March, and finally to the high of 90% in May 1946.

Nutritional Studies on Wheat Products.—Investigations of diets containing high proportion of wheat protein—wheat flour and breads—commanded considerable attention in the field of nutritional research. South



FINE MESH SILK SCREENS for sifting white flour being installed in a Minneapolis flour mill in late Aug. 1946. They replaced coarser screens which sifted "gray" flour during the wheat shortage

African investigators A. R. P. Walker, *et al.*, at the instigation of the National Nutrition Council of South Africa, conducted extensive researches to determine the effect of breads made with 95% extraction wheatmeal. Studies on the protein requirements of adults included diets of which, it was said, 50% of the nitrogen was supplied by white bread (containing no skim milk solids) and a total of 62% was supplied by cereal products.

Milling Statistics.—U.S. production of regular grind wheat flour in 1945 was 279,400,000 sacks (100 lb. each), based on census figures from mills producing 97% of the total U.S. grind. This represented an increase of 9% above the 255,200,000 cwt. production of 1944 and 22% above the 218,300,000 cwt. reported in the census of manufacturers for 1939.

Wheat ground in the production of white flour in 1945 was estimated at 652,000,000 bu., compared with 592,000,000 in 1944 and 510,000,000 in 1939. Thirty-three mills, or 3% of the total, accounted for 35% of

Table I.—Price Increases in the U.S. for Wheat During World War II

Year	Price to Farmers per bushel	Price Changes	
		Over 1940 per cent	Over previous per cent
1940	\$0.69	...	...
1941	0.68	1.4 decrease	1.4 decrease
1942	0.945	36.9 increase	39.0 increase
1943	1.10	59.5 "	16.4 "
1944	1.36	97.1 "	23.6 "
1945	1.41	104.3 "	3.7 "
1946	1.74*	152.2 "	23.4 "

*Estimated Sept. 1, 1946.

Table II.—U.S. Wheat Flour Production for 1945 by Type or Use

Item	No. of companies	Production in thousands of sacks	Per cent of total
Family flour	906	69,251	24.5
All purpose		65,154	23.1
Prepared mixes including cake and pastry flours	44	4,097	1.4
Commercial flour, excepting export . . . . .	...	181,752	64.4
Bakery Flour	232	165,920	58.8
Blender Flour and Farina	84	5,199	1.8
Semolina and Durum Flour	11	10,633	3.5
Export Flour	106	18,312	6.5
Industrial Flours, excepting direct exports	52	12,959	4.6
Total	931	282,278	100.0

**Table III.—Average U.S. Retail Prices of Flour and Flour Products,
Aug. 14, 1945**

(Compiled by U.S. Bureau of Labor Statistics)

	in cents per pound					Annual Averages	
	Aug. 14 1945	July 17 1945	Aug. 15 1944	July 18 1944		* 1944	1943
Flour, wheat	6.4	6.4	6.5	6.5	-6.5	6.1	5.2
Bread, white	8.8	8.8	8.8	8.8	8.8	8.9	8.7
Bread, whole wheat	9.7	9.7	9.6	9.7	9.7	9.8	9.5
Bread, rye	9.9	9.9	9.9	9.9	9.9	10.0	9.7
Soda crackers	18.9	18.9	19.0	18.9	18.9	18.0	16.4

*Based on data from 51 U.S. cities prior to Feb. 16, 1945

the 1945 reported production of regular wheat flour. Mills with a maximum daily capacity of more than 1,600 sacks accounted for 84% of the total production in 1945, compared with 80% in 1940.

(See also BREAD AND BAKERY PRODUCTS.)

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Fluorspar. The demand for steel during World War II led to increased requirements for fluorspar which were made even larger in the United States by other war uses. Hydrofluoric acid and its derivatives are used in the making of artificial cryolite, insecticides (DDT and aerosol bombs), refrigerating liquid (freon) and high octane gasoline. The important place which these products gained in the war program was expected to carry over to peacetime, and to lead to a demand for fluorspar above that of pre-war years. The development of the industry during the war years is outlined in the table.

Data of Fluorspar Industry in the U.S., 1939-45

(In thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Shipments	182.8	233.6	320.7	360.3	406.0	413.8	324.0
Imports	16.3	11.9	7.5	2.2	43.8	87.2	103.1
Consumption	176.8	218.5	303.6	360.8	388.9	410.2	356.1
Iron and steel	127.3	160.1	214.7	250.4	241.4	238.0	204.7
Acid	26.3	35.7	56.0	81.6	113.6	129.6	109.3

The production rate declined appreciably in 1945 and continued low in 1946. Shipments in the first eight months of 1946 totalled 158,310 tons and consumption 185,105 tons. Imports declined heavily.

Production figures for other countries for 1944 (and 1945) were limited to the following, in short tons: Canada 6,924 (6,921), Mexico, exports 62,225 (55,392), Newfoundland 65,308 (54,940), Spain 56,242 (7,119). (G. A. Ro.)

Food and Drug Administration: see DRUGS AND DRUG TRAFFIC; FEDERAL SECURITY AGENCY.

Food Research. Scientists engaged in food research were able in 1946 to turn from war emergency programs to long-time objectives. Among these objectives were the definition of basic needs, the determination of food properties and the discovery of fundamental relationships between nutrition and economic conditions. Naturally, nutrition facts learned under war conditions came in handy. Millions of people in Europe and elsewhere subsisted or partly starved during the war on one-half to one-third as much food as the average U.S. citizen gets. Studies of nutrition under these conditions afforded ground work for important generalization.

Underfeeding affects nutrition in proportion to its degree and its duration. One of the first results, and one of the most easily measured, is loss of weight in adults and retarded growth in children. Monthly weighings by the U.S. army of more than 100,000 persons in occupied Germany and Austria, supplemented by more detailed measurements on a smaller sample, gave important evidence, which research workers combined subsequently with comparable data obtained under more normal conditions. They concluded that when diets provide fewer than 2,000 calories daily for a person for any length of time, the effects are very serious.

Adults lose weight and also lose the power to work effectively, children fail to grow normally and civil unrest appears, except possibly in the far east where people endure semistarvation fatalistically. Strangely, the investigations in Europe did not commonly reveal severe vitamin deficiencies. Nutritionists inferred the reduced caloric intake, with the associated lowered

rates of metabolism, had lowered the vitamin requirement. Nevertheless, observers reported rickets among groups of young children who had not had fish liver oil or some other source of vitamin D. Underfeeding also involved greater susceptibility to disease and higher death rates. It was not possible to estimate the lasting damage to health.

Nutritionists in the United States expressed concern as to the possible effect of high prices on nutrition. In the war years incomes generally sufficed to meet these higher prices. Many families indeed purchased more milk, eggs, meat, fruit and vegetables than before the war. Their greater food intake, along with the general enrichment of grain products with vitamins, lifted the nutrient value of the average diet to an unprecedented high level. Moreover, the average U.S. civilian in 1946 consumed no less than 15% more food in terms of calories than before the war. Nevertheless, certain groups were still not adequately fed, and the prospect that food prices might rise still further with incomes not keeping pace implied that many families with low incomes would have to change their buying patterns and include in their diets more of the lower-priced concentrated foods such as grain products, dry beans and peas and potatoes.

Accordingly, nutritionists drew attention to laboratory studies that showed the nutritive value of soybeans, peanuts, cottonseed, wheat germ and corn germ. Proteins in these foods have high nutritive value and very effectively eke out reduced supplies of the animal proteins. Plant proteins combine well with breadstuffs and cereals, often in such a way as apparently to increase the total nutrient value. Thus, the department of agriculture reported that adding 15 parts of soybean flour to 85 parts of wheat flour in bread used in feeding experiments with young rats increased the growth-promoting value five times. In these experiments wheat and corn germ proved superior. Wheat germ was highest in growth-promoting value and appeared to be the plant protein nearest to the proteins of meat, eggs and milk.

The department also carried on investigations to find out the vitamin A requirements of human beings. Scientists fed an experimental diet to volunteers. Meals given contained every vitamin the human body is known to need except vitamin A, which was almost completely absent. One early measurable effect of vitamin A deficiency is night blindness. Appearance of this condition indicated the subject had about used up his stored vitamin A. He then received enough in gradually increased doses to keep his vision normal in dim light. These experiments yielded data for estimating average daily minimum vitamin A requirements and also the relative importance of different sources. In the first experiments cod liver oil and carotene provided the measured amounts of vitamin A. Then the requirements were measured in terms of natural food, such as peas, spinach and carrots, parts of which are changed to vitamin A in the body. It appeared that the normal adult needs from 30 to 60% more carotene as found in vegetable foods than he does of the vitamin A found in animal foods.

A new aid for nutritionists and others engaged in planning diets or calculating the nutritive value of food supplies was the publication by the department of agriculture of *Tables of Food Composition in Terms of Eleven Nutrients*. The tables brought under one cover the composition of 275 common foods in terms of 11 nutrients.

The new publication gave average values for food energy, protein, fat, carbohydrate, vitamin A value, thiamine, riboflavin, niacin, ascorbic acid, water and refuse. The values given were derived from all available literature of nutrition research and from unpublished data from laboratories that had analyzed foods through arrangements with the National Research Council. In addition to foods believed to be most commonly used in the United States, the tables included many of the less common foods. All the values were stated in terms of a 100-gram edible portion and in terms of one pound as brought into the house for consumption.

Typical of studies on the nature of foods were investigations in the department on the nutritive value and the amino acid content of protein-rich foods of both plant and animal origin. It was discovered, for example, that the proteins of raw peanut meal have much higher biological values than commercial peanut meals. This suggested that the high temperatures used in the industrial preparation of peanut meals are injurious to their nutritive value and that corrective measures could improve the quality of this protein-rich food. It was found that heat treatment in the presence of moisture improved the quality of soybean protein.

More than 30 proteins or protein-rich foods had been assayed in the department for methionine, a nutritionally essential amino acid containing sulphur, by two chemical methods and a microbiological method. The results by the three methods were in close agreement. The microbiological method represents a substantial advance in protein analysis. It has advantages in speed, economy, simple equipment needed and in the minute quantities of the protein required, and is applicable directly to food materials.

Food chemists have long wished that they could improve the contribution of the egg to the calcium content of the human diet. The eggshell is nearly half calcium, while both yolk and white are notably low in this nutrient. Technological advances that made dried egg a staple product for commercial bakers opened the way to its use in home kitchens.

It seemed feasible to experiment in increasing the calcium content of dried egg by adding ground shell.

It was found that the addition of 0.4% eggshell ground to pass a U.S. No. 400 sieve (openings of 0.0015 in.) yielded a product which could be used without detection in scrambled eggs, custards, ice cream, foundation cakes, muffins, popovers and yeast rolls. Eggshell particles somewhat coarser than the 400-sieve size were not detectable in baked custards, in vanilla-flavoured refrigerator ice cream or in foundation cake and yeast rolls.

The bureau of human nutrition and home economics completed a study of the nutritive value of the civilian food supply over a 37-year period—1909 through 1945. This brought to light trends through war and peace, good times and depression.

The starting point was an estimate by the bureau of agricultural economics of the annual per capita consumption of about 170 different foods—such as milk, meats, poultry, eggs, grains, fruits, vegetables, sugars and fats. Then, with average figures for calories, proteins, vitamins and minerals in these foods, the nutritionists computed the nutritive value of the per capita food supply.

It appeared that during the years of World War II food for U.S. civilians on the per capita basis contained more calcium, iron, B vitamins, vitamin A and vitamin C (ascorbic acid) than at any other time in the 37-year period. Important in bringing about these gains were milk, eggs, vegetables and fruit and the enrichment of white bread and flour. Calorie and protein levels during World War II were somewhat higher than in the 1930s, but not above consumption in the decade prior to 1920.

Over the whole period there was a steady increase in calcium, vitamins A and C and riboflavin in the B vitamin group. The rise in calcium and riboflavin was largely because of greater consumption of milk; the rise in vitamins A and C because of increased use of fruits and vegetables. Accounting in large measure for this increase in vitamin C was the more than fourfold increase of citrus fruits after 1909.

Thiamine and niacin fell to all-time lows in 1935, coincident with a sharp fall in meat supply, especially pork. From that time these values were on the upgrade, associated in part with higher meat consumption, in part with enrichment of a large proportion of the flour, bread and cereal.

The study furnished a perspective against which to appraise current supplies, the probable effect of food emergencies and the nutritive value of the food of various nations.

International Food-Consumption Studies.—Studies of the food-consumption levels of the United States, Canada and the United Kingdom, first made on a comparative basis for the year 1943, were extended through 1945. The results show that in 1945, as in 1943, the United States, Canada and the United Kingdom each possessed reasonably adequate supplies of food to meet nutritional requirements for their populations. Total supplies of foodstuffs in terms of calories varied only slightly from prewar levels.

Important shifts in types of food available for consumption were found in all three countries, which made distribution difficult, created great hardship in the preparation of meals and in some cases necessitated rather radical changes in personal eating habits. Meat rations, for example, were reduced in the United Kingdom during 1945 until the supply moving into civilian consumption was 21% below the prewar average, while beef supplies in the United States were 15% below the prewar average during the first 6 months of 1945. Total protein supplies available in 1945 for domestic consumption in the United States, however, were 14% and in Canada 9% above the prewar level. British protein levels were 10% above those of prewar years but were made up of vegetable proteins to a much greater extent than in the United States or Canada.

There were other notable differences in 1945 diets as compared with those of prewar years. Supplies of sugar were down 18% in the United States, 24% in Canada and 32% in the United Kingdom. The decline in fats and oils was also great, amounting to 11% in the United States, 10% in Canada and 20% in the United Kingdom. Supplies of milk and milk products, excluding butter, were up 30% from those of prewar years in the United States, up 21% in Canada, and up 30% in the United Kingdom. Potato consumption did not fluctuate greatly during the war years in either the United States or Canada, but in the United Kingdom averaged 60% above the prewar level for the whole year 1945 despite a temporary shortage during the spring of the year.

The department of agriculture also deemed it necessary in view of wartime exigencies and postwar shortages to participate in the making of food-supply estimates in countries other than the United States, Canada and the United Kingdom. Representatives of the department served on Inter-Allied committees in both 1944 and 1945. They assisted in preparation of food balance sheets for the Allied countries of continental Europe and estimates of food supplies available in enemy countries.

Estimates had been made by the department of agriculture during the past several years of indigenous production and the total available supplies of foodstuffs in all the countries for which adequate statistics for measuring consumption were available. Data gathered in 1946 by the department from all over the world were made available to the Food and Agriculture organization and to the United States representatives on the International Emergency Food council, enabling them to compare relative needs for various foods on a scientific basis. Australia had also made an analysis of the food levels in that country, using the same method as that employed in the original United States-Canada-United Kingdom nutrition studies.

International food-consumption comparisons are valuable for the future in that they promote improvement not only of statistics, but also of nutrition and markets for agricultural products among nations generally. In response to a request of the Food and Agriculture organization, members of the U.S. department of agriculture and other agencies outlined suggestions for a food-consumption statistical program. The F.A.O. adopted the principle that the improvement of nutritional levels and fulfillment of

other objectives as provided in the constitution of the F.A.O. would require national food-consumption statistics programs and international collaboration in the field of food consumption statistics. (See also *DIE-TETICS; FOOD SUPPLY, WORLD.*) (A. P. Cw.)

Food Supply of the World.

Food production and distribution continued to command the first attention of the nations through 1946 as it had from V-E and V-J days. Adequate food was recognized as essential to peace, to check revolution, to avoid famine and to lead people to resume normal industry and commerce essential to a peaceful economy. The world's food situation in Jan. 1946 was not generally encouraging. The several years of record-breaking production in North America did not offset the deficiencies in the heavily populated areas of central Europe, China and many other regions. The more liberal rationing that followed the end of hostilities consumed the scant reserves faster than transport of new supplies could be organized. More than the usual proportion of the world's food supply was consumed in the first half of 1945 leaving reduced stocks later in the year.

Production of food crops was estimated at the beginning of 1946 at 12% below the prewar average of 1935-39. More serious was the fact that the production was lowest in areas that were normally food deficit areas, which placed an increased burden upon the relief agencies. This was particularly true of Germany where food production was disturbed late in World War II and began to recover very slowly in 1945. Consumption was the lowest in the former enemy countries, Germany, Japan and Italy. The liberated countries such as France, Belgium, the Netherlands and Norway had restored production to a marked extent and required less aid. The food supply of farm people had improved faster than that of the larger cities. Because of disrupted transport, storage facilities, lack of confidence in money and other interruptions of trade the producers declined to deliver produce and the city stocks became exhausted. The severely bombed cities of Germany were particular sufferers. Distribution of food products by government agencies was almost everywhere essential.

The operations of the United Nations Relief and Rehabilitation administration provided a comprehensive check on the needs of the deficient areas. While it did not serve all the needy nations, its surveys of supply and distribution gave it a world-wide view. Early in 1946 it became evident that the requirements of Europe alone would place a heavier burden on U.S. supplies, and ways and means of increasing exports were considered. The termination of lend-lease had thrown a heavier burden on U.N.R.R.A. although the former was supplying Allies and not enemy or neutral countries.

Grain harvests were generally very good in 1946 and above 1945 as well as the prewar average. This did not mean that a larger amount was available for consumption, however, since stocks had been greatly reduced. The demand for grain foods was strong, however, because of smaller supplies of other foods such as meat and vegetables. Many people were almost entirely on a bread diet. The world's wheat crop was estimated at more than 4,000,000,000 bu., not including the soviet union and China, or more than 5,000,000,000 bu. in all countries. The big crops of the United States and Canada would not provide exports so large as in 1945-46, however, since much of the 750,000,000 bu. exported by the United States and Canada came from stocks which had been reduced to record low levels. World rye production was still 16% below the prewar level since the crop had not recovered in Germany and Poland. Argentina had a considerable surplus for export.

Rice production was estimated at 10% above the 1945-46 crop but still 5%-10% short of the prewar level which was about 7,431,000,000 bu., 1935-39. Since rice supplied about

20% of the world's food supply, it was vital to those countries where it was grown, such as China, which formerly produced 35% of the world's supply, and India, where 25% was raised. Rice did not usually enter into trade but in 1946 the western hemisphere shipped large quantities for relief. The rice crop harvested in the fall of 1946 was the first crop in oriental surplus-producing countries to be planted after World War II, and many areas in China, Burma and the Philippines were not able to resume normal production because of local disturbances.

Sugar production recovered slowly and gained about 10% in 1946 over 1945. The supply for consumption did not increase markedly since stocks had been drained and domestic consumption in producing countries reduced exports. Europe produced more beet sugar, North American and Caribbean production increased but little was to be had from Java, Formosa or the Philippines where the sugar factories were destroyed during World War II.

Fats and oils, vegetable and animal, production was estimated to be slightly more than in 1945 but far short of the prewar level. Total output in 1945 was estimated at about 18,000,000 tons compared with the prewar average of 21,600,000 tons. Of this total not more than 3,000,000 tons was available for export. Hope for relief depended upon the restoration of exports of coconut and palm oil from the East Indies and Philippines and oil seeds from China. Peanut production increased slightly over 1945 but the future surplus had to come from Asia where two-thirds of the world's crop was grown. Butter, lard and other animal fats were all still about one-third below prewar production and recovered very slowly. The decline in hog numbers in Europe during World War II greatly reduced the output. Marine oils amounted to only about 30% of the prewar amount. Fishing was recovering very slowly because of the difficulty of obtaining ships.

Meat production declined in the United States, Canada and

other exporting countries after reaching a high level of total exports of 5,900,000,000 lb. in 1945-46. Livestock production in Europe declined from 1944 to 1945 and made only a slight increase in 1946 because of feed shortages and of emphasis being placed on growing cereals and vegetables for human food. Estimates early in 1946 indicated that cattle numbers were 2,000,000 less in North America, 6,000,000 less in Europe but 3,700,000 more in the soviet union than in 1945. Argentine meat production was declining in late 1946 after many animals had been marketed because of high grain prices. Argentina was the principal meat exporter in the year 1945-46 but fell more than 30% short of the record of 1944. Under agreement with Great Britain larger shipments to that country were expected to follow.

Stocks of dairy products that had been accumulated under wartime programs were mostly used in 1946 and the replacement of dairy animals was proceeding slowly in Europe because of the shortage of feed. Denmark and New Zealand were increasing their output but slowly. Total dairy production was estimated at only three-fourths of prewar volume. The dairy cycle in the United States and Canada being on the downgrade, surpluses from these countries were smaller. Great Britain made some increases in dairy output because of better feed supply.

Poultry numbers were being slowly replaced in devastated countries. Shipments of baby chicks and hatching eggs by aeroplane by U.N.R.R.A. gave prompt aid to some very needy areas. Egg production was so short of needs that rationing was continued in most European countries. Belgium and Sweden had almost normal production but other countries were still short of an adequate supply. Feed grain shortages handicapped production. About 500,000,000 doz. eggs were exported in 1946 by the United States, Canada, Australia, Argentina and Denmark. Only Canada and Australia expected to increase their output for 1947. About three-fourths of these exports moved as dried or frozen eggs. This supply was far from sufficient to meet import demands since Britain alone would take 450,000,000 doz. if available.

Vegetable production was expanding in all countries in 1946. Potatoes returned larger crops in nearly all European countries than in 1945 and rations were raised toward the end of the year. Other root crops and peas furnished the best food supply during the summer and fall months.

Food Situation by Areas.—The world's food situation from an over-all viewpoint showed improvement in 1946. The deficit areas were recovering while the surplus areas continued to be favoured with high record crops. Eight bountiful years in most of the western hemisphere partially offset the shortages of Europe and Asia but not completely. The great postwar requirements for relief were provided while at the same time consumption returned nearly to the prewar average in the United States. With another year of high production in the western hemisphere and a continued gain in production in Europe the outlook indicated that minimum supplies would approach prewar levels in most countries.

North America had high record production of nearly all food products in 1946. At the same time that area, United States and Canada, supplied the largest amount for export for relief. Canada's 40% increase in wheat production, 440,000,000 bu., served to replace its reduced stocks and to give a good balance for export. The feed situation was tight and reduced meat and dairy output. Great Britain would continue to take all the beef and bacon that Canada could export. Canadian potatoes returned a crop about 24% more than that of 1945. Mexico had a good season in 1946 with a corn crop about one-fourth larger than in 1945. Imports were necessary, however, to provide adequate wheat, rice, sugar and fats. Some surpluses of beans, peas, bananas and other fruits were exported. Meat supplies were about in balance with demand.

South and Central American countries had crops better than in 1945 although those that usually produce surpluses were not up to their prewar levels. Argentina, the chief exporter of South America, exported less wheat, flax, pork and lard than in 1945 but more corn, beef and mutton. Brazil had good food crops but was again turning to cotton growing in place of rice and corn. Other Latin American countries were recovering domestic food production and beginning to provide prewar normal surpluses. Cuba increased its sugar output of which 90% was exported and one-third of the food supply imported. Banana exports increased from Central America but were limited by the shortage of shipping.

The United Kingdom and Eire experienced an excessively wet harvest season causing heavy losses of grains. Britain's wheat crop was reduced to 68,000,000 bu. compared with 81,000,000 bu. in 1945. Potatoes and beets were also damaged. Stock feeds and hay were damaged but low-



IN "BREAD CAST UPON THE WATER," Werner of *The Chicago Sun* saw ample return to the U.S. for sharing its food supply with the world in 1946



RUSSIAN WHEAT being examined by French dock worker in the hold of a freighter at Marseille, France, in April 1946. This was the first shipment under an agreement whereby Russia was to supply France 400,000 tons of wheat and 100,000 tons of barley

grade grains were turned into livestock feeds. Fruits, vegetables and hops were seriously damaged. Severe rationing was continued throughout the year almost as limited as in wartime and every emphasis laid on increasing exports at the expense of reduced purchases of imported foodstuffs. The shortage of 1946, however, led the government to make contracts with the dominions, Denmark and Argentina for larger quantities of wheat, beef, pork, butter, cheese and eggs. The government was continuing strict control over food supplies. Plans to control farm production permanently somewhat as was done during World War II were also proposed by the Labour government. Food production in Eire was severely reduced in 1946 by the wet season and smaller production of meat. Rationing was continued as in 1945.

Europe as a whole produced foods in supply about 10% below the prewar level. Germany, Austria and the lower Danube valley countries were the deficit areas. The western European countries made substantial gains and in several cases brought production above the prewar level. Denmark made the greatest gain, Sweden and Norway exceeded their normal production and Belgium and the Netherlands recovered most rapidly. Since Europe as a whole normally imports about 10% of its food supply, the return to 90% of prewar level leaves a margin of about 20% deficiency. During 1945-46 Europe received more than 13,000,000 tons of grain and flour, 725,000 tons of sugar, 575,000 tons of fats and nearly 350,000 tons of meat as relief shipments and exchange imports. Food consumption was at a very low level early in 1946. The city population of Germany, Austria and Italy had an average of less than 1,600 calories per day. The range was from 2,400 to 2,600 in the Netherlands, Belgium, France and Switzerland, while in Denmark the supply allowed 2,700-2,900 calories per day. Several times during the year shipments were alarmingly slow and appeals were made for more aid for central Europe. Late in 1946 the Italian situation became acute and food riots occurred in several cities. Farm stocks were particularly low in southern Italy and deliveries to cities were inadequate in the northern provinces. France made an increase in the average ration of about 25% over 1945 but continued to ration bread through 1946. The Netherlands made a gain of about 20% in terms of calories per capita over 1945 in spite of the losses of land from flooding during World War II which had not been fully reclaimed. Livestock increased to within 10% of the prewar level, milk was about 70% of prewar but pigs were held down to 60% of former normal numbers to save feed grains. Switzerland had a good crop output but livestock was held down by the feed shortage. The average for the country was about 2,700 calories per day. Norway recovered rapidly in both crops and livestock as well as in the fishing industry. The latter had almost reached the prewar level, one-fifth of which was used for

domestic food.

Spain and Portugal recovered from the severe drought of 1945 with the best crops in several years in 1946. Altogether, however, Spanish agriculture was in a very low state because of poor farm methods, lack of machinery and work stock. The food supply of 1946 provided only about 2,000 calories per day or 85% of the 1931-35 average. The country was still suffering greatly from the destruction of the civil war. Portugal was on even lower rations in 1946 than Spain and needed large imports for 1946-47.

In the Danube states Hungary and Rumania had better crops in 1946 than in 1945 but were below the prewar level when large quantities of foodstuffs were exported. Rumania experienced a severe drought which held the 1946 crop output to about the same level as 1945. Livestock was limited by the shortage of stock feeds. Bulgaria suffered less during World War II and with fairly good crops in 1946 was able to provide the people with about 2,700 calories per day. Yugoslavia raised more food and with U.N.R.R.A. aid in machinery, draft animals and seeds made good progress to a level of about 2,500 calories per day. Greece increased domestic food output but because of the very low state of agriculture was more dependent on U.N.R.R.A. aid than other countries. The average food level of 1945-46 was estimated at 2,200 calories of which about 45% was imported by U.N.R.R.A. Vigorous efforts were begun to replace this supply in 1947 when relief shipments were expected to decline sharply.

The Soviet Union increased food production in 1946 but supplies were still so short as to make severe wartime rationing necessary. Only bread was available to the full extent of the ration at the end of the year. Crop conditions were quite variable over the large area and droughts were reported in some regions while high returns were recorded for others. In the absence of complete information observers estimated that grain production was increasing but that livestock was still a serious deficit. An agreement was made with Denmark to import 33,000,000 lb. of butter in the year beginning July 1, 1946, in exchange for grain and oil cakes. There appeared small prospect of the Soviet Union's being able to enter the world market to any large extent for several years.

In North Africa and the middle east 1946 yielded sufficient foodstuffs for domestic subsistence and some increase in exports. Turkey had record crops as weather was generally favourable. Egypt had a surplus of rice for export to exchange for bread grains, wheat and corn, which were short crops. Iraq, Iran, Syria and Lebanon had ample grain crops and some surplus of olive oil to export in exchange for sugar. The Palestine citrus crop was expected to yield 5,000,000 cases for export. Other crops were poor, however, and a large part of the food supply had to be imported. Any increase in population increased this problem as agricultural production expanded very slowly under irrigation.

In the far east crop production as a whole was larger in 1946 than in any other year since the beginning of World War II. In the vast area of

China some places continued on the verge of famine, while others yielded small surpluses. The efforts of the government and relief agencies had ameliorated the situation as much as could be expected with the shortages of transport. The food problem of China was so large that no substantial change could be expected in less than a decade of modernization. In India the rice crop was uneven, good in Bengal, average in eastern India and poor in Madras. The problem of the government was to regulate movements of surplus to needy areas rapidly enough to maintain minimum rations. The Burma, Siam and Indo-China area was reported to have a surplus of about 2,000,000 tons of rice from the 1946 crop. Military and political disturbances were disrupting trade seriously in the late months of 1946 so that shipments might not reach the areas of deficit.

Japan with about 78,000,000 people had about 2,300 calories of food per capita before World War II, which declined to about 2,000 during the war. Of the 5 principal crops—rice, sweet potatoes, white potatoes, wheat and barley—the first 2 supply about two-thirds of the domestic supply while about 4,000,000 tons of rice must be added to maintain the wartime ration of 2,000 calories. The imports formerly came from Korea and Formosa. Some beans were also imported from Manchuria. In 1946 Korea had no surplus and had to look to China and Manchuria for imports. The prospect indicated that more fish would probably be added to the diet and severe rationing continued in relation to the kind of labour required.

Food production in the Philippine Islands improved rapidly in 1945 and 1946 to about 80% of prewar for rice and only a small deficit of corn and sweet potatoes. Exports of copra were purchased by the U.S. government which would provide the islands with means to buy the food supplies needed. Livestock and poultry numbers increased in 1946 and were expected to be fully restored in three or four years.

Australia enjoyed a fruitful year 1946 with drought in one area only. The crops of wheat, rice and fruits were better than in 1945. Dry weather and strikes reduced the meat output of Queensland and hog production declined because of the high price of feeds. New Zealand also recovered from the effects of the drought of 1944-45 and expected substantial increases in the crops of 1946-47. South Africa crops were slightly larger than in the drought years, but fats and oils were still scarce. The chief items for export were citrus and other fruits.

World Food Organizations.—The vast efforts of all nations to provide more food for their people following the end of major hostilities stimulated both international and national agencies to a high pitch of activity. The Combined Food board which represented the United States, Canada and the United Kingdom in allocating food supplies during World War II reported to the U.N.R.R.A. council in March that wheat supplies for export appeared likely to be short 8,000,000 tons. This and other alarms started a series of movements to check threatened famine in Europe and other parts of the world. The president set up a National Famine Emergency committee with former Pres. Herbert Hoover as chairman. This committee appealed to the people of the U.S. to conserve food in order to save 40% of the grain and 20% of fats and oils that might normally be used during the spring months. Chairman Hoover made a personal survey of Europe in March to review the situation and later in May flew to South America to determine the aid that might be expected from that area.

The general assembly of the United Nations issued an appeal to all governments to take drastic action to conserve supplies of food and to increase production of grain. The Food and Agriculture organization (F.A.O.) as the permanent agency in the field of food and agriculture invited all governmental agencies to participate in a special meeting on urgent food problems which was held at Washington, D.C., May 20-27, 1946. An appraisal of the world food situation was issued by F.A.O. which stated that "a critical world food shortage will continue at least until crops are harvested in 1947." Representatives of 22 nations and 6 organizations approved recommendations on ways and means of conserving and increasing food supplies and also urged that the Combined Food board be reorganized into the International Emergency Food council (I.E.F.C.) with membership open to any country that desired to co-operate. This proposal was carried out in June when 19 nations joined to establish I.E.F.C. which took over on July 1, 1946, the work formerly done by the Combined Food board.

As the emergency measures were put into action to get grain for relief, such as the 30-cent premium for immediate delivery of wheat, and the record-breaking new crop of wheat became assured, the situation improved. The U.N.R.R.A. was slated to end in 1947, however, and appeals began to be made to continue it or prepare some organization to follow.

A World Food survey of the situation in prewar years was made by F.A.O. during the first half of 1946 as a guide to proposals for future food and agricultural policies. Food experts from the United States, Great Britain and other countries gathered available information from international and national agencies covering 70 countries with about 90% of the world's population. Although obviously incomplete the results were sufficient to serve as a comparative measure of the situation. The conclusions of this survey indicated that slightly less than one-third of the world's population had food supplies of more than 2,750 calories per capita per day. More than half of the world's people lived in areas where the supply was less than 2,250 calories per day and the remainder, about one-sixth, lived in areas having 2,250 to 2,750 calories per day. While many people in each of those areas had more than the averages there were probably more that had less, reflecting the generally deficient world food supply compared with countries that had an abundance and consumed about 3,000 calories daily.

The final conclusion from this survey was that half the world's people were underfed before World War II in that they subsisted on a diet inadequate to maintain normal health, allow for normal growth of children and furnish energy for normal work. In order to bring food production to an adequate level by 1960 and to feed a 25% increase in population the principal foods would have to be increased as follows: cereals 21%, root crops 27%, sugar 12%, fats 34%, peas and beans 80%, fruits and vegetables 163%, meat 46% and milk 100%.

The magnitude of the task to get such an increase in food production was fully emphasized by the survey. F.A.O. recognized the practical and



FRENCH BOY receiving his ration of two eggs per month; during the early part of 1946, however, the supply was not enough for this meagre allotment

political problems involved. A proposal for a World Food board was prepared by Sir John Orr, director-general of F.A.O., and presented at the second session of F.A.O. at Copenhagen, Denmark, Sept. 2-13, 1946. The proposal was referred to an F.A.O. preparatory commission of 16 member nations that met at Washington, D.C., Oct. 28. This commission was still in session at the year's end. Efforts were made to co-ordinate the work of this commission with that of the International Trade organization, the International Bank for Reconstruction and Development, the International Labour office, the International Monetary fund and the Economic and Social council. The soviet union and Argentina, though not members of F.A.O., were invited to participate.

FILMS.—*Distribution of Foods* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

Football. Army went through its third successive season without defeat in 1946 as intercollegiate football, strengthened by a flood of returning service veterans, broke all records for attendance.

Interest in the West Point eleven and its backfield pair, Felix (Doc) Blanchard and Glenn Davis, continued to remain paramount despite the fact that strong teams arose in all parts of the United States with a host of former varsity players back on the campus. The gap between Army and the rest of the field, so wide in 1945 and 1944, was closed, but no rival was able to bring down the "Black Knights of the Hudson." The winning streak of the team, however, was brought to a pause when it was held to a scoreless tie by Notre Dame under the leadership again of coach Frank Leahy, back from the navy.

Despite that checkmate, Army continued to rank as the number one team of the country until, in its final game with Navy, it narrowly escaped defeat in the most sensational contest of the year. Beaten in seven successive games—the worst record in its history—the eleven from Annapolis capped a season of almost unparalleled surprises by coming within a few yards of tumbling the cadets in defeat.

The midshipmen, trailing by 21-6 at the end of the first half, completely outplayed the West Pointers for the rest of the game. Scoring two touchdowns, they still trailed by 21-18 as a result of their failure to kick the extra points. Then, in the last few minutes, they drove 64 yd. to their rival's 3-yd. line.

Nothing, it seemed, could save the invincibles of Earl Blaik from one of the most shocking defeats in history. Favoured by 28 points, Army was all but helpless against the fury of Capt. Tom Hamilton's fighting eleven from the Severn. As Navy

ripped the West Point line apart for gain after gain, the big clock in the huge Philadelphia Municipal stadium showed time rapidly running out. But, with the ball on the three-yard line, a minute and a half remained to play—sufficient, apparently, for the middies to get across the goal line.

But the touchdown never came. Fighting with their backs to the wall as they had never been forced to fight before in their three years of sway, the weary, battered cadets had the morale and the strength to save themselves. Twice the Navy fullback hurled himself into the line and each time he was stopped without gaining an inch. Then the middies were penalized five yards for taking an extra time out to make substitutions.

On third down, a lateral play around end was called. The ball carrier was downed just inside the five-yard line. The crowd was encroaching on the field of play, with only a few seconds remaining to play. A substitute rushed out from the Navy bench to stop the clock. The officials failed to see him in the excitement. Even had the clock been stopped for the substitution, which would have brought another five-yard penalty, there would hardly have been time to launch another play. A pistol barked and the game was over. Navy's gallant bid for victory had failed by a few scant yards, and by that margin the finest record in West Point history was preserved.

Army had completed 3 years with a record of 27 victories and 1 tie. Blanchard and Davis, who had scored all three of West Point's touchdowns on typically brilliant plays, had wound up their careers in glory, even if Navy's backs had stolen their thunder in the second half. Along with them seven other regulars played their last game in the black, gray and gold of Army.

As a consequence of their narrow escape from disaster the cadets were ousted from their number one position in the final nation-wide poll. Notre Dame, which had won every game except its tie with Army, was ranked at the top and its quarterback, Johnny Lujack, who had come back from World War II, was chosen on almost every all-American team, ahead of Army's brilliant Arnold Tucker.

Nevertheless, Earl Blaik was named in a nation-wide vote by his colleagues as the coach of the year, in recognition of his expert direction of a team that was sorely lacking in reserve strength and bringing it through unbeaten for the third season against such formidable opponents as Notre Dame, Michigan, Oklahoma, Duke, Pennsylvania and five others. Also, Davis was awarded the Heisman trophy as the player of the year. He and Blanchard, who was handicapped by a knee injury from the opening game, were unanimous all-American selections.

Two other major elevens escaped defeat. They were Georgia, the strongest team in the south, which tied with Tennessee for the Southeastern conference championship, and the University of California at Los Angeles (U.C.L.A.), Pacific Coast conference leader.

After these four were ranked Illinois, winner of the Western conference championship for the first time after 1928; Michigan, Tennessee, Louisiana State, North Carolina, champion of the Southern conference and Rice, which shared the Southwestern title with Arkansas. Georgia Tech, Yale, Pennsylvania, Oklahoma, Texas and Arkansas followed.

An agreement was reached between the Pacific Coast and the Western conferences whereby representative teams of these two groups were to meet in the Rose Bowl for three years and possibly five years. U.C.L.A. and Illinois as the champions of the two conferences were chosen to inaugurate the rivalry. They met in the Rose Bowl at Pasadena Jan. 1, 1947, and Illinois won by the score of 45-14.

In the Sugar Bowl at New Orleans, Georgia and North Carolina played and victory went to the former by 20-10. In the Orange Bowl at Miami, Fla., Rice defeated Tennessee 8-0 and

in the Cotton Bowl at Dallas, Tex., Louisiana State and Arkansas battled to a scoreless tie.

The most stunning upset of the year was registered when Princeton defeated Pennsylvania, the favourite by 30 points or more. Alabama, which was ranked by some at the start of the season as the best team in the country, lost four games. Texas, which was thought to have its best squad in history and was given top position, ahead of Army, in an early poll, crashed in defeat twice. Ohio State, Southern California, St. Mary's, Holy Cross, Pennsylvania and Indiana were other teams that failed to measure up to expectations.

Attendance in 1946 was 48% higher than in 1945, when record crowds turned out. Michigan, Pennsylvania, Notre Dame, Army and U.C.L.A. played to more than 500,000 spectators each.

The T formation was in use throughout the United States but there were numerous teams that employed the single wing. Some of them combined the two. Harvard, under Dick Harlow, used both the T and an L formation, from which it could switch to a double wing. Defenses varied as never before in the effort to circumvent the T. Five-man lines were common, but it was nothing unusual for a team to use a four, five, six and a seven-man line in the same game. The change in the rule permitting forward passing from anywhere behind the line of scrimmage encouraged more aerial manoeuvres and put a bigger burden on the defense. The "pitch-out" pass was strikingly effective, particularly as used by Army, and there was considerably more throwing of the ball laterally behind the line of scrimmage, though not down the field.

Outstanding players of the year in addition to Davis, Blanchard and Tucker of Army and Lujack of Notre Dame included Charley Trippi of Georgia, a unanimous backfield all-American selection; Burr Baldwin of U.C.L.A., Dick Huffman of Tennessee, Weldon Humble of Rice, Alex Agase of Illinois, Paul Duke and Robert Davis of Georgia Tech, Hank Foldberg of Army, Dick Scott of Navy, John Mastrangelo, George Strohmeier and George Connor of Notre Dame, Fritz Barzilauskas of Yale, Frank Wydo of Cornell, George Savitsky, Chuck Bednarik and Bernie Gallagher of Penn, Harry Gilmer of Alabama, Charley Justice of North Carolina, John Ferraro of Southern California, Herman Wedemeyer of St. Mary's, Warren Amling of Ohio State, Bobby Layne and Hub Bechtol of Texas, Ben Raimondi of Indiana.

Professional Football.—Like the college brand, professional football in the National league drew bigger crowds than ever before. The new All America conference began operations as a rival loop, with many players on its rosters who had been lured away from the old organization. The All America did not enjoy the patronage that did the National league, with the exception of one club. The Cleveland Browns attracted tremendous crowds in their huge lake-front stadium, topping all other clubs in both circuits in attendance. The remaining teams in the new loop did not fare nearly as well and many of them lost heavily, with their big pay rolls.

The New York Giants enjoyed by far their best season in history at the box office. Their clientele, built up over a period of years, were loyal, and 40,000 to 60,000 turned out regularly while the rival New York Yankees and the Brooklyn Dodgers of the All America conference were attracting considerably fewer.

The Giants, with a powerful line, their usual strength on the defense and an exceptional passer in Frank Filchock, who formerly sat on the bench as understudy to Sammy Baugh of Washington, won the Eastern championship. The Chicago Bears, rejuvenated with the return of their stars and coach, George Halas, from the service, regained their old position at the top in the Western division. In the playoff for the league championship before a record crowd of 58,346 at the Polo Grounds, the Bears defeated Steve Owen's Giants, 24-14.

On the morning of the game the public was shocked to learn that an attempt had been made by gamblers to "fix" the outcome of the playoff in favour of the Bears. Two backs on the New York team, already weakened by the injury of key operatives, were offered bribes by the agent of a bookmaking ring, to "lay down." For a week before the game the New York police department had knowledge of what was brewing. With Mayor William O'Dwyer taking a hand personally in the investigation, the alleged "fixer" was seized.

The two players were Merle Hapes and Filchock. It was announced that the bribe offer had been rejected by both, but Hapes was barred from the grounds and not permitted to take part in the game. Filchock was allowed to play and was one of the Giants' hardest and ablest



DON GREENWOOD of the Cleveland Browns bucking the line for a touchdown against the Miami Seahawks on Sept. 6, 1946. This opening game of the first playing season of the All America Football conference was at Cleveland stadium where the Cleveland Browns won the game, 44 to 0

workers, throwing two touchdown passes. It was explained that he had had no direct contact with the "fixer." Hapes was scored for failing to report the bribe offer to his coach.

The district attorney took charge of the case and the agent was indicted for bribery. It was reported that threats had been made against his life to prevent his testifying against the betting ring. The scandal was front page news and awakened the sports world to the menace of the gamblers, whose operations for the year were said to have netted them \$25,000,000.

In the All America conference the Cleveland Browns, coached by Paul Brown, formerly of Ohio State, made a runaway race in the western division. The New York Yankees won in the east. In the playoff, the Browns defeated the Yankees, 14-9, on Dec. 22 at Cleveland.

Canada.—Led by Joe Krol, brilliant halfback, who was recognized as the outstanding player of the year, the Toronto Argos defeated the Winnipeg Blue Bombers, 28-6, to win the Grey cup and the championship of the dominion.

Interest in football was greater in 1946 than in any previous year. More teams competed in every division, from senior to bantam, and attendance figures rocketed. French-Canadians turned their attention to the game as never before, with the Montreal Alouettes as the big attraction. When the Alouettes played the Argos in Montreal, 25,000 fans turned out, setting a new record for Canadian football.

The Argos and the Alouettes finished in a tie for first place in the Big Four union. They met in a "sudden death" playoff and the Argos won by 12-6. The Toronto team faced severer opposition in the east than it did against the Winnipeg Blue Bombers. After winning from the Alouettes the Argos defeated the Toronto Balmy Beach club, champion in the Ontario Rugby Football union, 22-12. This victory qualified them to play Winnipeg, the western leader, for the dominion title.

The University of Western Ontario won the championship of the Intercollegiate Rugby Football union. The college teams had a rule that prevented them from competing for the Grey cup. The senior unions, with the exception of the intercollegiate, were more or less openly professional and were allowed to import a limited number of players from the United States. Some of the U.S. professional clubs "farmed out" players to Canadian teams.

The Jeff Russell Memorial trophy, awarded annually to the player in the Big Four who best combines effective play with leadership and sportsmanship on the field, was awarded to Krol. (A. D. A.)

Great Britain.—Rugby.—At the end of 1946 the Rugby union had arranged the game precisely on its prewar footing. A record crowd saw the brilliant Oxford team beat Cambridge at Twickenham by 15 points to 5. A finer Oxford side had not been seen since G. P. S. Macpherson's time,

and they had won all their matches, most of them with ridiculous ease, before they met Cambridge.

The county championship and the international championships both went on as in 1939. Earlier in the year the "Kiwis," a New Zealand team, lost only 2 of the 27 games they played in Great Britain. The best international side was easily Scotland, even though England beat them after a thrilling game at Twickenham. Keith Geddes (Scotland), Bleddyn Williams (Wales), J. Heaton (England) and C. Murphy (Ireland) all played well. Once more, St. Mary's won the hospital cup, and the Army the interservices tournament.

There was a fine Rugby league final at Wembley where Wakefield Trinity beat Wigan by 13 points to 12. The league sent a side to Australia, captained by A. J. Risman. They won 2 tests and drew the other and lost only 3 matches out of the 20 they played.

Association.—The season was marred by a serious accident at Bolton, where, in a cup-tie match in March, one of the stands collapsed and 33 people were killed and more than 500 injured. The sparkling football of S. Matthews, the Stoke City outside right, continued to dominate the game and draw the crowds. Derby county won the cup final, beating Charlton Athletic by four goals to one; and Aberdeen beat the Rangers for the Scottish cup. For a change Bishop Auckland did not win the amateur cup, losing this time to Barnet (3-2), at Chelsea, before a record crowd of 54,000. Honours were about even in the international matches, and Scotland beat England (1-0) in a desperate game at Glasgow. At the end of 1946 England beat Ireland at Belfast fairly easily, but had the utmost difficulty in beating Eire at Dublin a few days later by one goal to nil; Wales beat Scotland, Cambridge won the University match (3-2). Visiting teams from Sweden and Denmark met with success.

FILMS.—*Ball Handling in Football; Blocking in Football; Tackling in Football* (Encyclopædia Britannica Films Inc.). (D. R. G.)

Foreign Exchange: see EXCHANGE CONTROL AND EXCHANGE RATES.

Foreign Investments in the United States.

The value of foreign investments and other dollar assets in the United States on June 30, 1946, was placed at \$16,200,000,000. This figure was \$300,000,000 below the record level reached in the preceding December. The sharp decline in security prices during the last half of 1946 cut the value of these investments by an additional \$550,000,000.

The need for dollars with which to pay for commodities and equipment for reconstruction and development was reflected in foreign withdrawals of \$500,000,000 of short-term balances and sales of almost \$200,000,000 of U.S. securities during the first 6 months of 1946, in addition to the vast sums borrowed in the United States. It was, therefore, not surprising that practically no new foreign direct investments were made in the United States in 1946. One of the few investments reported was the acquisition by a British concern of a substantial minority interest in a U.S. engraving and printing company.

In general, the foreign interest in U.S. security markets in the first half of 1946 seemed to be concerned with the disposal of U.S. securities for cash, except for Canadians who were reported to have purchased \$60,000,000 of U.S. securities. The preliminary steps in this disposal were taken at the outbreak of the war in 1939. At that time the French government had taken steps to mobilize French external assets, particularly investments in the United States. The invasion of France forestalled the sale and utilization of the proceeds of these assets for the French war effort. With the liberation of that country, a large portion of the assets remained as a potential source of funds for reconstruction and development. However, at the close of 1946 it appeared that the degree of mobilization of French investments in the United States would depend on the French request for a \$500,000,000 loan from the International Bank for Reconstruction and Development. In any case, the press reported that in the event of mobilization the matter of an orderly liquidation, one that would not be apt to depress unduly U.S. security values, would be discussed with U.S. administrative and stock exchange officials.

Sizable liquidations of Netherlands holdings of U.S. securities were frequently mentioned during 1946 although their extent and timing also appeared uncertain. In September, the Netherlands minister of finance stated that sales of Dutch-owned U.S. securities with a value of between \$600,000,000-\$800,000,000 were expected to begin in ensuing weeks. The minister explained that the projected liquidation was largely because of pressure on Dutch owners to finance recovery and reconstruction as well as to meet taxes and capital levies in the Netherlands. During the year the Finnish government required that all foreign securities in Finland were to be turned over to the Bank of Finland (for payment in marks). This move reflected that country's dire need for dollars and other foreign currencies.

*Estimated Value of Foreign Investments and Other Dollar Assets in the United States, June 30, 1946**

Type	Value
<i>(In billions of dollars)</i>	
Private liabilities:	
Long-term	
Direct (book value)	2.8
Corporate stocks (market value)	3.4
Corporate bonds (market value) . . . . .	.7
Miscellaneous	1.5
Total long-term	8.4
Short-term	5.4
Total private	13.8
U.S. government liabilities:	
Long-term . . . . .	.2
Short-term	2.2
Total government	2.4
Total	16.2

*Excludes gold (held abroad or) held under earmark in the United States for foreign account.

Sources: Data in *Census of Foreign-Owned Assets in the United States*, U.S. Treasury Department, 1945, adjusted for capital movements figures appearing in the *Treasury Bulletin*, and estimates of the U.S. Department of Commerce.

Alien Property Custodian.—From March 11, 1942, until June 8, 1945, the control of the property in the United States of nationals of enemy and enemy-occupied countries was divided between the treasury department and the Office of Alien Property Custodian with the latter having jurisdiction over enemy

business enterprises. Thereafter, the custodian had jurisdiction over all property interests formerly under treasury jurisdiction. In Oct. 1946 the functions of the custodian were transferred to the justice department. The organization was thereby returned to the prewar location of its predecessor whose functions had been to wind up the settlement of claims arising from the vesting of enemy properties seized at the time of World War I.

During World War II the office was established principally to vest in the U.S. government title to productive enemy assets in that country and to put them to the fullest possible use in the nation's war effort. After the termination of hostilities the agency continued to seize properties as part of its program to eliminate all property interests in the United States of hostile German and Japanese nationals. The properties of German and Japanese citizens, resident in those countries, were not vested if they were victims of persecution by their governments. The surrender of Italy and its acceptance as a cobelligerent resulted in the suspension of Italian vestings in Dec. 1943.

In his terminal report (Terminal Report, Office of Alien Property Custodian, Oct. 1946, Washington, D.C.) the custodian noted that as of Oct. 1, 1946, he had vested property with an estimated value of \$247,000,000, which since vesting had increased through income and appreciation to \$290,000,000. At that time there remained to be vested \$140,000,000 to \$180,000,000 of additional property. This was exclusive of his holdings of 46,000 patents and inventions, at least 500,000 copyrights and many other valuable interests that could not be appraised in dollars. Of the 414 vested enterprises in which enemy control had been partial or complete, about a fifth had been continued as going enterprises during the war, producing \$600,000,000 of war goods and winning 31 army-navy "E" awards for excellent production.

During 1946 a comprehensive reporting program under which all persons in the United States were required to report to the custodian all German and Japanese properties in their control or possession revealed that several thousand additional properties would probably be reported because of past failures to report and acquisitions of new properties by enemy nationals through inheritances.

In Sept. 1946 the custodian took an unusual step, one designed to prevent the shares of certain corporations under his control from ever again coming under enemy control or ownership. By a general order, stock ownership of designated key corporations seized by the custodian was prohibited from being acquired by any person not a U.S. national. The move was expected to forestall a repetition of an earlier experience in which properties seized by the custodian during World War I, and subsequently sold by him to Americans, were found at the time of World War II to have again come under enemy ownership.

Not all policies with respect to German and Japanese nationals had been fully formulated at the close of 1946. In particular, no definitive solution had been reached on the treatment of property in the United States belonging to (a) corporations in friendly countries wholly or partially owned by Germans and Japanese or (b) corporations in Germany and Japan wholly or partially owned by Americans and nonenemy foreign nationals. The problem involved the method of treating not only enemy equities but also the interests of nonenemy nationals associated in business with Germans and Japanese. Moreover, other allied governments faced similar situations, and in some cases the interests of the United States and its nationals were involved. It was expected that decisions on appropriate action in these cases would be made by international agreement.

The disposition of vested German and Italian property remained a matter for the congress to determine. The custodian, however, did take the position that hostile German and Japanese

nationals should neither have their properties returned to them nor receive compensation for them from the United States, after U.S. claims against specific properties were settled and after expenses incurred by the custodian were reimbursed. Following World War I, enemy nationals had received up to 80% of the cash value of their properties seized during the war. Regarding the property of nationals of Italy, Hungary, Bulgaria and Rumania, the custodian thought that the question of return should be determined by the terms and spirit of the peace treaties with these nations and noted that the treasury and state departments shared this point of view.

Treasury Department.—The close of the active phase of World War II, on the other hand, was the signal for a series of steps by the treasury department aimed at releasing control of nonenemy foreign property in the United States. Prior to the involvement of that country in the war, axis control of assets in the United States had become a matter of official concern and as country after country was overrun its U.S. funds were frozen by executive order. A defrosting order, applied to French balances, bullion and securities under the treasury's jurisdiction in Oct. 1945, established the pattern applied to Belgium, Norway and Finland later that year, and to the Netherlands, Czechoslovakia, Luxembourg, Denmark, Greece, Switzerland and Liechtenstein in 1946. The complete release of these assets, however, was dependent upon certification by the several governments that the assets were in fact owned by their nationals.

The inclusion of Switzerland and Liechtenstein in the group of countries whose nationals' assets were defrosted was made possible by lengthy, although satisfactory, negotiations between Switzerland and the United States concerning the investigation of the ownership of property held in the latter country in the names of nationals of Switzerland and Liechtenstein for the purpose of identifying any such property in which there had been an enemy interest. By Jan. 1, 1947, the treasury had issued general licences which in effect provided that certified balances of all blocked countries (and their nationals) were thereafter to be treated as if such countries were not foreign, except those of Germany, Japan, Portugal, Spain, Sweden and Tangier. (See also EXCHANGE CONTROL AND EXCHANGE RATES.)

(M. AB.)

Foreign Trade: see INTERNATIONAL TRADE.

Forests. A reappraisal of the forest resources of the United States, completed by the U.S. forest service in 1946, brought out clearly that the nation had entered a period of reduced timber supply that would last a good many years. Supplies of lumber, pulpwood and a number of other timber products were short of demand throughout the year. Labour and equipment difficulties and other factors contributed to the shortage, but a major cause was the growing scarcity of readily accessible, merchantable standing timber in the forest areas of the country.

Total stand of sawtimber in the United States, as of 1945, was estimated in the forest service reappraisal at 1,601,000,000,000 bd.ft. This was an indicated decline of 44% from 1909, when a government estimate placed the total volume of sawtimber at 2,826,000,000,000 bd.ft. Actually the reduction in volume during the 36-year period was probably even greater, since the earlier estimate did not include many species and sizes now considered usable as sawtimber.

The reappraisal showed that the nation's timber resource had declined in quality as well as in volume. Inferior species or scrub growth had taken over large areas, and a general downward trend in the average size of logs reaching the sawmills was reported.

Annual drain of sawtimber from the forests of the United States was estimated in the reappraisal at a rate of 53,900,000,000 bd.ft. Annual growth was only 35,300,000,000 bd.ft. Sawtimber drain thus exceeds growth by more than 50%. Commodity drain (timber cut for use) represents 90% of the total yearly drain; the balance is losses from fire, wind, insects and diseases.

Included in the forest service reappraisal was a survey of timber cutting practices on commercial forest lands. Only 23% of all cutting was classed as good, from the standpoint of maintaining the forest in continuously productive condition. Twenty-five per cent was fair and 52% poor to destructive. The percentage of good cutting practice was highest on commercial forest lands in public ownership; on the national forests 80% of the cutting was rated good or better. On private forest lands only 8% of the cutting was good or better; 64% was poor to destructive. Since three-fourths of the U.S. total area of commercial forest land is in private ownership, including generally the best and most accessible timber-growing lands, the problem of perpetuating timber supplies is primarily one of raising the general level of forest practice on private lands.

In announcing the results of its reappraisal, the forest service recommended certain measures which it declared were necessary to reverse the downward trend of the nation's forest resource. These included (1) public regulation of timber cutting to prevent destructive practices and to require cut-over lands to be left in reasonably productive condition; (2) public aids to private forest owners, including increased co-operation in fire prevention and control, insect and disease control, research and technical advice on forest management and utilization problems and other co-operative aids to facilitate and encourage better management of private forest lands; (3) extension of public forests through federal, state and community acquisition and development of forest lands, especially those lands which, because of low productivity, depletion or inaccessibility, are not likely to be rehabilitated and developed by private enterprise; and (4) a large-scale program of reforestation and other forest improvement work.

An independent appraisal of forest resources also was completed in 1946 by the American Forestry association, a citizens' organization for the advancement of forest conservation. Although the findings of the association's two-year survey differed in some minor details from those of the more comprehensive U.S. forest service reappraisal, the two studies were in agreement as to the basic fact that the nation's timber resource had declined to an alarming degree and was still being consumed faster than it was being replaced by growth.

The American Forestry association presented the results of its forest resource appraisal at an American Forest congress, which met in Washington, D.C., Oct. 9-11, 1946, under the association's auspices. The meeting was called to consider proposals for a nation-wide program of remedial action in the light of new facts brought out by the two appraisals of the forest situation. Representatives of the forest industries, labour unions, various civic groups and federal and state forestry agencies participated in the discussions. There was general agreement as to conservation objectives, but differences of opinion as to how to achieve them. Chief point of controversy was the question of public regulation of timber cutting. Nearly all groups represented conceded a need for some measure of regulation. Representatives of the forest industries, however, favoured regulation by the individual states, while most of the other groups represented held that basic standards of forest practice should be set up by national legislation, although the states might conduct the actual regulatory programs in line with those standards.

Appointment of Marcel LeLoup of France as director of the Division of Forestry and Forest Products of the United Nations Food and Agriculture organization was announced in June 1946. LeLoup resigned his post as chief of the French department of waters and forests to accept the new position. Stuart Bevier Show, an American forester and member of the U.S. forest service, was named deputy director and chief silviculturist. An advisory committee of forestry experts representing various member nations of the Food and Agriculture organization was set up. Lyle F. Watts, chief of the U.S. forest service, was named chairman of the technical forestry subcommittee.

The new international forestry organization established headquarters in Washington, D.C., and prepared to set up world-wide forestry statistical services, assist governments with advice on forest policy, send out missions to make scientific studies, promote research and circulate findings

among nations and facilitate exchange of scientific personnel. (C. E. R.)

Great Britain and the Commonwealth.—The most significant event in forestry during 1946 was the September meeting in Copenhagen of the Forestry and Forest Products committee of the Food and Agriculture organization of the United Nations. A year's preliminary work, including the collection of forest statistics and information on state policy in the major timber-producing countries of the world, enabled the committee to make a useful diagnosis of the unsatisfactory position of world forestry. The basic causes of the critical shortage of wood existing in most parts of the world were stated to be: deforestation, caused by heavy overcutting, fires and careless destruction; inadequate forest management and failure to develop mature forests; incomplete and wasteful utilization; and insufficient technically trained foresters and staff.

In Great Britain it was estimated that three-quarters of the softwood forests were felled between 1939 and the end of 1946, and, although imports were once again the major source of supply, the urgent needs for timber, particularly of mining timber, delayed any drastic curtailment of fellings. A perpetual and large demand for pit props and pulpwood was, however, essential, to provide a market for the thinnings from the steadily increasing area of conifer plantations. The reorganized forestry commission had not had time to show results and was badly hampered, a large part of its staff being still engaged in Germany. Private estate forestry received further encouragement in October when the house of commons approved the policy of assisting forest owners with considerably increased grants toward planting costs and forest maintenance. The government, however, proposed to retain Ashdown forest (6,400 ac.), requisitioned as a training area in wartime, as a permanent military training ground. The large number of applicants for training in forestry of all grades, from short practical courses for woodmen to four-year university degree courses, would eventually reduce the acute shortage of trained men, but the inadequacy of the accommodation in schools, colleges and universities would seriously limit the numbers for several years.

In the commonwealth continued demands for timber for postwar reconstruction still diverted the time and energies of the forestry services from their proper functions. Because of the difficulties of obtaining timber from Russia and the Baltic for European needs, Canada was called upon to meet enormous demands. In Africa and India the increased demand for timber to meet new developments such as plywood and other wood industries provided markets for additional species and sizes and involved the opening up of forests which were formerly considered commercially inaccessible. By the felling of mature and over-mature trees the forests would eventually benefit by increased growth and production, if properly managed. Funds were at last made available for extensive vegetational and oecological surveys such as that completed in 1946 in the Caribbean islands. In the British crown colonies, particularly in Africa, there were new developments in forest policy and an emphasis on the satisfaction of the needs for forestry products of the local indigenous population, even where this was at the expense of export revenue. The training of native forestry staff of all grades, which in India had already led to the cessation of recruitment of Europeans, was perhaps one of the most important features of postwar forestry in many of the crown colonies. In Nigeria forest control by native administration was being established in 1946.

Europe.—In Europe, the outstanding development of 1946 was the exploitation of the forests of Germany for war reparations. Although normal annual fellings in Germany had been increased after 1936 by about 50%, the forests were well stocked at the end of the war. In 1946 the Black forest supplied large quantities of softwood for France, the British zone yielded a useful tonnage to assist in meeting reconstruction needs in Great Britain and the Rhineland provided pit props for Belgium and the Netherlands. The actual extent of the fellings in the soviet zone was not known but was not small. In France and Belgium the reforestation of war-damaged woods proceeded steadily. The greatest damage was to the maritime pine forests of the Landes, in France, where about 500,000 ac. were burnt between 1943 and 1945. The heaviest relative overfelling in Europe during the war was stated to be in Poland, Greece and the Netherlands, and it was only in the last of these three countries that any real progress in reforestation was made in 1946.

(A. H. LD.)

Formosa (TAIWAN OR T'AI-WAN). Formosa is a large island in the western Pacific, separated from China to the west by the Straits of Formosa and from the Philippines to the south by the Bashi and Balintang channels. Under Japanese rule the Pescadores (Bōkotō) and other outlying islands formed a political division of the Taiwan government-general. Area 13,836 sq.mi., and of neighbouring islands, including Pescadores, 77 sq.mi. Population (1940) 5,872,084; (1942 official Japanese estimate) 6,400,000.

Capital, Taihoku (326,407 in 1940); other large cities: Takao (152,265), Tainan (142,133), Keelung (Kiirun) (100,511) and Kagi (92,428). Principal religions were Buddhism, Confucianism, Taoism and Shintoism. In 1940 there were about 60,000 Christians.

History and Government.—Formosa was ceded to Japan under the treaty of Shimonoseki in 1895 at the conclusion of the Sino-Japanese War. The island was administered as a Japanese colony until the surrender of Japan in 1945, when Formosa was restored to Chinese sovereignty as a province of

China. In Oct. 1945, General Chen Yi, administrator of Fukien province from 1934 to 1941, assumed the governorship of Formosa for the Chinese National government. The Kuomintang is the dominant political party on the island.

Education.—In 1941 there were 1,000 primary schools with 12,076 teachers and 740,693 students; 6 normal schools with 225 teachers and 2,507 students; 4 colleges with 236 teachers and 1,385 students; and 1 university with 345 students.

Finance.—Under Japanese rule, Formosan currency was based upon the Japanese yen (valued at 23.43 U.S. cents in 1941) with the Bank of Taiwan as the central bank. Chinese National currency was introduced into Formosa when the island was returned to Chinese sovereignty and the Bank of Taiwan was closed.

Trade and Communications.—In 1939 there were 879 mi. of government railroads, 1,624 mi. of private railroads and 500 mi. of tramways; there were 10,000 mi. of roads of all types. There were 220 telegraph offices, 195 post offices and 123 telephone exchanges. Formosa's trade after World War II was almost entirely with China. In 1943 Formosa's overseas trade amounted to exports of about 400,000,000 yen and imports of 340,000,000 yen.

Agriculture.—Agricultural production in 1939 in short tons included: rice, 14,540,000 (44,800,000 bu.); sweet potatoes, 1,400,000; sugar 1,270,000; bananas 200,000; oranges 29,700; meat and poultry 27,600; tea 15,400. The 1946 rice crop was estimated at 54,000,000 bu., which was better than 1945.

Industry.—During the war Formosa produced sizeable quantities of coal, cement, chemicals and salt.

(S. NR.)

Forrestal, James (1892—), U.S. secretary of the navy, was born on Feb. 15 in Beacon, N.Y. He studied at Dartmouth college, 1911–12, and at Princeton university, 1912–15. He enlisted in the U.S. navy in 1917 and was assigned to its aviation force. Forrestal resigned from the navy with the rank of lieutenant in 1919 and resumed an earlier connection with Dillon, Read and Co., a Wall street banking firm, becoming its president in 1937. In Aug. 1940 he became undersecretary of the navy, serving in that capacity until the death of Secretary Knox, whom he succeeded on May 19, 1944. He aroused the ire of some Republican congressmen when he declared (Sept. 8) that publication of facts not disclosed in the Pearl Harbor reports would "compromise sources of information . . . of great value to our national security." He actively opposed the measure to unify the armed services under a civilian secretary.

Forrestal disclosed in his annual report (Feb. 7, 1946) that the U.S. planned to keep ready for "instant action" a fleet of 319 warships. He later asserted that a strong navy with widespread bases would be the surest defense against atomic attack. Although he had previously objected strenuously to a merger of the armed forces, Forrestal pledged to support the "objectives" of the president's plan to unify the services (June 26).

With regard to the first Bikini atomic bomb test Forrestal declared on July 1 that "heavily built and armoured ships are difficult to sink unless they sustain underwater damage." On Sept. 30 he stated the U.S. naval forces were in the Mediterranean and the eastern Atlantic in support of U.S. foreign policy.

Foundations: see DONATIONS AND BEQUESTS; SOCIETIES AND ASSOCIATIONS.

Four-H Clubs. Beginning about the time of the establishment of co-operative extension work in agriculture and home economics just prior to World War I, 4-H clubwork in the United States extended in 1946 into the rural counties of all 48 states, Alaska, Hawaii and Puerto Rico. Program leadership is given by the extension services of the land-grant colleges and the U.S. department of agriculture and (in 1946) by 165,000 adult and junior volunteer leaders. Membership in 4-H clubs is entirely voluntary. Each member engages in one or more agricultural or homemaking projects on which he or she concentrates effort in competition with others. In addition, groups of members form clubs of 5 to 50 members. These clubs study citizenship, stress character building and spiritual

values and engage in group recreation and community service projects. The emblem of the 4-H clubs is a four-leaf clover with an "H" on each leaf, signifying "head, heart, hands and health." In 1946 approximately 1,700,000 boys and girls ranging from 10 to 21 years in age were members of 4-H clubs in the United States.

Emerging from World War II as an outstanding patriotic youth body, with many wartime contributions, the 4-H clubs put their "head, heart, hands and health" to work in the interest of peacetime and peace-building projects. In addition to agricultural and homemaking programs, they centred their attention in 1946 around ten 4-H guideposts of balanced living and good citizenship. They took an active part in the national famine emergency campaign to aid the famished and starving among the populations of war-torn countries. They also enrolled in support of a nation-wide campaign to control and prevent juvenile delinquency.

In 1946 the National 4-H Club camp, an annual 4-H club feature until interrupted by United States entrance into World War II, was resumed and held on the campus of American university in Washington, D.C. The theme of the camp was "Know Your Government" and 4-H delegates met with various legislative committees of the congress to learn how legislation is enacted.

Many winners of county and state 4-H projects attended the 25th Anniversary National 4-H Club congress held at Chicago, Ill., during the first week in December. At this congress, sponsored annually by the National Committee on Boys and Girls Club Work, about 80 scholarships are awarded each year to qualifying local and state winners. An important feature of the Club congress is the National 4-H Club assembly. At the 1946 assembly meetings, attended by approximately 1,000 boys and girls, the discussion theme was, "Building Citizenship in a World Community." (M. L. W.)

France. France is situated in the west of Europe; bordered on the north by Belgium and Luxembourg, northeast by Germany, east by Germany and Switzerland, southeast by Italy and south by Spain; with the Mediterranean sea on its south-east coast, the Atlantic ocean on the west and the English channel and the North sea to the north. Capital, Paris; government, a constitutional republic; the first president under the newly-adopted constitution, elected on Jan. 16, 1947, was Vincent Auriol. Paul Ramadier became premier Jan. 17, 1947. Area, 212,737 sq.mi.; pop. (1936 census) 41,907,056 for metropolitan France, but estimated at 2,000,000 less in 1946 in consequence of World War II and postwar deaths resulting directly from the war. Title 8 of the constitution also provides for the establishment of the French union, which is composed of the French republic and overseas territories or associated states. Language: French; religion: Catholic, *c.* 1,000,000 Protestants.

History.—The year 1946 was marked by the resignation of Charles de Gaulle as president of the provisional government; by the voting of the new constitution to replace that of the third republic; by the election of representatives to both houses of parliament. In the field of economic activity, recovery was notable with respect to production, but the inflationary danger became greater. In international relations France persevered in its traditional policy toward Germany, much as De Gaulle had outlined it in 1944, but was forced nevertheless to bow before the refusal of the big three to separate the Ruhr and the Rhineland from Germany. In the far east the republic settled its outstanding difficulties with China over Indo-China as well as with the Annamite nationalists within Indo-China.

Political-Constitutional.—The besetting problem of politics remained governmental instability. In the year immediately

following liberation France had been governed by a theoretically non-political regime headed by Gen. De Gaulle. The general had placed himself above the play of political passions and encouraged his compatriots to follow his example. That such a conception was political mythology and not reality was vividly illustrated by the first general elections of Oct. 1945, which revealed that France was as bitterly divided as before 1939—though in a significantly different way. While the country as a whole stood far to the left of De Gaulle, the basic division was not the familiar one between left and right, but among the three leftist parties of Communists, Popular Republicans and Socialists, who together had swept the elections. Whatever prospect may have existed early in 1946 for the achievement of political harmony was destroyed by two simultaneous and interdependent developments: the deepening of factional strife within the ranks of the left, and the revival of strength by the erstwhile discredited right. The leftist groups were negatively united in repudiating the pre-1939 leaders, outlook, institutions and political behaviour. They were bitterly at odds with each other in renewing on a new terrain the old, familiar fight over the old familiar historical issues that for two centuries had split France into two large divisions of opinion. United in rejecting classical, free enterprise capitalism, they were fiercely at variance in deciding how much of the new control of economic-political-intellectual living that they all wanted in general France would accept in particular, how they were to institute this control and who was to administer it and how. And instead of contending over these issues, as right and left had so long done within the actual working of a given, concrete, capitalist-individualist state of the third republic, the leftist parties were now debating them vigorously and with increasing rancour in terms of blue-prints for the fourth republic that did not yet exist. Hence, the pivotal importance of the controversy over the new constitution. All questions of public living were consciously or unconsciously measured by the criteria outlined above; and by the end of 1946 it was an open question whether the parties of the left could sufficiently overcome their mutual distaste and distrust to work together, or whether they would fall out and allow the resurgent right a fresh opportunity to govern France.

After the first rift between De Gaulle and the Communists

RUBBLE being cleared away in Calais, France, during 1946 so that claimants could mark the boundaries of their individual properties





FRENCH FARMER, sowing seed in the early part of 1946, passes a wrecked tank lying at the side of the St. Lo-Carentan road

in the fall of 1945 a new crisis arose in Jan. 1946 over the constitution and army credits. The Socialists at this juncture sided with the Communists against the Popular Republicans in advocating a strong single-chambered assembly and a weak executive. De Gaulle, who certainly could not be accused of lacking political acumen or courage, decided that both his personal interests and the needs of the country warranted his resignation from the presidency to lead the opposition against the two Marxist groups. Three-part coalition government, however, continued after his resignation, for the Socialists on this occasion as on subsequent crises refused to work together exclusively with the Communists against the Popular Republicans.

The veteran Socialist leader, Felix Gouin, was elected president and for the next four months his stopgap government undertook the difficult, if not impossible, task of implementing his proposed policy of making heavy budgetary cuts, reactivating economic life and drafting a new constitution. For it was with a ringing criticism of De Gaulle's leadership in all of those respects that the Socialists had assumed the responsibility of power. Judging by the May 5 national referendum which was to reject the Socialist draft of the constitution and by the June 2 national elections which saw them running not even a close third to the Popular Republicans and Communists in that order, the country deemed that the Socialists, like De Gaulle, had had their opportunity and failed. In the assembly the Popular Republicans had already voted against the constitutional draft (when it was barely upheld by a 309 to a 249 vote on April 19), and had couched their objections in those legalistic terms which always conceal deeper and more vital considerations. Their objection to a strong assembly and a weak executive, and to the absence of adequate guarantees of individual rights, veiled the fear that such an assembly, dominated by Communists, could easily carry through a rapid and sweeping reorganization of social-economic relations against the middle classes in favour of the working classes. Such a prospect carried little appeal to the bourgeois liberals, so many of whom were voting for the Popular Republicans—less, it was apparent, out of acceptance of the Christian Democratic socialistic phase of the program than out

of a resigned feeling that this was the best they could salvage out of a generally bad situation.

Hence, that close vote in the assembly called the turn on the national referendum when it was held in May and the nation rejected the proposed draft. Then after an intense and rancorous electoral campaign the country went to the polls again on June 2 to elect a new national assembly that would start all over again to draft an acceptable constitution. This time the Popular Republicans gained most seats, the Communists ran a close second and the Socialists, third, obviously repudiated by the voters for an unsatisfactory constitution and much more for their failure to pull the country out of the economic and monetary doldrums. Though the Socialist high priest Leon Blum had negotiated a credit agreement with the United States just in time for the elections, the Socialist candidates failed to benefit from it.

For the next several months the Popular Republicans, headed by Premier-Pres. Georges Bidault, were in the ascendancy in the now familiar three-party governmental coalition. The centrifugal forces making for a break-up operated strongly during the summer months, which also saw an increase in the sniping tactics of De Gaulle, who was then from a protected position busily directing the fire of the political right against the Communists and Socialists and occasionally against the Popular Republicans as well. The campaign preceding the scheduled October referendum on the new version of the constitution that a committee was drawing up became heavy in September. Throwing caution to the winds, or otherwise confident of victory, De Gaulle chose Sept. 29, the very day that the constituent assembly was endorsing the new draft, to level heavy fire against the constitution as it stood, against the Marxist parties and against his old Popular Republican allies. Lest they lose him completely to the extreme right, the Popular Republicans sacrificed dignity, but gained strength, by making overtures to their general critic and by announcing loudly what they really believed in, the necessity first of accepting the constitution and then of revising it. De Gaulle intensified his attack on the eve of the referendum, castigating the draft as leading either to anarchy or dictatorship and, in either case, as boding France no good in the event of another international crisis similar to that of 1940.

The nation went to the polls on Oct. 13. Without enthusiasm, and with more than one-third of the registered voters abstaining, the country gave a narrow majority of 1,000,000 votes to the much debated constitution, which then became the legal foundation of the fourth republic. In truth the new constitution was a coat of many colours. It bestowed much power on the single assembly, which was to be elected directly, and reserved very little authority for the executive branch of the government in the president. An indirectly-elected second chamber, the council of the republic, was given only consultative power. In addition it established a French union to replace the French empire, thereby giving the colonial peoples equal rights and duties with the citizens of metropolitan France and also establishing local elected assemblies in all the territories. In view of the fact the De Gaullists and the right had won a moral victory at the referendum the leftist parties made exceedingly strenuous efforts, particularly the Popular Republicans, to recoup their losses in the forthcoming Nov. 10 elections when the country would elect deputies to the new national assembly for a five-year term. The pre-election campaign again made it clear that the Communists still wished to continue to run in political harness with the Popular Republicans even though they feared their unwelcome associates. Obviously, they would have feared them more outside of the governmental harness than within it with them. Conversely, the Popular Republicans renewed their political courtship of De Gaulle to keep him away from the embraces of the right. By not parting company they could all the better commend themselves to the electorate as the strongest single bulwark against the Communists. And for reasons similar to those employed by the Communists, the Popular Republicans preferred not to have an open breakup. Otherwise, only the De Gaullist groups (such as the Gaullist union), the Radical Socialists of Edouard Herriot and the extreme right group of the Republican Party of Liberty wished for a split in the left.

The Communists made the most notable gains of the left parties at the election, running ahead of the Popular Republicans with the Socialists a distant third. At the other end of the political spectrum the Republican Party of Liberty made spectacular strides. Looking at the results from another angle, while more than 1,000,000 fewer ballots were cast than on June 2 and almost 750,000 voters did not indicate their preferences, the Communists still gained 272,000 votes and the rightist bloc 512,000, while the Popular Republicans, the Socialists and the Radicals together lost more than 1,000,000 votes. Still, this was neither a Communist landslide nor a soul-stirring rightist comeback. As compared with Oct. 1945 the Communists obtained 28% of the total vote, or only 2% more over a 12-month period. The Communists and the Popular Republicans remained approximately equal in total votes, each getting about 5,000,000 of the 19,000,000; and the Socialists, while badly beaten, by themselves alone obtained more than the total vote of the rightist bloc. Hence, and in view also of the Nov. 24 elections for the council, the most likely governmental combination, barring unforeseen developments abroad or economic distress at home, seemed to be a three- or four-party rule. With all the disadvantages and difficulties, such a combination remained the only effective means whereby the first national assembly of the fourth republic could tackle the pressing, unresolved problems still before France.

Social-Economic.—During 1946 France almost caught up with the prewar figures of production. At the same time improvement in food, clothing and housing was paralleled in better health and in a greatly increased number of births, which rose to 950,000 or about 50% more than in 1938. On the other hand the inflationary gap widened considerably, especially after the spiral price and wage rise in July. To close it by spurring pro-



SECRETARY OF STATE JAMES F. BYRNES, signing the agreement whereby the United States made a \$1,370,000,000 credit available to France, on May 28, 1946. Present during the ceremony at Washington, D.C., were U.S. Secretary of the Treasury Fred M. Vinson (left), French Ambassador Henri Bonnet (second from right) and Léon Blum, chief French negotiator

duction the government set up a planning council, headed by the able and veteran Jean Monnet. Between late spring and early autumn the 1,200 members of the council—engineers, businessmen, workers, farmers, representatives of the government—drew up a five year plan covering two-thirds of French economic life and calling for a 25% increase in productivity over 1929, which was the best prewar year. It was a realistically conceived program, comprehensive in scope and well-integrated and full of promise for a semisocialized and democratically-administered economy that could do much to improve the badly-depressed living standards of the French people. Meantime, it is worthy of note that the larger part of French economy remained non-nationalized. In addition to the already state-controlled Bank of France, leading credit banks and transport, the following enterprises were also nationalized in 1946: electricity and gas, coal mining as a whole, steel and approximately 65% of the insurance business. Everything else remained private. There were few innovations during the year in social legislation, and the year was marked rather by an extension of social security legislation, old age pension system and employee representation.

Nonofficial estimates towards the close of the year placed industrial production at 89% of 1938 and agriculture at 80%. Both exports and imports spurted upward toward the close of the year. The year's total, however, remained low, particularly in exports which averaged only one-sixth of the imports. At the end of October the trade deficit stood at \$104,000,000. In this sense France, which had already lost much of its gold holding abroad, continued to live off capital and loans. Economists estimated the total loss of French wealth in consequence of World War II and German occupation at between 40 and 45% of the country's prewar total. A necessary fillip to French economy came from the successful conclusion of Leon Blum's mission to the United States. On May 28 he negotiated a broad Franco-U.S. trade and financial agreement with the following provisions: \$1,370,000,000 in U.S. credits for French reconstruction; the cancellation of about \$1,800,000,000 worth of consumed lend-lease material and the reduction to a selling price of \$300,000,000 of about \$1,400,000,000 worth of war surplus material, also to be employed for French reconstruction. Unfortunately, these credits had been used up by the end of the year, and the French government was anxiously awaiting the result of its application to the International bank for additional credits of \$500,000,000.

The following selected figures illuminate some of the progress and the difficulties of reconstruction: coal production was high at 111% of the prewar figures. Yet the coal situation, particularly on the eve of the winter of 1946-47, was serious because of the fact that France was importing so little from abroad—39% of the prewar average—and considerably less coal was being received from the Ruhr than France was entitled by agreement to receive. The coal shortage, aggravated by exceptional drought and also by extraordinary power consumption, had created a severe electric power crisis by the end of the year. There was almost full recovery with respect to the clearing of rubble, mine craters and land mines. Considerable progress was made in the production of building materials and housing, much of the latter on a temporary basis, and with comparatively slight use of prefabricated material; of permanent new housing, there was very little. The textile industry of France hit its old stride and was using new materials and designs. Because of unprecedented needs the accelerated glass production remained insufficient; France also remained short of bottles and bulbs, but the situation was vastly improved over the previous year. The heavily-damaged oil refineries were about 50% normal. Restoration of railway traffic continued without abatement, thanks to the great repairing or reconstructing of bridges, viaducts, rails, coaches and locomotives. The latter numbered 10,384 in 1946 as compared with 13,400 before the war. In automotive production, mainly trucks and service vehicles, production was up to 70% of 1938. But water traffic, especially international merchant marine, was low because, among other reasons, of heavy war destruction. The greatest shortage, apart from housing materials, remained manpower, and France was not only giving the 700,000 German war prisoners an opportunity to settle permanently in France but had set up a ten-year immigration program that set its sights upon 3,000,000 additional citizens. But it was feared that the possible departure of close to 100,000 German and Polish workers might cause a serious labour shortage in the coal pits during the 1946-47 winter.

As elsewhere, so in France, augmented production was accompanied by disproportionately higher prices and living costs. Government-sponsored efforts to keep prices and wages in line had failed and industrial and food prices were rising steadily. Despite sharp budget cuts, elimination of some governmental subsidies and plans to remove the others, and proposals to trim the bureaucratic inflation sharply by cutting down on the more than 2,000,000 civil servants, the deficit remained menacing at the end of the year. Bank note circulation by November was 22% higher than at the beginning of the year. The uncertainty over the financial and economic future was reflected in the short selling of the franc and in the black market operations where it was exchanged for considerably less than the fixed legal rate.

International.—The year saw no modification of the existing French diplomatic policy, which was not to seek to dominate the continent (and Germany) alone, but to serve as a point of equilibrium between the United States and Great Britain on the west and the U.S.S.R. on the east. But France had to reconcile itself to the reality that none of the Big Three supported the French policy of detaching the Ruhr and the Rhineland politically from Germany; and even more bitterly, France had to watch the wheel swing full circle with the U.S.S.R. taking substantially the same position as the United States (albeit for different reasons) in wishing the future political centralization of Germany as well as its increased economic productivity. As far as Great Britain and the Ruhr were concerned, France bowed to the inevitable by midsummer when it became evident that British Foreign Minister Ernest Bevin would not pay the price the French asked in return for a British-French understanding. With respect to the United States, the steps taken by Secretary of State James Byrnes between early spring and late fall to reach agreement with the U.S.S.R. over Germany without at the same time depriving France of assurances of continued U.S. military surveillance of Germany told the story. On Dec. 2 an Anglo-U.S. pact was signed for the economic merger of the U.S. and British zones of occupation in Germany, and reports persisted, though without corroboration, that a U.S.-soviet agreement was being reached, whereby the United States agreed to allow more reparations for the U.S.S.R. (including additional coal from the Ruhr) in return for soviet participation in the economic merger of the German zones and assent to a higher productive level for Germany than fixed at Potsdam. Though in the course of the soviet-U.S. rivalry France was promised U.S. support of French claims on the Saar, the prospect of a revival of Germany's economic and hence military potential was not a cheering Yuletide gift to France from its allies.

Elsewhere in the French union, France reached an agreement with China on Feb. 28. A treaty was signed settling the long dispute over the 100,000 Chinese troops that had been occupying the northern half of Indo-China. In order to have them withdraw, and thus indirectly remove their moral support of the Annamite nationalists, France gave up its extraterritorial rights and other special concessions and opened trade opportunities for the Chinese in the southern provinces of Indo-China. Early in March the French republic also came to terms with the Indo-Chinese nationalists by signing an agreement with the Viet-Nam government, recognizing it as a free government within the Indo-Chinese federation and the French union. Should this agreement be peacefully enforced in the future, it might serve to weave a new pattern of relations in southeast Asia, where dwell one-third of the inhabitants of what was called the French empire. (See also ANTI-SEMITISM; FRENCH COLONIAL EMPIRE; INTERNATIONAL LAW.) (L. Gy.)

Franco, Francisco (1892—), Spanish soldier and statesman, was born on Dec. 4 at El Ferrol, Galicia. For his early career see *Encyclopædia Britannica*. In the early days of axis victories in World War II Franco affirmed Spain's solidarity with Germany and Italy in the struggle against "bolshevism." When Allied arms began to triumph, he hastened to profess his neutrality and in 1945, following the

collapse of Germany, he declared (May 20) that Spain was not a "dictatorship." Then on Oct. 22 he issued a "bill of rights" which included freedom of worship and expression and the right to petition, provided these liberties did not run counter to the "fundamentals of the state."

The debates on Spain at the United Nations Security council in New York in April 1946, where most of the delegates were agreed on the necessity of condemning Franco's regime, although not on methods to oust him from power, led the Spanish premier to declare before the opening of the cortes (May 14, 1946), that Spain was a "free Christian democracy"; in the same breath he denounced communism and foreign intervention. Franco, whose Falangistas organized an anti-United Nations mass demonstration in Madrid, Dec. 9, attacked the U.N. for attempting to "isolate" Spain. Three days later (Dec. 12) the U.N. General assembly passed a resolution asking its member states to withdraw their envoys from Spain and bar Spain from U.N. participation. (See also SPAIN; UNITED NATIONS.)

Frank, Hans (1900-1946), German jurist and politician, was born May 3 in Karlsruhe. A student of economics and jurisprudence, he attended the universities of Munich, Vienna and Kiel. In 1930 he joined the nazi party and later became reichstag president and commissioner of justice in the nazi administration. In 1933 he was named Bavarian state minister of justice. Through his office of president of the Academy for German Law, Dr. Frank accommodated German law to fit the needs of nazism. After the collapse of Poland, he was appointed supreme chief of Poland's civil administration. In 1942 the Polish government-in-exile charged Frank with ordering the execution of 200,000 Poles, suppression of Polish citizenship, confiscation of Polish property, enslavement of hundreds of thousands of Polish workers who were shipped to Germany and of herding all remaining Jews into ghettos. Dr. Frank was captured by U.S. army troops on May 4, 1945, and was indicted for trial before the International Military tribunal at Nuernberg. He was found guilty of war crimes and crimes against humanity and on Oct. 1, 1946, was sentenced to hang. Sentence was carried out Oct. 16, at Nuernberg, Germany.

Frank, Karl Hermann (1898-1946), German politician, was educated at Prague university and was a bookseller before he turned to politics. A Sudeten "irredentist," Frank agitated for the return to the reich of the German-speaking provinces of Czechoslovakia, and joined the Sudeten German party when it was first organized. Rising to the party directorate, he represented the Sudeten Germans in the Czechoslovak parliament (1935-38). After Hitler annexed the Sudetenland following the Munich agreement of 1938, the party was absorbed by the nazis, and the following year Frank was named state secretary to the reich protector for Bohemia and Moravia, and concurrently held the rank of minister. After Reinhardt Heydrich, reich protector of Bohemia and Moravia, was assassinated by Czechoslovak patriots in 1942, Frank ordered the execution of the male population of the villages of Lidice and Lezaky. He surrendered to the U.S. army near Pilsen on May 9, 1945. Questioned at Wiesbaden, he admitted signing the decree ordering the execution of all persons (together with their families) who assisted in the attempt on Heydrich's life, or who failed to report the identity or whereabouts of the assassins. He stated that on the same day, he had received instructions from Hitler's headquarters to execute 30,000 to 40,000 politically suspect Czechs as a reprisal for the slaying. Frank insisted that he flew to Berchtesgaden to protest the order and that while he was in Berlin the massacre of Lidice was carried out by a special execution company sent from

Berlin. Convicted by a People's court in Prague for the Lidice massacre as well as for other war crimes, he was hanged in the Pankrac prison courtyard on May 22.

Freer Gallery of Art: see SMITHSONIAN INSTITUTION.

French Colonial Empire.

Under this heading are grouped the overseas *départements*, the colonies (*territoires d'outremer*), the protectorates and the mandated territories, the total area of which (excluding Syria and Lebanon) is 4,579,000 sq.mi. and the total population (est. Dec. 1939) 67,591,000. Certain essential information on the composing parts of the French colonial empire, or *France d'outremer* as it is officially called, is given in the table.

History.—Developments in France's colonial policy during 1946 reflected the rising tide of nationalism in the majority of its overseas territories. In January Marius Moutet was appointed minister of *France d'outremer*. Two months later the special laws applying to natives were abolished by decree. Guadeloupe, Martinique, French Guiana and Réunion were created *départements* of metropolitan France as from Jan. 1, 1947. In March it was announced that a new colonial fund was to be started. The new constitution that was adopted by the French people on Oct. 13 provided that the various colonies should be federal units of the French union and that natives of the colonies should be citizens of the French union but not enjoy full French citizenship. The natives, however, were granted full equality with French citizens before the law.

Algeria.—The food situation in the three North African *départements* was very grave in the spring and by May rain had spoilt a promising grain crop. Algeria was nevertheless able to export to France wine, vegetables and wheat during the year. An amnesty was granted in March to those Moslems taking part in the troubles of May 1945. The Manifesto party, under Fehrat Abbas, in the elections on June 2 won 11 out of the 13 seats available to Moslems. Fehrat Abbas and the other delegates proceeded to Paris the same month to take their seats in the constituent assembly. A debate on Algeria in August, in which they took an active part, resulted in a statute being voted for Algeria. This statute, not to come into immediate effect, provided for a highly decentralized regime, with a wide franchise which would elect an Algerian political assembly. The assembly would consist of 90 members, half of them Moslems. Members would be elected for six years by universal suffrage, with elections for half the number of members every three years. The assembly would have power to propose new laws; it would share with the governor-general the initiative in financial matters and would have authority over taxes and communications. In the new French constitution Algeria was allotted 15 seats in the national assembly. In the elections on Nov. 10 the *Fédération des Elus Musulmans* won 8 seats, the Communists 2 and the supporters of Messali Hadj, the leader of the extremist Nationalist party, 5. It had earlier been decided that Arabic was to be taught compulsorily in all schools and that social security measures in force in France were to be applied in Algeria. Messali Hadj was released from Brazzaville in July but did not obtain permission to return to Algeria until October. There was an earthquake in February in the *département* of Constantine which caused more than 200 deaths. The last British and U.S. troops left in August.

Tunisia.—The harvest was moderately good but it was still necessary to import grain. The export of phosphates had increased after 1945. Municipal elections were held in April. The Tunisian nationalist party *Destour*, although banned, was by May working actively underground, led by Habib Bourguiba. Its principal aim was the complete independence of Tunisia and its adherence to the Arab league. A demand by Sheikh Mohammed Chouicha for wider liberties for Tunisians evoked a statement by Gen. Charles Mast that France would consider reasonable changes in the protectorate. A plan to give increasing responsibility to Tunisians was then drawn up. This provided that Tunisians should have an equal share with the French in the Tunisian government. Meanwhile, a state of martial law continued, all papers were strictly censored and no meetings were allowed to be held. A general strike was called as a protest against the report of the Anglo-American Committee on Palestine and another strike was called in August as a protest against the arrest of *Destour* leaders.

Morocco.—The harvest was good but the yield not so great as in former years. Proposals for a loan to further the modernization and industrialization of the country and the suggestion of reforms aroused protests among French residents. These included an agricultural program, the development of coal and lead mining and the opening of French high schools to Moslems, enabling them to qualify for administrative posts.

French West Africa.—There was a serious strike in January of all essential services. The strikers called for the abolition of differences in wages and allowances based on racial discrimination. The strike ended early in February after spreading to the whole of Senegal. In September discontent with a chief at Bob-Dioulasso, near Dakar, resulted in a riot.



Madagascar.—In May there was a nationalist demonstration at Antananarivo and a dock strike. Two of the nationalist leaders, Ravaohangy and Raseta, expressed their faith in French promises to treat their colonies liberally but stated that Madagascans wished to administer themselves and asked that a referendum should be held on the future of the island. In June it was announced that all public posts would be opened to Madagascans.

French India.—Municipal elections were held in April and cantonal elections in May. An application by the Indian Congress party for permission to start a branch was received with caution. Pandit Jawaharlal Nehru stated in August that the people of French India must decide their fate for themselves. Zivarattinam, the representative from French India in the constituent assembly, complained of the authoritarian methods of the governor but stated that the people remained loyal in spite of propaganda.

Indo-China.—France officially resumed control of Indo-China on March 4, when British naval and military forces transferred to the French authorities responsibility for law and order, with the exception of Tongking, which had been allotted to the Chinese. The same month the French signed an agreement with China on the evacuation of Chinese troops from north Indo-China. When French troops landed in Hanoi, however, there were clashes with Chinese forces and it was not until August, after urgent representations to the Chinese government, that the Chinese troops were finally evacuated.

A delegation from Cochinchina was received by Moutet in Paris in May following demonstrations the previous month in Cochinchina in favour of autonomy. A convention was signed in June between France and Cochinchina by which the latter was recognized as an independent republic in an Indo-Chinese federation within the French union. The new republic would have control over its army and finances. A provisional government was set up under Dr. Nguyen van Thinh and elections to a constituent assembly were to be held. In November the government resigned and Dr. van Thinh committed suicide.

Cambodia's autonomy was recognized by France in a treaty signed on Jan. 6, the French resident being subsequently withdrawn in recognition of this autonomy. The ruler of Cambodia, King Norodom Sihanouk, arrived in France on a visit early in May and returned toward the end of June.

Viet-Nam (Tongking and Annam) was recognized by France as a republic on March 6 under its leader Dr. Ho Chi-Minh. A round table conference of all the provinces comprising the prospective federation of Indo-China broke down at Dalat over the independent status of Cochinchina which the Annamese had hoped to see included in Viet-Nam. A delegation from Viet-Nam led by Ho Chi-Minh visited Paris and took part in a conference at Fontainebleau in July. The following month

French Colonial Empire
1946

Country and Area sq.mi. (approx.)	Popula- tion (est. Dec. 31, 1939) (000's omitted)	Capital, Status, Governors, Premiers, etc.
AFRICA		
French Equatorial Africa 847,700	3,500	Brazzaville, Governor-General: Charles Ba- yardelle
Gabon, 106,500	410*	Libreville, colony, Governor: Roland Pré.
Middle Congo, 129,700	747*	Brazzaville, colony, Governor: C. Laigret.
Ubangui-Shari, 214,600	834*	Bangui, colony, Governor: J. Chalvet.
Chad, 386,900	1,432*	Fort Lamy, colony, Governor: A. Léger.
Cameroun, 161,200	2,655†	Yaoundé, mandate, High Commissioner: H. P. Nicolas.
Algeria, 845,400	7,600	Algiers, colony under jurisdiction of the min- ister of the interior, Governor-General: Yves Chataigneau.
Morocco, 165,800	8,000†	Rabat, protectorate, under the minister of fore- ign affairs, Sultan: Sidi Mohammed; Res- ident-General: Eirik Labonne.
Tunisia, 48,800	2,730	Tunis, protectorate, under the minister of fore- ign affairs, Bey: Sidi Mohammed al Amin; Resident-General: Gen. Charles Mast.
French West Africa, 1,807,060	14,800	Dakar, High Commissioner: Barthès.
Senegal, 77,000	1,723‡	St. Louis, colony, Governor: O. Durand.
Mauritania, 330,000	383*	St. Louis, colony, Governor: G. Poirier.
French Guinea, 97,000	2,011*	Conakry, colony, Governor: E. Terrac.
Ivory Coast, 183,000	3,850*	Abidjan, colony, Governor: A. Latrille.
Dahomey, 43,000	1,352*	Porto Novo, colony, Governor: Assier de Pompignan.
French Sudan, 577,000	3,569*	Kouloba (Bamako), colony, Governor: E. J. Louveau.
Niger, 500,000	1,747*	Niamey, colony, Governor: J. Gosselin.
Dakar and Dependencies, 60	126,129*	Dakar, colony, Governor: A. Mercadier.
Togoland, 20,000	781	Lomé, mandate, Commissioner: Jean Noutary.
French Somaliland, 8,380	50	Jibuti, colony, Governor: P. H. Sirieux.
Madagascar and Depend- encies, 236,900	4,122†	Antananarivo, colony, Governor-General: Raoul de Coppet.
Réunion, 920	221†	St. Denis, colony, Governor: Beyriès.
AMERICA		
St. Pierre and Miquelon, 93	4	St. Pierre, colony, Administrator: Marchand.
French Guiana, including Inini, 34,740	37	Cayenne, colony, Governor: J. Pézet.
Guadeloupe, 687	310	Basse-Terre, colony, Governor: E. De Nattes Beyriès.
Martinique, 427	260	Fort-de-France, colony, Governor: G. Orselli.
ASIA		
French India, 190	329†	Pondichéry, colony, Governor: Maurice Bazin.
French Indo-China, 283,000	23,700	Saigon, High Commissioner: Adm. Thierry d'Argenlieu.
Annam, 55,800	5,656*	Huê, protectorate, Commissioner: Col. Lorillot.
Cambodia, 69,200	3,046*	Pnom-Penh, protectorate, King: Norodom Sihanouk.
Cochin-China, 25,400	4,616*	Saigon, colony, Commissioner: Thorel.
Laos, 88,800	1,012*	Vientiane, colony, Commissioner: de Raymond.
Tongking, 43,800	8,700*	Hanoi, protectorate, Commissioner: J. Sainteny.
OCEANIA		
French Territories in the Pacific New Caledonia and Depend- encies, 7,310	55	Commissioner-General: J. Tallec.
New Hebrides, 5,700	50	Nouméa, colony, Governor: J. Tallec.
Pacific Islands, including Society Is., Tuamotu Is., Tubuai Archi- pelagos, etc., 1,540	45	Vila, Franco-British condominium, High Com- missioner: J. Tallec.
		Papeete, colony, Governor: Col. Orselli.

*Pop. 1936 census.

†Pop. est. Dec. 31, 1944.

‡Pop. est. Dec. 31, 1941.

§Pop. 1943

NATIVES OF FRENCH MOROCCO receiving free X-ray tests during 1946. This was part of a far-reaching health program of the French government to cut down tuberculosis and related illnesses

the conference broke down on the status of Cochinchina, while Annamese feeling was aroused by the French bombing of the village of Bac Ninh while negotiations were proceeding. A *modus vivendi* was finally reached and signed on Sept. 14 which left all the outstanding questions unresolved but granted French cultural establishments the right to function freely and provided priority to French advisers and technicians. Although an official cease fire was ordered on Oct. 29, serious fighting between French and Annamese continued sporadically throughout the year. In November a government was formed with Ho Chi-Minh as prime minister, Thuc Kang as minister of the interior, Nguyen Giap as minister of national defense, and Pham van Dong as minister of national economy. But on Dec. 19 the Annamese, suspicious of the French intentions, started open warfare against the French garrisons in Tongking. The French government ordered another 75,000 troops to proceed to Indo-China. Fighting continued with increasing intensity during the rest of the month. (See also PACIFIC ISLANDS, FRENCH; SYRIA AND LEBANON.)

(D. K. M. K.)

French Possessions in America.—The four colonies of France in the western hemisphere fall into three regional groups: (1) The islands of St. Pierre and Miquelon at the mouth of the Gulf of St. Lawrence; each has certain dependent islets; respective areas: 10 sq.mi. and 83 sq.mi.; est. pop. of both: 4,000; (2) the French West Indies, consisting of the two colonies of Martinique and Guadeloupe, the latter with five small island dependencies; respective areas of Martinique and Guadeloupe: 427 sq.mi. and 687 sq.mi.; est. pops., 260,000 and 310,000; (3) French Guiana, a mainland colony in the northeastern part of South America, including French Guiana proper, a narrow coastal strip, and the hinterland dependency of Inini; area: 34,740 sq.mi.; est. pop.: 37,000. Capitals of the four colonies (with pop. ests.), respectively, are St. Pierre (3,400), Fort-de-France (52,051), Pointe-à-Pitre (44,551) and Cayenne (11,704). The racial composition in St. Pierre and Miquelon was largely French or of French descent, in the French West Indies and French Guiana it was almost entirely Negro and mulatto. The language of all the colonies was French except that the dialect Creole and various patois are used in the West Indies and Guiana. French-appointed governors headed the administrations of all four colonies; the French ministry of the interior was scheduled to assume more direct control of the two West Indian colonies beginning in Jan. 1947.

History.—Little that was noteworthy occurred in St. Pierre and Miquelon during the year 1946. Martinique, Guadeloupe and French Guiana were drawn into closer co-operation with colonial possessions of other powers in the Caribbean area in 1946. They were represented at the second Caribbean conference, meeting at St. Thomas in the (U.S.) Virgin Islands Feb. 21–March 13. When plans for the reorganization of the Anglo-American Caribbean commission into the expanded Caribbean commission were perfected in July, it was announced that the deputy secretary general would be either French or Dutch and that one assistant would be French. The French West Indies were also expected to help staff the secretariat established at Port of Spain, Trinidad. The French government announced early in April that Martinique, Guadeloupe and French Guiana were thereafter to be considered as departments of metropolitan France. Maj. Charles A. Péan of the French Salvation army announced in New York city April 10 that he was designated to begin a three-year program of liquidating the French penal colony on Devil's Island, off French Guiana; he reported that 5,127 prisoners were confined there and that 2,800 others had completed their terms but were unable to leave because of lack of transportation.

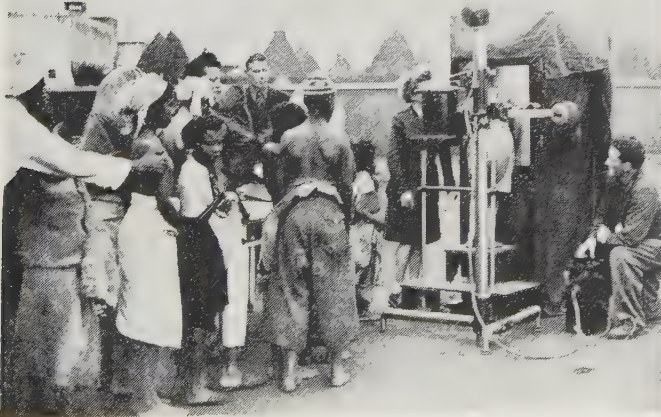
Trade.—Martinique rum exports in 1945 were 62,000 hectoliters valued at 177,000,000 francs (1944: 65,700 hl. valued at 88,000,000 francs). Total quantity imports for Martinique in 1945 were 57,000 metric tons valued at 461,300,000 francs; exports totalled 56,800 tons valued at 450,700,000 francs. Guadeloupe imports in 1945 were 49,300 tons valued at 401,600,000 francs and exports were 126,500 tons valued at 948,200,000 francs. Imports into French Guiana in 1945 totalled 9,400 tons valued at 126,800,000 francs; exports were 1,600 tons valued at 45,400,000 francs. Imports into St. Pierre and Miquelon in 1945 were 19,600 tons valued at 44,500,000 francs; exports were 7,600 tons valued at 49,900,000 francs.

Production.—Banana production in Guadeloupe in 1945 was estimated at 30,000 metric tons; sugar production in the same year was 28,000 tons but the estimate for 1946 was 40,000–45,000 tons. Rum production in Martinique in 1945 was about 24,000,000 l.; the estimate for 1946 was 25,000,000 l. Alcohol production in Guadeloupe in 1945 was 55,000 hl.

BIBLIOGRAPHY.—*West Indies Year Book, 1945; Foreign Commerce Weekly.* (R. H. F.N.)

French Indo-China: see FRENCH COLONIAL EMPIRE.

French Literature. The influence of philosophical speculation on the creative processes of many important French writers was characteristic of the year 1946, and it was generally conceded that whereas after 1918 the principal problems posed were of a moral order, the crisis of the post World War II period had assumed a metaphysical, not to say religious, character. In this connection it was to be noted that except for Louis Aragon and Paul Eluard, writers were opposed, each in his way, to the materialistic concepts of Marxism. Both Catholics and Marxists, however, made common cause in condemning *la littérature noire*, sometimes called *miserabilia*, as exemplified by the works of Jean-Paul Sartre and his friends. The Communist weekly, *Action*, went even further,



launching an attack designed to destroy the great vogue of the works of Franz Kafka in France. "Should Kafka be burned?" was the theme of an *enquête* that aroused considerable discussion and not a little indignation among liberal writers.

It would be difficult to say to what extent interest in the attempt on the part of the philosophically-minded *avant-garde* to open up new frontiers of thought was responsible for a certain indifference on the part of both critics and public to what was not only an abundant literary output but undoubtedly, in other less preoccupied years, would have been considered of generally excellent quality. Even such works as André Gide's *Thésée*—an autobiographical adaptation of the Greek legend and considered by many to be his "literary testament"—was given little attention other than that of respectful consideration. The following titles are perhaps significant: *Tableau de la philosophie française*, by Jean Wahl; *L'existentialisme chrétien* (introduction by Soeren Kierkegaard), by R. Jolivet; *L'homme à la découverte de son âme*, by C. G. Jung (translation); *Jésus en son temps*, by Henry Daniel-Rops; *L'éducation sexuelle et l'évolution religieuse*, by Pierre Gordon; *Les degrés du savoir*, by Jacques Maritain; *L'existence*, by Albert Camus, Etienne Gilson, et al.; *La philosophie religieuse de Bergson*, by Lydie Adolphe; *Introduction à l'étude de Platon*, by Alexandre Koyré; *Retour à l'éternel*, by Robert Aron; etc.

Among the prize-winning novels, *Les grandes vacances*, by Francis Ambrière and *L'univers concentrationnaire*, by David Rousset (Prix Goncourt and Prix Théophraste-Rénaudot 1940, reserved for the work of returned prisoners-of-war) were widely praised for their remarkably faithful, comprehensive account of life in German prisoner and concentration camps. *La vallée heureuse*, by Jules Roy (Prix Théophraste-Rénaudot 1946) was also favourably received and its author, who flew with the RAF during the war, was mentioned as a worthy successor to the mantle of the late Antoine de St. Exupéry. Romain Gary, author of *Education européenne* (Prix des Critiques, 1945) published a highly original second novel, *Tulipe*. Other titles were: *Tous les hommes sont mortels*, by Simone de Beauvoir; *Les armes de la nuit*, by Vercors (Jean Bruller); *L'homme foudroyé*, by Blaise Cendrars; *Le signe du taureau*, by Henri Troyat; *Le dernier des métiers*, by Jacques-Louis Bost; *Le dernier village*, by André Chamson; *La vie des morts*, by Agnès Chabrier (Prix des Critiques, 1946). André Malraux brought out an anthology of portions chosen by himself from his own works under the title, *Scènes choisies*. Jules Romains, who became a member of the Académie Française, completed the 24th volume of his long work entitled *Les hommes de bonne volonté*. The two volumes of Resistance memoirs published under the title, *Mémoires d'un agent de la France libre*, by Rémy (Gilbert Renault), were a valuable contribution to this subject.

In the domain of poetry, Henri Michaux's *Epreuves*, *Exorcismes* and René Char's *Le marteau sans maître* and *Feuillets d'hypnos* confirmed the rare gifts of both poets. Michaux also contributed hitherto unpublished texts to a de luxe volume entitled *En pensant au phénomène de la peinture*. Other titles chosen with difficulty from a distinguished list were: *Les sept psaumes de la pénitence*, by Paul Claudel; *Sodome*, by Pierre Emmanuel; *Poésie ininterrompue*, by Paul Eluard; *Ecce homo*, by Georges Ribemont-Dessaignes; *Liberté d'action*, by Henri Michaux; *Le siège de l'air*, by Hans Arp; *1939-1945*, by Jules Supervielle; *Paroles*, by Jacques Prévert; *Vingt-cinq et un poèmes*, by Tristan Tzara; *Aurora*, by Michel Leiris. A new volume of the complete works of Lautréamont (Isidore Ducasse) was edited and commented on by Philippe Soupault, and Georges Duhamel edited an *Anthologie de la poésie lyrique en France*. Léon-Paul Fargue was awarded the annual prize of the Ville-de-Paris.

It would be impossible in the framework of this account to do justice to the large number of brilliant essays that were published. Mention should be made, however, of such volumes as: *Lettres à un am allemand*, by Albert Camus; *Baudelaire*, by Jean-Paul Sartre; *Entretien sur des faits divers*, by Jean Paulhan; *Sur Nietzsche*, by Georges Bataille; *Les impostures de la poésie*, by Roger Caillois; *Journal*, by Charles Du Bos; *Sans pouvoirs*, a posthumous political commentary by Jean Girardoux.

As for the theatre, Jean-Paul Sartre's Resistance play: *Mort sans sépulture*—followed by the same author's *La putain respectueuse*, a one-act play based on the colour problem in the United States—was variously received. Armand Salacrou's play, *Les nuits de la colère*, which treats of courage and cowardice among ordinary citizens during the German occupation, was generally considered to offer a more authentic account of the complexities of that period. *Roméo et Jeanette*, by Jean Anouilh, and *L'aigle à deux têtes*, by Jean Cocteau, were other events of the dramatic season. The film based on André Gide's early work, *La symphonie pastorale*, was chosen the best French film of the year at the International Film festival which took place in Cannes. Jean Cocteau directed his own film version of *La belle et la bête*.

To the long list of existing reviews were added a dozen new ones among which especial mention should be made of Georges Bataille's *Critique*, *Les 4 vents* (romantic-surrealist), edited by Henri Parisot, and *Troisième convoi*, the latter being the first manifestation of an emerging younger group that included Jean Maquet, René de Solier and a number of new talents. Such reviews as Sartre's *Temps modernes*, *Labyrinthe*, *Esprit*, *L'arche*, *La nef* and *Fontaine* continued to constitute brilliant vehicles of rapid exchange of ideas. (M. JOL.)

French Pacific Islands: see PACIFIC ISLANDS, FRENCH.

French Possessions in Africa: see FRENCH COLONIAL EMPIRE.

French Union: see FRANCE.

Frequency Modulation: see FEDERAL COMMUNICATIONS COMMISSION; RADIO.

Frick, Wilhelm (1877-1946), German politician, was born March 12, in the Palatinate and was a student of the universities of Munich, Goettingen and Berlin. His affiliations with the nazi party started at the time of the Munich beer hall putsch in 1923 (he was implicated in the uprising) at which time he was attached to the Munich police presidency. He later became minister of the interior and minister of public instruction in Thuringia where Adolf Hitler acquired his German citizenship in 1930 by a sham appointment to the post of police commissioner. When Hitler assumed the chancellorship of Germany in 1933, he brought Frick to Berlin as his minister of interior. In that capacity, Frick ruthlessly suppressed opposition parties, trade unions, the press and the Jews. He was captured by the U.S. 7th army on May 7, 1945, near Munich and was brought to trial as a war criminal at Nuernberg. On Oct. 1, 1946, the International Military tribunal found him guilty of crimes against the peace, war crimes and crimes against humanity and sentenced him to death by hanging. Sentence was carried out Oct. 16.

Friends, Religious Society of. Founded nearly 300 years ago in England by George Fox, the Religious Society of Friends (Quakers) maintains as its central doctrine the Inward Light or Divine Seed, which can lead its faithful followers into a way of life characterized by simplicity, Christian love and peace. The society was composed in 1946 of 53 yearly meetings and annual



QUAKER TRANSPORT UNIT TRUCK among the ruins of Caen, France. The unit was organized in 1946 to provide dependable transport of supplies to communities where such service was lacking

conference groups in 30 countries, with an approximate membership of 164,000. About 115,000 were in the U.S. and Canada, and about 22,000 in the British Isles. New yearly meetings came into existence during the year in South Africa and in Kenya colony, East Africa.

Friends on the continent of Europe began to resume their corporate life, which had been shattered by the war. At a conference of German Friends, held in Feb. 1946, the extent of their pacifist witness in prison, in concentration camps, and in relief work first became apparent. Publication of their periodical *Der Quäker*, suspended in 1942, was resumed late in the year. Other continental Quaker groups revived and addressed themselves to urgent problems relating to education, relief work, the basis of membership and relationship to state churches. Word came from Japan of the survival of a small Quaker group there and of meetings for worship held under military occupation. The interim executive of the Friends World Committee for Consultation met in England in April and again in August and laid plans for a full meeting of this international committee (the first after the outbreak of the war) in 1947 and a world conference of Friends in 1948 or 1949.

In the U.S. the trend toward unity continued. The two Philadelphia yearly meetings (Orthodox and Hicksite) approved a plan for the creation of a general meeting to include all members of both groups, and the first sessions of the new body took place in November. Twenty-seven Quaker schools and colleges (representing all branches of Friends) sent delegates to a conference on education held at Earlham college, Richmond, Ind., in November; a major topic of discussion was the educational value of the volunteer work camp, in the development of which Friends had pioneered. The American Friends Service committee continued to operate weekend, summer, and year-round work camps as well as student-in-industry projects and volunteer units in mental hospitals and reformatories. British and American Friends devoted much energy to an effort

to educate public opinion on the dangers inherent in peacetime military conscription.

Although wartime conscription was still in force and Quaker conscientious objectors continued to be drafted or imprisoned, certain activities of Friends, undertaken to provide alternative service for conscientious objectors, were discontinued. The Friends Ambulance unit, a British Quaker organization with personnel drawn from Great Britain, Canada, New Zealand, and the U.S., was officially disbanded at the end of June, although many of its members remained in the field to carry on medical relief and to initiate rehabilitation projects in India and China. Friends' participation in the administration of Civilian Public Service, the U.S. alternative-service program for conscientious objectors, came to an end on March 2, the men still in camp coming under direct government control. Not a few Quaker conscientious objectors, released from camps, mental hospital units and prison, volunteered for foreign relief work, from which they had been barred during the war by congress.

The appalling needs of millions in Europe and Asia for food, shelter, clothing and medical aid made a powerful claim upon the sympathies, the energies and the financial resources of Quakers. The Friends War Relief Service in England and the American Friends Service committee in the U.S. provided channels through which the concern of Friends and many others to alleviate suffering could be carried out. Quaker relief workers helped to rebuild houses in Finland, Poland and Italy. A Quaker Transport unit was organized, with headquarters in France, to facilitate the distribution of food and building supplies in the face of the general breakdown of transportation throughout Europe. The main emphasis of the work in France shifted during the year from relief to reconstruction.

In central Europe the need for direct relief remained and indeed grew steadily greater. British and American Friends worked together in the British Zone of Germany, distributing food and clothing to starving people living in unheated houses. In the U.S. and French zones Quaker relief supplies were, by decision of military government authorities, distributed by indigenous agencies. Food, blankets, and medicine were sent into the soviet zone for 60,000 undernourished children expelled from East Prussia, Silesia and Poland. Food and vitamins were distributed by Quaker workers in Austria and Hungary.

In China, where the Friends Ambulance unit had hauled medical supplies and operated civilian hospitals for six years, the emphasis during 1946 shifted to rehabilitation, the workers being concentrated in Honan province. British and American Quaker workers in India supervised the distribution of milk to needy groups living in the shadow of famine. An American Quaker was one of two commissioners allowed to dispense relief supplies from American private agencies in Japan. In all their ministry to suffering humanity Friends sought to give expression to the spirit of reconciling love which takes away the occasion of all wars. (See also CHURCH MEMBERSHIP.)

(F. Ts.)

Fritzsche, Hans (1899-), German journalist and broadcaster, was a member of Moeller van den Bruck's "Young Conservative" movement that started after Germany's defeat in World War I. Van den Bruck's program emphasized hatred for England and "sublimation" of the doctrine of the class struggle by that of war. Fritzsche started broadcasting in Sept. 1932 as a news commentator with a daily program called "Hans Fritzsche Speaks." That same year he was named head of the Wireless News services, a reich government agency. When the agency was incorporated into Goebbels' propaganda ministry on May 1, 1933, Fritzsche joined the nazi party and became head of the home press division of the

propaganda ministry in 1938. By Nov. 1942 he had become chief of the ministry's radio division and plenipotentiary for the political organization of the greater German radio. Throughout his association with the propaganda ministry Fritzsche was merely a subordinate to Goebbels and had no hand in formulation of policy. Captured in Berlin by soviet troops in May 1945, he was indicted at Nuernberg Aug. 29, 1945, to stand trial as a war criminal. While the international military tribunal acknowledged that Fritzsche sometimes made "strong statements of a propaganda nature," it did not hold that they were intended to incite the German people to commit atrocities.

He was found not guilty under the terms of the indictment, Oct. 1, 1946, and was given his freedom.

Fruit. The 1946 fruit production of both citrus and deciduous fruits in the United States reached the highest volume in history. The combined total of 13 fruits was one-sixth more than the harvest of 1945 and nearly one-third more than average. The total of 15 fruits, including only commercial apples, was estimated at 17,388,000 tons compared with 16,816,000 tons harvested in 1944, the previous record year. New high records were made for oranges, grapefruit, peaches, pears, cherries and plums, with near records for several other crops. Prices were firm during the early part of the year and advanced when controls were removed but were lower in the late months when the large crops began to reach the markets.

Apples.—The apple production of the United States was about average in 1946 after the very poor crop of 1945. The total commercial crop was estimated by the U.S. department of agriculture at 121,520,000 bu. compared with the small crop of 68,042,000 bu. harvested in 1945 and an average of 120,962,000 bu., 1935-44. Production in the eastern and central states made up 61% of the U.S. total in 1946 whereas it accounted for only 33% in 1945. Production in the western states was 3% above 1945 and 6% above average. The crop of summer varieties was 20% larger than in 1945, fall varieties were twice the 1945 production and winter sorts nearly two-thirds larger than in 1945. The normal distribution is summer apples 6%, fall 15% and winter 79% of the total crop. In the east New York, which had a very small crop in 1945, produced almost an average crop. Virginia recovered to a total crop above the average. The central states recovered to near-average crops. On the Pacific coast Washington harvested an above-average crop. Losses from insect damage were lighter because of the widespread use of DDT. Oregon and California had about average crops.

Prices of eastern apples were generally lower in 1946 than in the short crop year 1945. The U.S. average in Nov. 1945 was \$3.08 per bu. and \$2.35 per bu. in Nov. 1946. Western apples opened the season at higher prices than a year earlier, when ceilings were in effect, but began to decline in early fall. Shipments were much larger than a year earlier as a result of the larger crop and consumption was at a high level. About 25 lb. per capita was consumed compared with an average of 30 lb., 1935-39. By Oct. 1, 1946, cold-storage holdings were more than twice the quantity held a year earlier, or 9,368,000 bu., and also more than the average. A larger part of the stored stocks were in the eastern states, while in 1945 about a third was held in the western states.

Table I.—U.S. Apple Production in Leading States, 1946 and 1945

State	1946	1945	State	1946	1945
Washington . . .	31,684,000	26,900,000	Montana . . .	1,872,000	689,000
New York . . .	15,390,000	2,160,000	Massachusetts . .	1,784,000	410,000
Virginia . . .	13,680,000	3,900,000	North Carolina . .	1,716,000	252,000
Pennsylvania . .	9,360,000	2,470,000	Indiana . . .	1,320,000	828,000
Michigan . . .	7,875,000	1,250,000	Connecticut . . .	1,238,000	511,000
California . . .	7,452,000	10,568,000	Missouri . . .	1,168,000	817,000
West Virginia . .	4,550,000	1,950,000	Colorado . . .	1,100,000	1,217,000
Illinois . . .	3,965,000	2,684,000	Wisconsin . . .	996,000	316,000
Oregon . . .	3,315,000	2,882,000	New Mexico . . .	909,000	472,000
Ohio . . .	3,078,000	984,000	Delaware . . .	825,000	308,000
New Jersey . . .	2,310,000	1,295,000	Maine . . .	704,000	132,000
Idaho . . .	1,891,000	2,465,000	Arkansas . . .	704,000	312,000

Apricots.—The 1946 apricot crop of California, Washington and Utah amounted to 343,400 tons, compared with 193,600 tons in 1945 and an average of 235,535 tons, 1935-44. California produced 312,000 tons, 44% above the average. Washington grew 26,000 tons and Utah 5,400 tons. A large part of the California crop was canned while the part dried was lighter than usual for such a large crop.

Avocados.—The production of avocados declined in 1946 in both California and Florida where the crop is grown. The total was 16,400 tons compared with 22,400 tons harvested in 1945 and an average of 14,153 tons. California production dropped to 14,800 tons from 19,200 tons in 1945 and Florida to 1,600 tons from 3,200 tons. Prices were high in 1946 after controls were removed.

Bananas.—The banana supply increased slowly through the year but continued to be far below demand. The ship shortage was the principal

handicap to trade but production was also restricted in several Central American countries. Mexico supplied about 20,000,000 bunches and other countries additional amounts to make up a supply about half of prewar demand which was nearly 60,000,000 bunches a year.

Cherries.—Total cherry production in 12 states growing commercial crops was estimated at a record total of 215,360 tons in 1946—35% above the 148,190-ton crop of 1945 and 28% above the 10 year average. Sweet cherries amounted to 102,550 tons in 1946, about the same as in 1945, but 20% above average. Oregon had a large crop—60% above average—and Washington's crop was 23% above average. Both the California and Utah crops were large. The total 1946 sour cherry crop was estimated at 112,810 tons, double the 1945 crop. Michigan, the leading sour cherry state, harvested 64,300 tons compared with 14,500 tons in 1945, Wisconsin 16,700 tons compared with 7,300 tons and New York 18,200 tons compared with 9,900 tons in 1945.

Cranberries.—The 1946 crop of cranberries was the second largest on record—846,200 bbl. (100 lb. each) compared with 656,800 bbl. harvested in 1945. While cranberry production fluctuated widely from year to year, the general trend of production was upward. The Massachusetts crop which made up more than half of the national total was 550,000 bbl. in 1946 or about one-third more than average. New Jersey produced 77,000 bbl., not quite average, while Wisconsin harvested 128,000 bbl., a record for the state. Washington also produced a record crop of 46,200 bbl. Prices were higher than in 1945, wholesale prices at Chicago were \$7.50 per 25-lb. box in September compared with \$6.50 a year earlier. The average price to producers ranged from \$10 to \$15 per barrel from 1920 to 1940 and then rose to \$24 in 1944, \$21 in 1945 and about \$25 in 1946. The increase in production and prices had been stimulated by improved methods of canning and freezing. Only about half of the 1945 crop was sold as fresh fruit and in 1946 a larger part of the crop was expected to be processed. The increase in the consumption of turkey meat at all seasons of the year was also regarded as a factor in spreading the consumption of cranberries through the year.

Dates.—The California date crop was estimated at 10,500 tons in 1946 compared with 6,070 tons harvested in 1945 but 73% above the 10 year average. Very small quantities were produced in Arizona.

Figs.—The U.S. fig crop, grown in California and Texas, was large but not record-breaking. California dried fig production was put at 35,500 tons for 1946, well above the average. Of this total 27,250 tons were graded standard and 7,000 tons sub-standard. California fresh figs amounted to 18,000 tons and Texas 1,280 tons in 1946. Most of the latter were canned or preserved. A small quantity was sold for fresh consumption.

Grapefruit.—The total U.S. 1946 crop of grapefruit was estimated at 67,320,000 boxes which was above the record crop of 1945 at 63,550,000 boxes and an average of 40,083,000, 1935-44. Florida had more than half the national crop or 34,000,000 boxes, of which 16,500,000 boxes were seedless. Texas produced about double the previous 10-year average, 25,500,000 boxes and was gaining on Florida as a leading producer. The California and Arizona crops were of less importance but were increasing. California grapefruit brought lower prices in 1946 than a year earlier; Florida's were higher early in the year but later prices declined as the large crop began to arrive in market. Larger quantities were expected to be used for juice and canning during the winter season.

Table II.—U.S. Grapefruit Production by States, 1946 and 1945

State	1946†	1945	State	1946†	1945
Florida			Arizona . . .	4,300,000	4,100,000
Seedless . . .	16,500,000	14,000,000	California		
Other . . .	17,500,000	18,000,000	Desert . . .	1,390,000	1,220,000
Texas . . .	25,500,000	24,000,000	Other . . .	2,130,000	2,230,000

*Boxes hold 60 lb. in California; 80 lb. in Florida and other states.

†Preliminary estimate.

Grapes.—The 1946 crop of grapes was estimated at 2,851,150 tons, slightly more than the 2,791,650 ton crop of 1945 and 12% more than the average of 2,552,730 tons, 1935-44. Production in states other than California was 210,150 tons which was about 60% more than the light crop in these states in 1945 but still below the average. The California crop was 2,641,000 tons in 1946 which was about 13% more than the average which was usually more than 90% of the nation's total production. Wine varieties were estimated at 611,000 tons and raisins at 1,488,000 tons, while table varieties amounted to 542,000 tons. Frosts did some damage to late varieties. In the east New York and Michigan made the greatest increases over 1945.

Table III.—U.S. Grape Production in Leading States, 1946 and 1945

State	1946	1945	State	1946	1945
California . . .	2,641,000	2,663,000	Georgia . . .	2,200	2,300
New York . . .	63,200	31,300	Tennessee . . .	2,100	1,900
Michigan . . .	30,000	13,500	Maryland . . .	2,000	1,400
Washington . .	19,400	19,400	Kentucky . . .	2,000	1,100
Pennsylvania . .	18,700	6,000	Virginia . . .	1,400	250
Ohio . . .	15,400	6,400	West Virginia . .	1,300	200
Arkansas . . .	10,400	5,200	Alabama . . .	1,300	1,500
Missouri . . .	5,900	6,500	Arizona . . .	1,300	1,000
North Carolina .	5,900	3,700	Connecticut . . .	1,000	400
Kansas . . .	3,500	4,500	Delaware . . .	1,000	450
Oklahoma . . .	3,300	2,500	New Mexico . . .	900	1,100
Iowa . . .	2,700	3,000	Utah . . .	800	900
Illinois . . .	2,700	3,300	Wisconsin . . .	600	450
Texas . . .	2,500	2,100	Nebraska . . .	600	1,700
New Jersey . .	2,400	900	Florida . . .	600	600
Oregon . . .	2,300	2,300	Idaho . . .	500	450

Lemons.—The lemon crop of the United States, almost wholly grown in California, was estimated at 13,900,000 boxes in 1946 compared with 14,500,000 boxes raised in 1945 and an average of 12,550,000 boxes, 1935-44. The quantity of lemons grown in other states was so small as not to be reported. Prices of lemons were steady through 1945 and up to Aug. 1946 when an advance began that reached a top in October. Imports were expected to check further price advances.

Limes.—The lime crop of 1946—all of which was grown in Florida—was estimated at 170,000 boxes compared with 200,000 boxes harvested in 1945 and an average of 116,000 boxes, 1935-44. A limited but steady demand for limes continued in the large markets but there was no indication of an increase sufficient to encourage increased production.

Olives.—The U.S. olive crop, almost all grown in California, was estimated at 46,000 tons in 1946 compared with the small 1945 crop of 30,000 tons and an average of 43,500 tons, 1935-44. Imports of olive oil increased from less than 500 lb. in 1944 to more than 2,000,000 lb. in 1946.

Oranges.—The total 1946 U.S. orange crop was estimated at the high record of 120,230,000 boxes, 20% more than a year earlier and 53% more than the 1935-44 average. This increase was because of the larger Florida crop of 61,000,000 boxes compared with 49,800,000 boxes in 1945 and an average of 29,640,000 boxes, 1935-44. The California crop was slightly below the record of 60,500,000 boxes in 1944. Florida produced a larger crop of oranges than California in 1944 and 1945. Texas harvested 5,500,000 boxes in 1946 compared with 4,800,000 boxes in 1945 and an average of 2,539,000 boxes. Arizona had 1,270,000 boxes in 1946, double the 10-year average, 1935-44. The early varieties were estimated at 56,000,000 boxes, 20% more than 1945 and 54% more than average. The Valencia or late crop was put at 64,200,000 boxes. Orange prices were higher in the late summer than a year earlier but lower for the year as a whole.

Table IV.—U.S. Orange Production by States, 1946 and 1945

State	1946†	1945
California	52,100,000	44,180,000
Valencias	32,400,000	26,500,000
Navels and others	19,700,000	17,680,000
Florida	61,000,000	49,800,000
Early and midseason	32,000,000	25,400,000
Valencias	29,000,000	24,400,000
Tangerines	5,200,000	4,200,000
Texas	5,500,000	4,800,000
Arizona	1,270,000	1,210,000
Louisiana	360,000	330,000

*Boxes hold 77 lb. in California; 90 lb. in other states.

†Preliminary estimate.

Tangerines.—The 1946 crop of tangerines—all of which was grown in Florida—was estimated at 5,200,000 boxes compared with 4,200,000 boxes in 1945, 2,980,000 boxes average, 1935-44. About 516,000 boxes of the 1945 crop were processed and a larger part of the 1946 crop was so treated—a relatively new industry.

Peaches.—The peach harvest of 1946 made a new high record of 86,448,000 bu., 6% more than the 81,564,000-bu. crop of 1945, compared with the average of 59,938,000 bu., 1935-44. Record crops were harvested in all states in the west, Michigan, the north Atlantic region, while the ten southern peach states produced less than in 1945 and the north central states, except Michigan, reported less than the previous year's output. Michigan's record crop of 4,536,000 bu. was 74% above the average for that state. The Georgia crop was only 6,204,000 bu. compared with 8,091,000 bu. produced in 1945. The big California crop included clingstones, 22,210,000 bu. and freestones, 14,459,000 bu., the latter being a record harvest. The quality was especially good in 1946 and canning was operated at a high rate providing a large pack for 1947 consumption. A record pack was reported.

Table V.—U.S. Peach Production in Leading States, 1946 and 1945

State	1946	1945	State	1946	1945
California	37,335,000	30,836,000	New York	1,955,000	1,660,000
Georgia	6,204,000	8,091,000	Colorado	1,820,000	2,372,000
South Carolina	5,670,000	5,760,000	Pennsylvania	1,716,000	1,222,000
Michigan	4,536,000	4,400,000	Alabama	1,575,000	2,440,000
North Carolina	3,160,000	2,172,000	New Jersey	1,258,000	864,000
Arkansas	2,881,000	2,967,000	Illinois	1,210,000	1,748,000
Washington	2,700,000	2,465,000	Missouri	1,128,000	1,026,000
Virginia	2,407,000	536,000	Mississippi	1,116,000	1,418,000
Texas	2,262,000	2,774,000	Kentucky	936,000	1,273,000

Pears.—The 1946 pear crop set a new record at 35,488,000 bu. compared with 34,011,000 bu. harvested in 1945 and one-fifth larger than the average of 29,002,000 bu., 1935-44. The crop in the 3 states of the Pacific coast was 1% larger than the 1945 record and 35% larger than the average. The coast crop amounted to about 78% of the U.S. total. Production of Bartletts was slightly smaller than the year earlier but of other varieties was larger. A larger than usual proportion of the crop of Bartletts was canned in 1946. Prices of pears reached record high points early in the season but the average for the year to growers was about \$2.25 per bu. as received in 1945. A high record stock of pears was being held in cold storage on Oct. 1, a total of 7,445,000 bu.



WILD BANANAS being loaded on boats at an Indian village in the jungles of Panama in 1946, for the first stage of their journey to U.S. markets

Table VI.—U.S. Pear Production in Leading States, 1946 and 1945, and 10-yr. Average

State	1946	1945	Average 1935-44	State	1946	1945	Average 1935-44
California	11,167	12,292	8,805	Michigan	1,032	178	1,109
Bartlett	1,750	1,917	1,212	New York	656	272	1,029
Others	6,750	5,800	4,736	Texas	503	496	421
Washington	2,340	1,970	1,877	Georgia	454	502	359
Bartlett	2,292	1,794	1,617	North Carolina	390	360	324
Others	3,713	2,560	2,275	Mississippi	389	401	349
Oregon				Virginia	378	61	367
Bartlett				Alabama	343	416	282
Others				Pennsylvania	318	120	482

Plums and Prunes.—The commercial plum crop of the United States, which was grown almost entirely in two states, made a new record in 1946. California harvested 95,000 tons compared with 71,000 tons in 1945 and 69,200 tons average, 1935-44. The Michigan crop was 6,000 tons compared with 2,200 tons in 1945 and an average of 5,000 tons in 1935-44. Prices of plums were lower in 1946 than a year earlier.

Prune production, confined wholly to the four western states of Idaho, California, Washington and Oregon, amounted to a near record total. California reported 203,000 tons of dried prunes which was slightly less than the average. The total harvest of Oregon, Washington and Idaho was larger than in 1945.

Table VII.—Quantities of Prunes Used, Fresh, Canned and Dried in the U.S., 1946 and 1945

State	1946	1945
Used fresh		
Idaho	20,500	26,600
Oregon	19,500	23,600
Washington	11,500	13,450
Canned		
Oregon	44,000	19,000
Washington	9,500	7,550
Dried		
California	204,800	225,800
Oregon	8,700	7,700
Washington	400	250
Frozen		
Oregon	5,000	8,300
Washington	2,600	1,500
Other Processes		
Oregon	2,600	2,600
Washington	1,800	350
Idaho	600	600
Farm household use	7,000	6,500

About one-third of the crop of the three states was sold as fresh fruit and a larger amount was canned and frozen. Prices of dried prunes averaged higher in 1946 than the \$210 per ton average price of 1945.

Table VIII.—U.S. Production of Prunes by States, 1946 and 1945

(In tons, fresh basis)					
State	1946	1945	State	1946	1945
Oregon:			Washington		
Western	86,000	72,000	Western	11,200	7,700
Eastern	19,100	20,100	Eastern	18,300	18,200
			Idaho	21,900	28,000

Pineapples.—The Florida pineapple crop was estimated at 20,000 crates in 1946 compared with 10,000 crates in 1945 and 11,400 crates average, 1935-44. The imports of pineapples, fresh and canned, increased with the end of the war in the Pacific. In 1945 bulk imports increased to 11,350,000 lb. compared with 6,375,000 lb. in 1944 and prepared products to 24,292,000 lb. in 1945 compared with 18,851,000 lb. the year before.

Strawberries.—The 1946 production of strawberries was estimated at 6,933,000 crates of 24 qt. each compared with 5,201,000 crates harvested in 1945 and a 10-yr. average of 10,278,000 crates, 1935-44. The acreage was much below the prewar level, only 91,760 ac., compared with an average of 149,430 ac., 1935-44. The shortage of labour and higher wages were given as the causes of the reduction. Yields in 1946 were 75.6 crates per ac. compared with an average of 67.9 crates. Prices of strawberries averaged \$9.88 per crate in 1946 compared with \$8.60 in 1945 and \$3.50 for the 10-yr. average. Fewer strawberries were processed chiefly because of the sugar shortage. (See also AGRICULTURE.) (J. C. Ms.)

FSA: see FEDERAL SECURITY AGENCY.

FSLIC: (Federal Savings and Loan Insurance Corporation): see HOUSING.

FTC: see FEDERAL TRADE COMMISSION.

Fuel Briquettes. The production of fuel briquettes in the United States expanded rapidly during the years of World War II, since it provided a satisfactory fuel from otherwise low-grade material. Output increased by 12% in 1945 and value by 18%, from 2,469,961 short tons in 1944 to 2,762,204 tons in 1945. In 1945 there were 32 plants operating in 15 states, with 7 more under construction. Wisconsin had 11 plants and more than half the output, using bituminous coal slack and anthracite fines that accumulated at the Great Lakes shipping ports. Capacity of the active plants in 1946 was 3,782,900 tons, with 700,000 tons more for plants under construction.

In addition to the briquettes reported above there was a growing output of "packaged fuel," which consists of a number of cubical briquettes wrapped and sealed in a package weighing about ten pounds, for convenience and cleanliness in handling. The production of package fuel declined from a high of 284,513 tons in 1940 to 175,770 tons in 1944, largely caused by shortage of labour and materials, but recovered to 208,143 tons in 1945. (G. A. Ro.)

Fuel Oil: see PETROLEUM.

Fuller's Earth. The production of fuller's earth in the United States increased from 294,737 short tons in 1944 to 296,368 tons in 1945, the highest figure after the record peak of 335,644 tons in 1930, and more than double the output of 1940. The refining of mineral oils took 61% of the total; vegetable oils 9% and absorbent uses 19%. (G. A. Ro.)

Funk, Walther (1890—), German politician and economist, was born on Aug. 18 in Trakehnen, East Prussia. He attended universities at Berlin and Leipzig, and joined the army at the outbreak of World War I but was discharged in 1916 as unfit for service. He started in newspaper work in 1912 and became editor of the leading German financial and economic daily, the *Berliner Boersen Zeitung*, in 1922.

Shortly thereafter he joined the nazis and in 1931 was called to Hitler's personal staff as economic adviser; in this post he acted as middleman between Hitler and the German industrialists.

Funk was appointed economics minister in 1938 but operated under the supervision of Hermann Goering, who was plenipotentiary general of the four-year plan; on Jan. 20, 1939, Funk replaced Dr. Hjalmar Schacht as president of the Reichsbank. Funk participated in the economic planning for the attack on the soviet union and was active in the nazi program of discrimination against Jews. Taken prisoner by U.S. troops in May 1945, he was indicted by the international military tribunal at Nuernberg, Aug. 29, 1945.

In his defense he described himself as a little man "who was frequently allowed up to the door but not in." Goering himself told the court that Funk was an "insignificant" subordinate. The court, nevertheless, found him guilty of crimes against the peace, war crimes and crimes against humanity, and on Oct. 1 he was sentenced to life imprisonment.

Furniture Industry. During 1946, the number of factories in the United States manufacturing household furniture increased from 2,500 to 6,100, the greatest growth in the history of the industry from the founding of the republic.

Of these establishments, approximately 4,000 manufactured wooden household furniture and 2,100 produced upholstered furniture. In 1945 there were 853 upholstering plants, indicating that the growth in this division had been the greatest of all.

Furniture production in the U.S. during 1946 increased approximately 40%, from \$640,000,000 to an estimated \$900,000,000. Much of this increase could be credited to new plants which began producing for the first time after V-J day. Of this production, approximately one-third was upholstered furniture, one-third casegoods and one-third novelty and miscellaneous furniture. At the close of 1946, casegoods still were scarce, while upholstered and novelty furniture was becoming more plentiful.

Unfilled orders on manufacturers' books were 31% above those at the beginning of 1946, pay rolls had increased 41%, the number of employees 24% and shipments 40% on a dollar basis. In units, however, furniture shipments were estimated to be about equal with those of 1943 when lower prices and production for war held dollar volume down to \$600,000,000. Manufacturers discontinued their lowest-priced lines in 1944 and concentrated on their best patterns. In 1946 low-priced furniture was just returning to stores after an absence of several years.

The year 1947 was expected to find the furniture industry becoming competitive again and, with nearly twice as many factories seeking to serve the 20,000 furniture and department stores of the country, competition was expected to be the strongest in the industry's long history. By midyear, it was predicted, a "buyer's market" would exist again and all but the casegoods branch would have caught up with their backlog of orders and the pent-up consumer demand for their goods. Because of the greater skill required in manufacturing casegoods, it was thought probable that this branch would not meet public demand for its output until the end of 1947.

The Jan. 1947 furniture markets at Grand Rapids, Chicago and New York city witnessed the introduction of the first post-war designs to appear beyond the drawing board stage. These were mostly modern designs embodying new decorative effects, such as leather, glass, plastic, mirror plate and copper tops, panels, insets or hardware. These new patterns proved that the modern trend was definitely toward the decorative and away from the simplicity of prewar years.

In traditional furniture, 18th century English designs retained prominence with French Provincial and Regency ranking in the order named. Early American furniture, discontinued because of a shortage of maple lumber during World War II, reappeared at the January markets and plastic, glass and metal furniture also was shown in greater quantities than at any other market. Plastic and glass furniture was most popular in the novelty field where many tables of these materials were being offered. Metal furniture was confined largely to the kitchen, breakfast room, lawn, porch and garden.

Furniture prices were expected to advance between 10% and 20% during 1947. Caused by competition already apparent in the industry, no price rises accompanied decontrol of the industry in late 1946. Before decontrol, OPA had under advisement a further increase for furniture manufacturers, as the one granted during 1946 benefited only those making low-priced furniture—to encourage its reappearance on the market.

There were few strikes in furniture factories during 1946 although more than half of the industry was unionized, chiefly with C.I.O. jurisdiction. Those strikes that did occur were mostly of short duration and only one large plant, the largest upholsterer in the industry, employing 2,500, was mainly out of production for more than 100 days.

Manufacturers were gratifyingly surprised that when the industry was decontrolled in late 1946 there was no cancellation of back orders such as followed World War I when, in 1921, most furniture factories found their backlogs wiped out with their warehouses filled with goods ready for shipment. These goods were dumped on the market at discounts that kept the industry "in the red" for several years. Back orders were in 1946 at an all-time peak of \$500,000,000—an average of more than 180 days' production for every factory in the U.S. Whether the introduction of new designs would create cancellation of orders for older patterns was the number one problem faced by manufacturers at the beginning of 1947. Otherwise their worries were few, with lumber becoming more plentiful and more men applying for jobs every month. With furniture factory profits the highest in modern times, with demand still strong and with more new homes being built requiring still more furniture, the industry anticipated a busy and profitable year during 1947. (See also INTERIOR DECORATION.) (J. A. G.)

Furs. The fur industry in the United States encountered its first financial setback in three years during the last quarter of 1946. Failures in the trade increased over 1945. They totalled 46 from Dec. 1945 to Nov. 1946, with \$1,951,639 involved. The rapid decline in fur skin values during the last quarter of 1946 and collapse of fur apparel prices in November and December were favourable to the consuming public. For the first time from 1943, it was a consumer's market.

The U.S. fur trade was active during the first half of 1946. Prices of both foreign and domestic furs remained inflated except on long-haired pelts. Consumer demand was strong until September when a definite decline became evident. Weather and the soft coal strike upset consumer buying plans. Reduced fur apparel prices stimulated consumer buying. Huge quantities of fur coats were sold. However, luxury articles marked down 50% and more were difficult to sell in December. It is estimated that the industry transacted as large a dollar and cents business as in 1945 but unit sales were reported lower.

It was a satisfactory year for mink breeders, fairly satisfactory for mutation fox breeders though disappointing for silver fox breeders. During the first half of the year mink farmers sold the greater part of their pelts at slightly lower prices than in 1945. Wild mink was a fashion favourite and often brought higher prices than ranch mink. Most of the crop of all kinds of mink was sold by fur farmers before prices broke in the market. Prices reached a top of \$65-\$75. Mutation minks increased in number and prices were generally satisfactory. Top prices were \$190 and \$172 per skin. Manufacturers and retailers of mutation minks encountered consumer price resistance during the second half of the year. New mink skins offered in Dec. 1946 met strong price resistance.

Colour-phase foxes sold well. Prices were easier than in 1945. Platinum type fox was a favourite. Finest specimens sold around \$200 for the raw skin. Silver fox was in weak demand and prices declined. Finest skins found buyers but few pelts sold up to \$100.

U.S. imports and exports of raw furs increased greatly. Considerable shipments of furs were received from China, much of them old merchandise. Prices on oriental furs met strong resistance. Large quantities of skins were received from the soviet union. They sold freely at prevailing market prices. The United



RED FOX SKINS which were included in the first postwar fur sale in London, held in 1946

States continued to purchase quantities of Indian furs. Large quantities of nutria were shipped from Argentina and Uruguay, also ocelot, spotted cat and shearling lambskins. The lambskins were made into mouton in the United States and became one of the favourite items of the year. Limited quantities of wild fur skins from Brazil and other South American countries were imported.

Persian lamb imports totalled approximately 5,000,000 skins from Afghanistan, South-West Africa and the U.S.S.R. Smaller quantities of other fur skins were brought in from the Scandinavian and other European countries. There were also limited imports from Australia and New Zealand. Canada was one of the chief sources of supply for skins for the U.S.

The London market became active in 1946 with the return of the Hudson's Bay Company Fur Auction sales to that city. The British government confined activities of London firms to processing and marketing of fur skins and fur apparel for export only. Domestic consumption of furs was discouraged and limited to a few types of inexpensive peltries. The policy was to make the fur industry produce revenue through export sales. The revival of the London fur auctions met with some success but Europe was not ready to purchase furs extensively.

Paris struggled bravely to re-establish its fur business; but government regulations and lack of manpower and purchasing power prevented any real revival. The *couturiers* attempted to re-establish Paris fashions.

The favourite furs in the U.S. trade during 1946 were, in their approximate order, muskrat, Persian lamb, mouton, mink, beaver, nutria and Indian lamb, followed by the cheaper types of short-haired furs. Long-haired furs were neglected. Colour-phase foxes sold well; silver fox declined in popular demand. Rabbit consumption declined, being adversely affected by the strongly promoted mouton or processed lamb.

According to the American Fur Merchants association skin sales by members during the period Dec. 1945 through Nov. 1946 totalled \$66,643,148 compared with \$64,445,684 for the corresponding period in 1945. These figures represent a major part of skin sales in the industry.

During the first 10 months of 1946 raw fur imports approximated \$200,000,000 and fur exports \$40,000,000.

During the year all government regulation on furs and fur skins by OPA was removed. The tax collected by the government on taxable fur apparel and fur-trimmed articles totalled \$68,537,094 for the first 10 months. This total, which represented 20% on the retail selling price of merchandise, compared with \$62,080,746 collected during the corresponding period in 1945. At the end of the year Pres. Harry S. Truman announced a reduction in many emergency war taxes, including the fur tax. This was to be reduced to 10% of the retail selling price effective July 1947. (W. J. B.)

FWA: see FEDERAL WORKS AGENCY.

Galen, Clement August von, CARDINAL (1878-1946), archbishop of Muenster and one of the most vigorous and plain-spoken foes of nazism within Germany, died on March 22, 1946, barely a month after his elevation to the Sacred college by Pope Pius XII. Born at Dinklage in his ancestral Westphalia, of a family on his own rating "neither particularly handsome nor clever, but incorrigibly Catholic," he was educated in Germany and at the Pontifical Gregorian university at Rome, being ordained priest in 1904. A fruitful pastoral and social apostolate spanned World War I and the unstable years of the Weimar republic, preparing him for the arduous episcopal charge of Muenster (Catholic population: 1,750,000) to which he was summoned in 1933, the year Hitler rose to power.

Physically of giant stature, blessed with a robust sense of humour and a devastating gift of irony, Von Galen was fearless from the outset in his defiance of nazi ideology and terrorism. In 1934 he extracted a personal guarantee from Hitler that the progressive neopaganization of German youth projected by the regime would not be pressed. As nazi bad faith became more apparent, the Concordat with the Vatican was repeatedly violated. The bishop thereupon began a campaign of thunderous protest and dire predictions of calamity for Germany from his cathedral pulpit, in the press and by curt personal telegrams to the Fuehrer and various reichsministers. This earned him at home and abroad the soubriquet of "Lion of Muenster."

Throughout World War II, during which Muenster was a frequent target of Allied bombing raids, Von Galen's sermons and pastoral letters were often sensational and uncompromising indictments of the theory and practice of totalitarianism. When the reich collapsed in 1945, he met the victorious Allies with the proud and courageous avowal of a Christian prelate who had never allowed the claims of justice, patriotism and world citizenship to come into conflict:

We accept the consequences of the war, grieve over our dead, our destroyed cities. We will bear it patiently with the help of God. But we will not accept unjust accusations and punishment for the injustices and cruelties under which we ourselves had to suffer heavily for many long years. (J. LAF.)

Gambia: see BRITISH WEST AFRICA.

Gandhi, Mohandas Karamchand (1869-). Hindu nationalist leader, was born at Porbandar (Kathiawar), India. For his biography, see *Encyclopædia Britannica*. On Jan. 22, 1937, Gandhi announced his retirement from active Indian politics, but by 1940 he was as prominent as ever in Indian affairs of state. In April 1941 he announced that the Congress party had temporarily abandoned its aim of independence for India, but he reaffirmed his personal policy of nonviolence.

On March 27, 1942, Gandhi conferred with Sir Stafford Cripps; later he rejected the latter's proposals for Indian post-war independence. On Aug. 9, after the All-India Congress party had approved his proposals for a civil disobedience campaign, Gandhi was arrested with 200 other Indian leaders and was held as a political prisoner in the Aga Khan's palace in Poona. He was released in May 1944 because of failing health. Gandhi warned (Feb. 18, 1945) that a new and bloodier war would come about unless India and governments in similar positions were given their independence. While he approved the Simla parley (June 19, 1945) as a "great advance," he did not attend.

The British independence plan issued in a White Paper, May 16, 1946, led Gandhi to declare that "whether you like the plan or not, it is going to be the momentous one in the history of

India." Subsequently he called it the "best document the British government could have produced in the circumstances." However, he voted against it at the session of the Congress party, July 7; the party approved the plan by a 204 to 51 vote.

The Moslem-Hindu rioting throughout the year angered Gandhi who warned (Nov. 5) that he would "fast unto death" if the fighting continued, and on Jan. 2, 1947, he began a walking tour of East Bengal villages to improve Hindu-Moslem relations.

Gardner, Oliver Max (1882-1947), U.S. politician, government official and diplomat, was born March 22, 1882, in Shelby, N.C. He served with an Illinois regiment during the Spanish-American War (1898). He was graduated in 1903 from the North Carolina State College of Agriculture and Engineering, Raleigh, N.C., studied law at the University of North Carolina, Chapel Hill, N.C., 1905-07, and practised in his home town. He went into Democratic state politics and was a member of the state senate, 1911-15.

Gardner was governor of North Carolina for the 1929-33 term and held government posts during World War II, becoming chairman of the advisory board of the Office of War Mobilization and Reconversion in 1944. On Feb. 19, 1946, President Truman appointed him undersecretary of the treasury; Gardner resigned as chairman of the OWMR advisory board July 4, 1946. He was named ambassador to Great Britain on Dec. 9, 1946, but he died in New York city on Feb. 6, 1947, before he assumed his new post.

Garnet: see ABRASIVES.

Gas, Natural. The marketed production of natural gas in the United States increased from 3,414,689,000 cu.ft. in 1943 to 3,711,039,000 cu.ft. in 1944; the corresponding figures for domestic consumption were 3,403,479,000 and 3,696,463,000 cu.ft. The small differences between production and consumption represent exports, mainly to Mexico. The types of consumption included 220,747,000 cu.ft. for commercial users, 562,183,000 cu.ft. for domestic and 1,757,327,000 cu.ft. for industrial uses, but consumption by petroleum refineries, carbon black plants and public utility power plants ran well ahead of the industrial average, while Portland cement showed a decrease. The proportion of the output treated for the recovery of natural gasoline declined from 99% in 1940 to 89% in 1943 and 88% in 1944. Preliminary estimates for 1945 give 3,845,000,000 cu.ft. for marketed production and 3,825,000,000 cu.ft. for consumption, including 240,000,000 cu.ft. for commercial users, 610,000,000 cu.ft. for domestic, and 2,975,000,000 cu.ft. for all industrial users. Canadian production of natural gas increased from 45,067,158 cu.ft. in 1944 to 52,973,699 cu.ft. in 1945, but declined to 36,811,632 cu.ft. in the first three quarters of 1946, 3% less than in the same period of 1945. (See also FEDERAL POWER COMMISSION.) (G. A. Ro.)

Gasoline: see PETROLEUM.

Gasparri, Enrico, CARDINAL (1871-1946), Italian prelate, was born on July 25 in Ussita, and was ordained in 1894. A nephew of Pietro Cardinal Gasparri, noted secretary of state at the Vatican under Popes Benedict XV and Pius XI, he served as private secretary to his uncle when the latter was nuncio to Peru. The younger Gasparri was later attached to the apostolic delegations to Bolivia, Ecuador, Portugal, Belgium and Switzerland. In 1915, he became apostolic delegate to Colombia and was transferred from there to Brazil

where he served until 1925. While in the latter post, he was created a cardinal (Dec. 1925) and was assigned to the titular church of San Bartolomeo al' Isola. He became prefect of the supreme tribunal of the apostolic signature, 1933, and in the same year took over the diocese of Velletri. He was a member of the sacred congregations of the Eastern Church, sacraments, the council, propaganda fide and of extraordinary ecclesiastical affairs. At the time of his death in Rome, on May 20, he was second senior member of the Sacred College of Cardinals.

Gaulle, Charles de (1890—), French army officer and statesman, was born Nov. 22 in Lille, France. He was graduated from St. Cyr military college at Paris shortly before the German invasion of France in 1914. Wounded three times during World War I, he was captured by German troops at Verdun in 1916, but escaped and saw further action on the western front and in the near east.

After the end of World War I, De Gaulle's pleas that France mechanize its armies were ignored by the conservative French general staff which continued to place its trust in static defense. When German mechanized forces skirted the Maginot line and overran all France in the summer of 1940, De Gaulle fled to London, formed a French exile regime (June 23, 1940) and rallied many French colonies to the Allies. In Sept. 1941, he formed a Free French (later the Fighting French) national council. As supreme commander of French armed forces, he returned to Paris after its liberation in Aug. 1944 to become head of a provisional French government. Following the defeat of the reich in May 1945, De Gaulle insisted that France be given proper recognition as a great power and advocated internationalization of the Ruhr and the Rhineland. On Nov. 6, 1945, the constituent assembly unanimously elected De Gaulle interim president of the new provisional government. He resigned Jan. 20, 1946, declaring that he was retiring from political life. However, in an important statement of policy at Bayeux (June 16), he called for a bicameral parliament and establishment of a strong state. He also advocated (July 28) establishment of an Anglo-French entente to balance the preponderant power of the U.S. and the soviet union in world affairs.

An adamant opponent of the new constitution, De Gaulle had frequently appealed to the French voters to reject it, on grounds that it would lead to a dictatorship. One of his major objections was the limitations imposed by the new charter on the authority of the president. However, the majority of the French electorate endorsed the new constitution and on Dec. 28, De Gaulle announced he would not be a candidate for the presidency, stating that he did not wish "to preside, powerless, over the powerlessness of the state."

Gems and Precious Stones. Except for diamonds, which are covered in a separate section, the effect of World War II was disastrous in most of the leading gem producing areas. Aside from diamonds, sapphire was the only precious stone having industrial applications that led to increased demand. While the use of sapphire pivot bearings or "jewels," in watches and scientific and technical instruments was greatly expanded by war uses, much of the demand was satisfied by synthetic sapphire, rather than by the natural stone. In the U.S., sapphire production dropped from 20,000 oz. in 1943 to 4,500 oz. in 1944, and was discontinued in 1945. Information was lacking on operations in Australia and India after the beginning of the war.

The gem producing areas of Burma, Siam and Indo-China were presumably operated only to a minor degree if at all while in enemy hands. Little or nothing was done in Ceylon and Madagascar, as the graphite mines had priority on the labour

supply. The Colombian emerald mines were dormant even before the war; the 1945 U.S. imports included 1,085 carats of rough and 106,684 carats of cut emeralds, but nothing was known about their source except that some were soviet; also there was no indication as to whether the product was new production or old, but the valuation was extremely low, indicating poor quality. Early in 1946 it was reported that the remaining emerald stocks held by the Colombian government were sold to a U.S. jewellery firm, and there was a possibility that the mines would be reopened.

Under the conditions that had prevailed for several years, supplies of gem stones other than diamonds had been greatly restricted, and markets had reacted accordingly. (See also MINERALOGY.) (G. A. Ro.)

General Education Board: see SOCIETIES AND ASSOCIATIONS: *Rockefeller Foundation*.

General Federation of Women's Clubs: see SOCIETIES AND ASSOCIATIONS.

Genetics. In 1946 significant advances were made on the nature of natural and induced mutations, on population genetics and hybridization and their bearing on evolution.

Natural and Induced Mutations.—In tests for spontaneous lethal mutations in about 200,000 X-chromosomes of *Drosophila melanogaster* H. J. Muller demonstrated a mutation rate two or three times as high in the first sperm produced by young males as in sperm produced a week later. K. Mampell reported experiments which seemed to indicate the transfer of a mutator substance from one species of *Drosophila* to another and its persistence in the germ plasm of the second species. J. R. Preer showed that a cytoplasmic factor which conditions the "killer" phenotype in one variety of *Paramecium aurelia* has a reproduction rate independent of the fission rate of the animals. L. J. Stadler found that mutations at the R locus in corn produced either colour change in the plant or in the seed with about equal frequency. Mutations with both effects occurred very infrequently. The plant colour allele mutated much more frequently to the seed colour allele than did the original wild-type allele. He concluded that the several mutations were not independent alterations of distinct components of a gene-complex. F. J. Ryan and J. Lederberg proved that the variant in the mould, *Neurospora*, incapable of synthesizing leucine, was a true gene mutation by securing reverse mutations at this locus. By means of ultraviolet and X-rays M. Demerec induced mutations from sensitivity to resistance to bacteriophage in a strain of the bacterium, *Escherichia coli*. Most of these mutations showed a delayed effect, occurring in the strain at a considerable interval after treatment. B. Kaufmann and collaborators showed that treatment of *Drosophila* sperm with infra-red rays either prior to or following X-radiation increased the number of chromosomal rearrangements over X-ray controls, while treatment with ultraviolet following X-rays decreased the number of rearrangements. D. G. Catcheside, D. E. Lea and J. M. Thoday irradiated *Tradescantia* microspores and analyzed factors involved in the formation of interchanges of chromatids. They found that two breaks must be within a micron of each other to allow interchange. Increasing the temperature decreased the number of interchanges.

Population Genetics, Hybridization and Evolution.—S. W. Mead, P. W. Gregory and W. M. Regan reported the discovery of eight deleterious recessives in cattle through inbreeding studies on six bulls. The culmination of this important experiment indicated that domestic cattle carried a heavy load of defective genes which might be eliminated by improved breeding

programs. T. Dobzhansky demonstrated that the gene complexes carried in three wild second chromosomes of *Drosophila pseudoobscura* gave many different viability potentials through recombinations because of crossovers. It was concluded that natural populations of flies contained tremendous reservoirs of potential adaptive variability. N. P. Dubinin and G. G. Tiniakov studied *Drosophila funebris* populations and found a much higher frequency of flies heterozygous for chromosome inversions in urban than in rural populations. They also demonstrated seasonal cycles in inversion frequencies. C. C. Tan demonstrated a complex series of multiple alleles for colour in wild strains of the ladybird beetle, *Harmonia axyridis*. J. A. Moore showed that northern strains of the frog, *Rana pipiens*, when crossed to southern strains, produced abnormal hybrids. In contrast, the northern species, *Rana palustris*, produced normal hybrids with both northern and southern *R. pipiens*. H. N. Hansen and W. C. Snyder demonstrated in the fungus, *Hypomyces solani*, that the genes determining maleness and femaleness were carried on homologous chromosomes, but at loci some distance apart. Crossing-over resulted in the production of hermaphrodites and neuters. M. Gordon reported alternative sex-determining mechanisms in the platyfish. In wild varieties the male was the heterogametic sex while in domestic forms the female was heterogametic. J. T. Patterson found that in many species of *Drosophila* an insemination reaction characterized by swelling of the vagina followed copulation. In interspecific crosses the reaction was extreme and formed an effective isolating barrier, preventing hybridization. E. S. McFadden and E. R. Sears presented evidence that the hexaploid wheat, *Triticum spelta*, was an allopolyploid, which had arisen after natural hybridization of diploid and tetraploid species. They were able to produce a synthetic hexaploid similar to *T. spelta* by appropriate crosses followed by chromosome doubling induced by colchicine. J. B. Hutchinson reported on a series of five alleles at the "crinkled" locus in new world cottons. Two of these alleles were wild-type as homozygotes and distinguishable only in heterozygous combinations with the others. S. G. Stephens showed that in crosses between two species of cotton in the West Indies an inferior hybrid type known as "corky" was a heterozygote for two alleles at one locus. Strains carrying one of these "corky" alleles were found in each species in regions where the two species were grown together.

BIBLIOGRAPHY.—*Genetics*, vol. 31 (1946); *J. Genet.*, vol. 47 (1946); *J. Hered.*, vol. 37 (1946). (W. P. S.)

Geographical Society, American: see SOCIETIES AND ASSOCIATIONS.

Geography. The year 1946 was a year of strenuous activity in the field of geography. The effort to win a world-wide war had, among other things, brought home to the vast majority of people a conception of how small the world had in fact become, of the interdependence of widely separated areas. The millions who carried arms in the war, in the majority of cases, saw new lands, new climates, new and strangely different ways of life. The very fact of fighting the same war in Port Darwin and in Murmansk, in Madagascar and in Kiska was in itself a clinching argument of the interrelationship of widely separated regions and peoples. The wide popular interest generated by these experiences was maintained by the geographically remote yet vitally important peace negotiations of the first year of peace. The result of this continuing interest in other lands and other peoples was the continuance of the pressure on geographers to provide information to the public and to continue to serve in government.

The experiences of the war and of the "preliminary" year of peace were evident in three principal ways:

- (1) An increasing number of persons were engaged in various professional and technical phases of geography.
- (2) An ever-increasing number of colleges and universities were offering general interest courses in the geography of various regions of the world, as well as in more technical aspects such as map making and climatology. Moreover, a large number of government agencies were continuing and in some cases adding to this program in various phases of geographic inquiry.
- (3) The character of the materials with which geographers were dealing in 1946 reflected the lessons taught during the war.

Increased Personnel.—Figures compiled by the National Research council, working with the U.S. government, indicated that the number of professional geographers in the United States had risen markedly. This was particularly true in 1946 if those persons who were trained in specialized phases such as cartography and aerial photo interpretation were to be included with those given a more general training.

This fact reflects the effectiveness of programs of intensive training established both in the universities and in various government agencies, including the armed forces. Short courses in navigation, map reading, field surveying, climatology and cartography all did their part in preparing hundreds of selected persons for specialized war tasks. In a number of the agencies of the government, trained personnel was so scarce in the early phases of the war that programs of training on-the-job were devised. One result of these "forced draft" courses was to provide a far greater number of persons than before with skills and experience in one or more parts of the discipline of geography. An additional sidelight on the effect of the war was the sharp increase in the number of students enrolled in 1946 in geographic courses. As an example, the department of geography at the Ohio State university, Columbus, O., reported 1,600 students enrolled in its various courses, an average of slightly more than 1 student in 10 on the campus, far exceeding the prewar student participation.

Geography in Higher Education.—It seemed probable that 1946 was a year without precedent in the history of geography in the United States as regards new developments in the universities and colleges. Many entirely new departments of geography were established. The Universities of Virginia, Illinois, Iowa; Rutgers university; George Washington university; Catholic University of America; Northwestern university, and many others, all added geographers to their staffs on a full-time continuing basis, apparently for the first time.

In addition, many other schools which had previously offered courses in geography expanded their programs and added new members to their staffs in addition to those who returned to their old posts after having been on leave for war work. Into still a third category came schools such as Syracuse university and Washington university of St. Louis which strove to lay more emphasis on geography in their curricula by placing it in a separate department, rather than combining it with the study of geology as in the past.

It was worthy of note that in nearly all the numerous institutions which featured the study of international relations following the war, geography played an important role, receiving careful consideration as one of the integral factors of the international scene.

Modified Emphasis in Geography.—It was already possible in 1946 to see the results of wartime experience expressing themselves in a shift in emphasis in the application of geography in the universities and elsewhere. To take one example, it appeared that a great deal more emphasis was being laid on maps. A number of leading schools announced increased work in cartography and the use of maps, reflecting a lesson driven home many times over during the war, namely, that the map is one of the most valuable tools of the geographer both in investigation and exposition.

Another change which became evident in 1946 was an increas-



CARTOGRAPHERS of the National Geographic Society going over every square inch of a map proof with a magnifying glass

ing tendency to study the various regions of the earth not for the sake of the knowledge itself, but rather with the aim of understanding economic or political trends of the day. Increased sensitivity to affairs abroad and a greater realization of their significance at home lent a stimulus to this new and revealing point of view.

The same features which characterized geography in the universities were visible as well in government, and for the same reasons. It had become clear by 1946 that a prerequisite to an informed foreign policy was adequate information of all types from abroad. This realization had resulted in the retention of numerous geographers in government offices who were furnished with funds and equipment adequate to the task. (See also NATIONAL GEOGRAPHIC SOCIETY; SOCIETIES AND ASSOCIATIONS.) (R. S. McC.)

Geology. During 1946 national conventions, sectional meetings and field conferences of geological societies were resumed on a normal scale. Expansion of research in the United States was stimulated by the far-flung program sponsored by the army and navy, and investigations of the geology and mineral resources of conquered countries were conducted by these organizations.

New developments in mapping technique based upon aerial photographs and other methods were exploited by the U.S. geological survey.

The development of atomic power and the realization of the necessity of scientists to adjust themselves to the ways of politicians brought about a change in viewpoint. An excellent treatise, *Science in a Changing World* by E. J. Cable, R. W. Getchell and W. H. Kadesch, was published in New York.

There was a marked increase in the number of foreign publications on geology released as a result of the cessation of hostilities. Many of these dated back a number of years.

The wartime shortage of geologists was somewhat alleviated by the return of geologists to peacetime pursuits and by the graduation of veterans whose training was interrupted by war

service. Educational institutions were handicapped by the lack of adequately experienced teaching personnel because of the substantial deflection of former teachers into applied geology. Much attention was devoted to the training of geologists by the Geological Society of America, which published reports on conferences on the subject. A vocational booklet on *Geology as a Profession* was published by the staffs of the National Roster of Scientific and Specialized Personnel and United States office of education.

On the morning of Dec. 21, catastrophe visited Japan where an earthquake offshore set up a series of destructive tidal waves which swept Honshu, Shikoku and Kyushu Islands.

General Geology.—A popular treatise by a well-known author is C. A. Cotton's *Earth Beneath*, Wellington, New Zealand, 1945.

Geomorphology.—The increased attention to the continental shelves in connection with war research and exploration for oil and gas revealed valuable additional information on submarine canyons. Much new data were also assembled on the topography of the deep ocean floors.

Glacial Geology.—A "Glacial Map of North America" was published by the Geological Society of America. In *Science* for July 19, G. N. Lewis published an intriguing article on "Thermodynamics of an Ice Age: The Cause and Sequence of Glaciation."

Sedimentation.—Geological and geophysical studies of Bikini Atoll in connection with the bomb tests of 1946 revealed valuable information regarding the origin of coral reefs and allied problems. A new type of gravity bottom sampler was described by M. J. Hvorslev and H. C. Stetson in the October *Bulletin* of the Geological Society of America. Two outstanding books were F. S. Zeuner's *Dating the Past, An Introduction to Geochronology* (London) and C. E. ZoBell's *Marine Microbiology. A Monograph on Hydrobacteriology* (Waltham, Mass.).

Stratigraphy.—A monograph by Max Welten on *Pollen-analytische, Stratigraphische, und Geochronologische Untersuchungen aus dem Faulenseemoos bei Spiez* (Zurich, 1944) became available in the United States.

Historical Geology.—F. E. Zeuner's *The Pleistocene Period, Its Climate, Chronology and Faunal Successions* appeared in London during 1945.

Structural Geology.—R. A. Daly in the August *Bulletin* of the Geological Society of America revised his assumptions regarding the constitution and behaviour of the outer half of the earth's silicate mantle. A method of determining the compressibility of a crystalline rock from its chemical composition was developed.

J. H. F. Umbgrove discussed the "Origin of Continental Shelves" in the February *Bulletin* of the American Association of Petroleum Geologists and discoursed "On the Origin of Continents and Ocean Floors" in the May *Journal of Geology*. "A Comparative Study of Tectonics of North America and the European Platform" was covered by N. S. Schatsky in a *Bulletin* of the Academy of Sciences, U.R.S.S.

Vulcanology.—A symposium on *El Parícutin, Estado de Michoacan* was issued in 1945 by the National University of Mexico under the editorship of Teodoro Flores.

Petrography.—Important contributions to this field were "Petrographic Research in the Academy of Sciences of the USSR" by P. I. Lebedev, of the 1945 geological series of the Academy, and "Thermal Diffusion-Convection as a Cause of Magmatic Differentiation" by Walter Wahl in the June *American Journal of Science*.

Regional Geology.—A new geological wall map of North America was completed and published by the Geological Society of America.

Applied Geology.—Part 2 of the August *Bulletin* of the American Association of Petroleum Geologists contains a valuable "Directory of Geological Material in North America," edited by J. V. Howell and A. I. Levorsen. A field and reference book on *Principles of Field and Mining Geology* was published in New York by J. D. Forrester.

Problems arising from the rapid depletion of certain mineral resources were considered in a symposium entitled "Our 'Vanishing' Natural Resources," published by the United States chamber of commerce. A. M. Bateman considered "New International Mineral Problems" in *Economic Geology* for Dec. 1945.

The fourth of the series of annual reviews of petroleum geology under the editorship of F. M. Van Tuyl and W. S. Levings was issued by the Colorado School of Mines.

As a result of the large number of new projects being initiated by the United States reclamation bureau, the geological staff of that organization was substantially expanded. As pointed out by D. J. Belcher in the August *Bulletin* of the Geological Society of America, the use of airphotos to facilitate engineering planning and construction was increased. (See also MINERALOGY; PALAEONTOLOGY; SEISMOLOGY.) (B. H. P.; F. M. V. T.)

George II (1890—), king of the Hellenes and eldest son of former King Constantine, was born on July 20 at Tatoi, the royal villa near Athens. For his early career see *Encyclopædia Britannica*. The king had been twice exiled—the first time by internal opposition to his rule in 1923 and the second time by the German invasion in April 1941. After his flight from Athens and later Crete during World War II, he took up residence in London in Sept. 1941. Upon the close of the war the Greek royalist factions, supported by the British, advocated his return to the throne, but Republican and extreme leftist groups were strongly antagonistic to restoration of the monarchy. The restoration issue was one of the contributing factors in the Greek civil war that started in Dec. 1944. As Winston Churchill had suggested on Nov. 11, 1943, the question of his return was left up to the people and on Sept. 1, 1946, in a plebiscite on the issue, about 70% of the electorate voted for a return of the monarchy. Antiroyalist factions maintained that only a small portion of the population voted in the plebiscite and that, therefore, the vote did not constitute a true test of national sentiment. The king returned to his homeland Sept. 27, 1946. His reassumption of the throne, however, was marked by increased internal violence and the refusal of Republican leaders to join in any cabinet whose program was laid down by the proroyalists.

George VI. Accompanied by the queen and royal guests from abroad, and surrounded by high officers of state, dominion statesmen and ambassadors of the Allied powers, King George VI took the salute in the Mall at a great victory march-past on June 8, 1946. At night the king saw the illuminated capital from the royal barge, passing from Westminster to the city and back to the houses of parliament.

State visits were paid in June to Scotland where, staying at Holyrood, the king drove to Falkirk, Stirling and Linlithgow, and in July to North Wales for a drive through Snowdonia to Caernarvon. Other visits were made in May to Winchester for the traditional *ad portas* ceremony at Winchester school; in July to Canterbury for a thanksgiving service at the cathedral and an inspection of the King's school and of the remains of the Roman city, unearthed by postwar excavation; and in October to Oxford to open an extension to the Bodleian library. London events attended by the king included the 499th anniversary pageant of St. Bartholomew's hospital (May 9), the centenary of the Royal Veterinary college (May 23), a march-past of Boy

Scouts in April, a reception of the Imperial Press conference in September and the dedication of the Savoy chapel as the chapel of the Royal Victorian order in October. On Nov. 10 the king unveiled new dates on the Cenotaph in remembrance of the two world wars and laid the first wreath there.

When the United Nations delegates met in London in January for their first assembly the king gave a banquet for them at Buckingham palace. Dominion premiers in London in May were also entertained there. The first postwar garden party at the palace in May was followed by one for tenants and neighbours at Sandringham. In June the king opened the Empire Scientific conference in London and in October broke his holiday at Balmoral to inaugurate the "Britain Can Make It" exhibition in Kensington, London.

The king attended the Universities Rugby match, the Association Football Cup final, the centenary match of the Surrey County Cricket club (May 23) and the England v. All India cricket match at Lords (June 25). A Polytechnic marathon was started by the king in June. He was at Ascot, at the Derby and at Newmarket (where he won the One Thousand Guineas stakes). A new trophy, the King George VI cup, run for the first time at Ascot over a two-mile course in October, added a fourth to the three classic races for three-year-olds. With the queen and princesses the king attended three great society weddings, that of the Hon. Andrew Elphinstone to Mrs. Vicary Gibbs in May; of the duke of Northumberland to Lady Elizabeth Scott at Westminster abbey in June; and of Lord Brabourne to the Hon. Patricia Mountbatten, at Romsey abbey in October. On Nov. 2 he attended the first Royal Command film performance at the Empire theatre, London.

The king lent 500 historical paintings for a winter Academy exhibition opened in October at Burlington house. (See *Encyclopædia Britannica*.) (L. Du.)

Georgia. One of the original states of the union, located in the south Atlantic region, with an area of 58,876 sq.mi., Georgia is popularly called the "Empire State of the South." Population (excluding armed forces overseas) was 3,191,766 on July 1, 1945, an increase of 2.2% over the 1940 census of 3,123,723 (34.4% urban, 65.6% rural, 64.9% native white, 34.7% Negro and .4% foreign-born). Atlanta, the capital city, has a population of 302,288. The four next largest cities are Savannah (pop. 95,996), Augusta (65,919), Macon (57,865) and Columbus (53,280).

History.—The general assembly met in regular session from Jan. 14 to Jan. 28, 1946. Chief interest centred in a proposal to amend the constitution to remove the ban against the governor's succeeding himself until the expiration of four years. This amendment had been defeated in a special session of the general assembly in the summer of 1945, and the assembly again rejected the proposal.

Candidates for governor in the Democratic primary on July 17, 1946, were Eugene Talmadge (governor, 1933-37; 1941-43), Eurith Dickinson Rivers (governor, 1937-41), James Vinson Carmichael and Hoke O'Kelley. Talmadge campaigned upon a platform of white supremacy. Gov. Ellis Arnall and most of the newspapers supported Carmichael, a Cobb county lawyer who advocated "making the Negro a citizen." Under the constitution of Georgia any person 18 years of age who is either of good character or able to read and write, and has resided in the state one year is qualified to vote in state elections. No candidate in the gubernatorial race sponsored a literacy test; hence, on the race issue the choice was between suddenly enfranchising all of the Negroes or continuing to disfranchise all of them by the substitution of party rules for state laws. The vote of the people, the largest ever cast in Georgia, gave a county unit vote (dec-

sive in Georgia) as follows: Talmadge, 242; Carmichael, 148; Rivers, 20. The popular vote for Carmichael was 314,421; for Talmadge, 305,777, and for Rivers, 69,750. The number of Negroes who voted *en bloc* for Carmichael was estimated at 100,000.

A tragic sequel to the agitation of the racial issue in the gubernatorial campaign was the murder on July 25 of four Negroes in Walton county by a band of white men. In contrast to this racial agitation in the political realm, racial harmony was evidenced by a joint meeting of 1,000 Negro delegates to the General Missionary Baptist Convention of Georgia (representing a church membership of 710,000) and 500 white delegates to the Georgia Baptist convention (representing a church membership of 590,000) held in the City auditorium in Savannah on Nov. 12. This was the first joint meeting ever held.

Governor-elect Eugene Talmadge died on Dec. 21, 1946. The Georgia constitution of 1945 was not clear on the question of succession in this case, so the year 1946 closed with the people uncertain whether the governor after Jan. 14, 1947, would be Melvin E. Thompson (lieutenant governor-elect), Herman Talmadge (son of Eugene, campaigning for election by the general assembly), or Ellis G. Arnall.

State officials at the end of the year 1946 were: governor, Ellis Gibbs Arnall; chief justice, W. Frank Jenkins; secre-



PRINCIPAL FIGURES in Georgia governorship contest in 1946. Left to right: Ellis G. Arnall, former governor; M. E. Thompson, lieutenant governor; Herman Talmadge

tary of state, Ben W. Fortson; commissioner of agriculture, Tom Linder; superintendent of schools, M. D. Collins; attorney general, Eugene Cook; state auditor, B. E. Thrasher, Jr.; director of dept of highways, Ryburn Clay; treasurer, George B. Hamilton; comptroller general, Zach D. Cravey. United States senators from Georgia were Walter F. George and Richard B. Russell, Jr.

Education.—For the school year ending in June 1946, there were 4,745 elementary schools (1,776 for white children and 2,969 for Negroes) with an enrolment of 601,170 pupils (372,667 whites and 228,503 Negroes) and a teaching staff of 15,864 (9,962 whites and 5,902 Negroes). High schools numbered 1,333 (793 white and 540 Negro) with a student enrolment of 144,722 (114,114 white and 30,608 Negro) with a teaching staff of 6,314 (5,033 white and 1,281 Negro). In the fall quarter, 1946, there were 22,651 students enrolled in the 18 divisions of the university system of Georgia (including 1,718 in 3 Negro colleges). The state of Georgia increased its annual appropriation for educational purposes threefold in 15 years (\$23,296,537 in 1945).

Social Insurance and Assistance, Public Welfare and Related Programs.—As of June 30, 1945, there were 67,044 persons who received \$9,058,771.50 in old age assistance; 9,987 dependent children, benefits, \$1,181,961; 2,030 blind, benefits, \$348,562.50.

Unemployment benefits paid in Georgia from Jan. 1, 1939, to Oct. 20, 1945, inclusive, amounted to \$18,001,084.67. Payments issued from Jan. 1, 1945, to Oct. 20, 1945, inclusive, amounted to \$1,481,796 and were paid to approximately 20,000 persons. As of Oct. 20, 1945, the state of Georgia had

a balance in the unemployment compensation trust fund of \$79,504,795.74.

The following budget allotments were made for welfare institutions for the fiscal year ending June 30, 1945: board of pardons and paroles, \$97,176.12; prisons, state department of corrections, \$766,131.16; public welfare benefits, \$5,424,566.32; state institutions \$2,564,886.79.

At the Milledgeville State hospital on June 30, 1945, there were 8,442 patients; at the Boys Training school, 287; the Girls Training school for whites, 110; the Girls Training school for Negroes, 17; the Georgia Training school for mental defectives, 422.

Communications.—On Nov. 9, 1946, Georgia had 89,536 mi. of unpaved roads and 10,005 mi. of paved roads. Expenditures by the state highway department for the fiscal year ending June 30, 1946, were \$7,129,115 for maintenance and \$6,698,801 for construction. On Nov. 5, 1946, there were 6,442 mi. of main-line railroad track in the state, of which 266 mi. were double-tracked; in addition there were 2,254 mi. of yard-switching and passing track. Georgia had 958 mi. of developed navigable river channels.

Banking and Finance.—There were in Georgia on June 26, 1946, a total of 262 state banks and 7 branch banks with total resources of \$725,840,440 including \$347,928,030 in U.S. government securities, \$180,442,732 in loans and discounts and \$167,765,479 cash in vaults and amounts due from approved reserve agents. Liabilities of these banks included \$498,230,595 in demand deposits, \$97,941,701 in savings deposits and \$39,699,273 in time certificates of deposits. On Dec. 31, 1945, there were 92 credit unions (located in 18 cities) under the supervision of the state department of banking.

On June 29, 1946, there were 49 national banks in Georgia with total loans and discounts of \$226,003,000; demand deposits \$857,408,000; time deposits \$166,860,000.

In Dec. 1946, there were in Georgia 65 associations of the savings and loan or building and loan type with resources estimated at \$110,000,000. Forty-four of these associations operated under federal charters.

On Sept. 30, 1946, the state auditor gave the following statement of conditions of Georgia's finances: *Assets:* cash in state treasury \$27,869,341.63; cash and cash items in hands of state departments \$35,409,537.89; cash due from U.S. government on reimbursements \$1,741,824.42; total assets \$65,020,703.94. *Liabilities:* current accounts payable \$4,847,665.30; reserves (for commitments outstanding, highway contracts to mature, etc.) \$59,610,663.44; total liabilities \$64,458,328.74. *Surplus:* \$562,375.20.

Agriculture.—The value of all Georgia crops produced in 1946 was \$419,479,000. This was 7% more than the 1945 total and was exceeded only by the record high valuation of \$578,000,000 in 1919. Higher prices rather than increased production accounted for the high valuation. A 17% smaller production in cotton, the leading crop, yielded a 20% increase in value. Georgia's yield of peanuts was again far ahead of all states.

The total cash receipts from farm marketing in Georgia for the year 1945 (latest complete figures) amounted to \$374,143,000 (crops \$261,454,000; livestock \$112,689,000). The value of farm products consumed at home was estimated as \$104,006,000. Including government payments of \$10,221,000, the U.S. dept. of agriculture estimated the total value of Georgia's agricultural products for 1945 at \$488,380,000. The principal crops of 1946 are shown in the accompanying table:

Leading Agricultural Products of Georgia, 1946 and 1945

Crop	1946	1945	Value, 1946
Cotton, bales	555,000	669,000	\$94,905,000
Cottonseed, tons	219,000	268,000	14,673,000
Corn, bu.	44,145,000	48,386,000	75,488,000
Peanuts, lb.	730,300,000	722,250,000	64,266,000
Tobacco, lb.	114,747,000	105,975,000	50,262,000
Oats, bu.	16,404,000	17,722,000	18,372,000
Peaches, bu.	6,204,000	8,091,000	18,302,000
Hay, tons	736,000	813,000	16,192,000
Potatoes, sweet, bu.	7,020,000	6,970,000	15,444,000
Commercial truck crops			13,639,000
Velvet beans, tons	286,000	303,000	9,724,000
Sugarcane syrup, gal.	4,025,000	4,564,000	7,245,000
Pecans, lb.	16,000,000	36,850,000	6,461,000

Manufacturing.—Notable factors in the growth of industry in Georgia in late years were the introduction of the manufacture of newsprint from slash pine and the expansion of textile mills. From 1940 Georgia produced 60% of the nation's naval stores. On Dec. 15, 1946, the State Agricultural and Industrial Development board estimated the number of manufacturing establishments in Georgia as more than 4,000, employing 255,900 workers. The wages paid were \$452,173,332 in 1945 as compared with \$132,188,496 in 1939. The value of manufactured goods was \$677,402,657 in 1939 (latest available figure).

Mineral Production.—In 1944 (latest complete year) Georgia produced 27 different minerals and mineral products including 80% of the kaolin produced in the United States. Value of mineral and mineral products was \$20,195,547, of which \$19,192,547 came from nonmetallic minerals. Clays and clay products headed the list of values \$6,954,021; stone was second \$5,037,596. Metallic minerals were valued at \$1,003,000; coal \$85,000. The industrial and municipal water produced was valued at \$2,000,000, and water used in hydroelectric installations \$31,700,460.

Minerals produced included agricultural lime, asbestos, barite, bauxite, cement, clay, coal, fuller's earth, gold, granite, iron ore, kyanite, lime, limestone, magnesium sulphate, manganese ore, manganiferous ore, marble, mica, ochre, peat, sand and gravel, silica, slate, stone, talc and amber. (A. B. S.)

German Literature. After years of intellectual regimentation and isolation Germans in 1946 showed an insatiable demand for new reading matter. Nearly 100 good newspapers and a score of literary and artistic periodicals were appearing. Several old publishing firms decided to leave Leipzig in the soviet zone and establish themselves in the U.S. zone at Wiesbaden, which became a most important book centre. Notable books of the year were Ernst Wiechert's *Die Jerominkinder*, Friedrich Meinecke's *Die Deutsche Katastrophe* and works by Alfred Doeblin, Erich Kaestner, Anna Seghers, Golo Mann and Veit Valentin. Novelist Hermann Hesse received the Nobel prize. (S. B. F.)

Germany. A country under Allied military government, in central Europe, extending from the Alps to the North and Baltic seas, and lying mainly between the Oder and Rhine rivers. Capital, Berlin (*q.v.*). Chief cities (1939 census): Berlin (4,332,242); Hamburg (1,692,695); Munich (828,355); Cologne (768,426); Leipzig (701,606); Essen (659,871); Dresden (625,174); Frankfurt-on-Main (546,649); Duesseldorf (539,905); Dortmund (537,000). The population of all these cities was considerably reduced as a result of World War II. Religion (1933): Protestants 62.7%; Roman Catholics 32.5%; Jews 0.7%; others 4.1%.

Area and Population.—The area of military-occupied Germany was 143,243 sq.mi., with a population (census of Oct. 29, 1946) of 65,910,999. The Allies divided the country into four military zones, with areas and populations on Oct. 29, 1946, as follows: soviet zone (46,584 sq.mi.; pop. 17,313,581) lying largely between the Elbe and Oder rivers and including most of Brandenburg, Mecklenburg and the industrial Saxon and Thuringian lands; British zone (42,724 sq.mi.; pop. 22,794,655) stretching across north Germany from Luebeck and the Baltic sea to the Dutch and Belgian frontiers; and mostly made up of Prussian lands; U.S. zone (36,869 sq.mi.; pop. 16,682,573) comprising Bavaria and west central Germany but not the Bremen enclave; the relatively small French zone (16,727 sq.mi.; pop. 5,939,807) including two triangular districts comprising western Wuerttemberg and southern Baden in the southwest and the Saar and southern Rhineland in the west; and Berlin (341 sq.mi.; pop. 3,180,383) under joint Allied administration.

The Allied generals announced on June 6, 1945, that for the purposes of military government Germany's frontiers would be considered those of 1937. The Berlin conference of Aug. 2, however, stated that, in accordance with understandings reached at Tehran and Yalta, Koenigsberg and the eastern tip of East Prussia would be administered as part of the soviet union, and the rest of the former German territory east of the Oder and Neisse rivers would be administered as part of Poland. But it was agreed that these boundaries of eastern Germany were only provisional and would be finally settled only at some future date when a peace treaty with Germany was made. This German territory east of the Oder comprised 39,000 sq.mi. and had in 1939 a population of 9,700,000. Poland's part included the rest of East Prussia, part of Brandenburg and most of Pomerania and of the rich industrial province of Silesia. Although these arrangements were only provisional, the U.S.S.R. removed to the soviet union able-bodied German men for labour service in the U.S.S.R. Poland uprooted much of what was left of this German east-of-the-Oder population—mainly destitute women, old men and children—and deported them to the truncated



CHILDREN lined up to buy carrots from a sidewalk heap in Hagen, Germany. Vegetables were one of the main items in the German diet during 1946

reich west of the Oder. Without homes, food, money or clothing except what they had on their backs, these deported Germans were pushed mainly into the British and U.S. military zones, which consequently had in 1946 a larger population than before the war (22,800,000 and 16,700,000 instead of 21,400,000 and 13,800,000; see table below).

In addition, there were deported into Germany west of the Oder several million German-speaking persons who had lived for generations in Danzig, the Polish Corridor, Czechoslovakia or Hungary, or who had been transplanted by Adolf Hitler during World War II from the Baltic provinces and the Austrian Tyrol and given new homes in nazi-conquered lands. In addition, there were still in Germany in 1946 about 800,000 "displaced persons," mainly Poles, Baltic Germans and some Russians, who hated and feared the bolsheviks and violently resisted repatriation to their original homes to avoid again becoming subjected to soviet domination. The problems of the peace with Germany and its final frontiers were scheduled to be taken up by the Big Four council of foreign ministers at Moscow on March 10, 1947.

At the end of 1946 there were still detained outside Germany, living in concentration camps or performing labour services, about 4,000,000 German prisoners of war (supposedly more than 3,000,000 in the U.S.S.R., 620,000 in France, 40,000 in Belgium, 10,000 in the Netherlands and a few under the control of Britain and the U.S.). Their families naturally wanted to have them returned, and they were needed for German industry and agriculture. The U.S., in accordance with the Geneva convention, paid \$200,000,000 to German prisoners of war, or their dependents, as wages for work done while they were in the U.S. The U.S.S.R. recognized no such obligation. The number of Germans, members of the armed forces and civilians, killed in World War II was estimated at between 4,000,000 and 5,000,000.

Not included in the above statistics was the Allied military and civilian population in Germany. In the summer of 1946 they were approximately: U.S. 290,000; British 350,000; soviet

725,000 and French 60,000. By the end of 1946 they had been reduced considerably further.

Germany in 1937, and in 1946 with Military Zones

	Area in thousands of sq.mi.	Pop. in Millions		Agriculture and Industry in 1937				
		1939	1946	Thousands sq.mi.	Forest	Plowland	Mil. Tons Coal	Mil. Tons Lignite	Indust. Prod. Mil. Dollars
Germany 1937 . . .	182.2	69.6	—	49.8	74.8	185	185	\$13,800
East of Oder . . .	39.0	9.7	?	11.7	21.2	30	12	1,000
Russian zone . . .	46.6	15.2	17.3	10.9	19.7	6	109	3,300
British zone . . .	42.7	21.4	22.8	7.3	13.6	136	58	4,700
U.S. zone . . .	36.9	13.8	16.7	14.5	14.2	*	5	2,500
French zone . . .	16.7	6.2	5.9	5.4	6.1	13	1	1,100
Berlin . . .	0.3	4.3	3.2	*	*	*	*	1,200
Germany 1946 . . .	143.2	—	65.9	38.1	53.6	?	?	?

*Insignificant amounts. Figures based in part on U.S. Department of State Bulletin, no. 354 (April 14, 1946).

History.—The history of Germany in 1946 is the dismal story of the struggle for food, clothing and shelter; of Allied measures for denazification and the destruction or removal of industrial plants and of the more cheerful laying of the basis for democratic government.

The German food problem in 1946 was made acute mainly by two factors: loss of rich agricultural lands and the crowding of a larger population into a smaller area. As indicated in the table, the territory east of the Oder (39,000 sq.mi.) that Germany practically lost was more than one-fifth of its prewar territory. It was Germany's breadbasket. It provided before the war about 28% of the total domestically produced food supply—31% of the rye, 24% of the wheat, 25% of the barley, 24% of the oats, 29% of the potatoes and 29% of the sugar beets. It supplied a large part of the food for the cities and industrial populations of central and western Germany. But none of the produce raised there came to the rest of Germany in 1946. The soviet zone was also largely agricultural and before the war sent much of its food to central and western Germany; but in 1946 almost none was sent, because of the rigid zonal barriers preventing exchange of goods and because the Russians sent much of it home to the U.S.S.R. Thus, the three western military zones got none of the food supply on which they had been largely dependent in the past. Moreover, owing to the great influx of deportees from the east, Germany west of the Oder had a crowded population of 65,900,000 instead of the 59,900,000 who lived in the same area in 1939. There were 6,000,000 more mouths to feed, but less than three-quarters of the formerly home-produced food to give them. Germany had imported part of its food in prewar days, but importation was no longer possible in 1946 because Germany was virtually bankrupt and Allied reparations policies prevented it from manufacturing goods for export in sufficient quantity to pay for food imports. If the U.S. had not sent \$200,000,000 worth of food, and the British nearly twice as much, hundreds of thousands of Germans would have died of starvation in 1946.

Shelter was a serious problem because 20%–60% of the houses in the larger cities had been destroyed or damaged by Allied bombing during the war. People had to live in cellars or in greatly overcrowded rooms. German families, made responsible for feeding and giving shelter to the millions of Germans deported into the country, had to take them, often unwillingly, into their own already crowded houses. The housing shortage was also made worse by the fact that the Allies took over a good many of the best houses for their own civilian and military personnel. Some clothing was provided by foreign donations of old clothes, but most Germans shivered in worn out or tattered suits of earlier years and often had no shoes at all.

The punishment and removal from office and influence of all active nazis was carried forward with varying rigour and consistency in the four military zones, most thoroughly in the U.S. zone and least so in the soviet zone, with the French and the British taking an intermediate course. The Russians were generally satisfied to leave former nazis in positions of influence if

they showed docility in accepting communist principles and leadership, i.e., "decontamination by absorption." On Oct. 13 the Allied Control council adopted unified denazification rules for all four zones which virtually codified the measures already in operation in the U.S. zone. All Germans had to fill out elaborate questionnaires about their former positions, incomes and nazi affiliations. On the basis of the answers they were divided into five classes: (1) major offenders, including "war criminals" responsible for outrages in concentration camps, unjust arrests and propagandist support of the nazi tyranny; (2) militarists and profiteers; (3) lesser offenders; (4) mere followers and (5) those adjudged free of nazi taint. Denazification had at first been tried by officers of the U.S. military government, but in May 1946, the work was turned over to courts made up of Germans who did not like the job but were compelled to accept the responsibility. These courts did not give thorough satisfaction to the U.S. officials. Nevertheless, they were continued and the day before Christmas Gen. Joseph T. McNarney, the U.S. commander in Europe, said he was "heartened by their increased effort," and at the same time announced a sweeping amnesty for about 800,000 "little nazis" in the U.S. zone. He hoped that this amnesty would free the German courts from a multitude of minor cases so that they could proceed more rapidly to trying the major and more dangerous nazis who had brought destruction on their country. He also hoped the amnesty would do much to promote a feeling of reconciliation and a democratic reconstruction of Germany.

The Allied policy of taking reparations through the removal from Germany of machinery and factory equipment was slowed down during 1946 because of its evident disastrous effects on the Germany economy. It had been agreed in the Berlin conference of 1945 that Germany should be treated as an economic whole with a unified structure, but owing to soviet and French obstruction this agreement had not been carried out. Secy. James F. Byrnes made a great speech at Stuttgart on Sept. 6 emphasizing the need of throwing down the zonal barriers which made trade between the different zones more difficult than that between foreign countries. Since he had not been able to bring the Russians and the French to his views, he made an agreement with the British practically establishing an economic merger between the British and U.S. zones. It was expected to promote their prosperity by permitting the free exchange of goods between the two zones; the two countries agreed to furnish raw materials and food, sharing equally the expense, to put Germany on its feet again, though not to make it any better off than the other European countries that the nazis plundered and enslaved. It was calculated that by 1950 Germany would have become self-supporting, though on a low level of subsistence, and that thereafter Britain and the U.S. would not have to go on supporting that country. The Anglo-U.S. merger went into effect

CARICATURES of former nazi leaders being carried by boys in an S.E.D. (Socialist Unity) party election parade in Potsdam, Germany, during 1946





"NOT EASY TO TEACH A HALF A DOG NEW TRICKS" observed Shoemaker of the *Chicago Daily News* in 1946, referring to the division of Germany into separate occupied zones

on Jan. 1, 1947, and the Russians and French were invited to join in it.

In the development of self-government, as in denazification, the greatest progress was made in the U.S. zone. Elections were held first in villages, then in larger towns and districts and finally for constitutional conventions in each of the three states or *Laender*: Bavaria, Wuerttemberg-Baden and Greater Hesse. Constitutions were drawn up by each convention and then adopted by referendum votes. They differed in details but were alike in providing guarantees of personal and religious freedom, justice and the rule of law and in favouring the socialization of mines, forests and many public utilities and businesses. This building up of democratic institutions on the lower local levels paved the way for the eventual adoption of a federal constitution for all Germany, as soon as similar constitutions had been adopted in the other three zones.

Education.—During 1946 the greater part of the children were again being given some elementary and secondary education, though often for only half a day instead of a full day on account of the shortage of school buildings and qualified teachers. In the soviet zone children were taught communism, but in the three western zones democratic ideas. In many places U.S. instructors tried to improve morale by teaching youth games like baseball and football, but the country was still plagued with a great deal of juvenile crime and delinquency.

Ten universities (Berlin, Jena, Goettingen, Heidelberg, Marburg, Hamburg, Kiel, Halle, Tuebingen and Freiburg) were again giving instruction, as well as several higher technical schools. All education was greatly hampered by lack of heated buildings and suitable textbooks, by shortage of paper and educational equipment of all kinds and by the difficulty of finding able and politically reliable teachers.

Defense.—World War II left Germany without an army, navy or air force. In some of the zones carefully screened and trained German police forces were recruited to aid the Allies in preserving order.

Finance.—The unit of currency is the German mark, nominally equivalent to 40.3325 cents, but actually hardly worth a quarter as much in 1946 because of the inflationary printing of new money. Measures were discussed for the creation of a new and stable currency which might come into effect when Germany was given the unified economic structure promised in 1945. Meanwhile, cigarettes formed a much-used medium of exchange, and a black market flourished in Berlin until it was replaced by a regulated barter market.

Trade and Communications.—These were at a very low level during 1946. The division of Germany into four military zones almost completely prevented the sending of goods from one zone to another. Shortage of railway rolling stock and of gasoline for trucks made it difficult to move goods even within a single zone. Postal, telephone and telegraph service, however, was restored between the zones and with foreign countries toward the end of 1946.

Agriculture, Manufactures and Mineral Production.—There were few satisfactory statistics on these subjects for 1946, and conditions varied greatly from zone to zone. The loss of the agricultural land east of the Oder and its effects on the food question have already been indicated. Agriculture within Germany suffered much from lack of fertilizers, transportation facilities and able-bodied workmen.

Manufactures were greatly crippled by the Allied policy of destroying or removing from Germany industrial machinery to pay reparations; by its restriction of German steel output to 5,800,000 tons annually, as

compared with 23,000,000 tons produced in 1937, and by lack of coal. In losing Silesia to Poland, Germany lost one-sixth of its hard coal production and one-twelfth of its lignite production. The great coal fields were in the British Ruhr district, but because of the physical weakness of the miners resulting from insufficient food, coal production at the end of 1946 had risen to only one-third of the prewar figure. In the Saar coal fields, however, the French, by giving miners more food, actually increased production beyond the prewar annual output of 13,000,000 tons; practically all of it was used by the French. In spite of the shortage of these two basic materials—steel and coal—by Dec. 1, 1946, in the U.S. zone, mining, metal, chemical and lumber industries averaged close to 50% of the 1937 level of production, while the lighter industries, such as textiles, ceramics, leather and paper, lagged behind at about 37% of 1937. (See also ALLIED MILITARY GOVERNMENT; ANTI-SEMITISM; FASCISM; REPARATIONS; ROMAN CATHOLIC CHURCH; WAR CRIMES; WORLD WAR II.)

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(S. B. F.)

Ghavam-es-Saltaneh, Ahmad (1872?–), Iranian statesman, was born of an aristocratic landowning family and inherited vast estates in Azerbaijan province. Ghavam was premier from June 1921 to Jan. 1922 and from June 1922 to Feb. 1923. Following his second tenure, he was banished from the country on a charge of plotting against the life of the Reza Shah. Permitted to return in 1929, he re-entered public life. He again became premier in June 1942, but resigned the following February because of the Tehran bread riots.

On Jan. 26, 1946, Ghavam was named premier for a fourth time. He visited Premier Stalin in Moscow (March 1946) to discuss the overdue withdrawal of Red army troops from Azerbaijan, and on March 15, 1946, he notified the Big Three that he intended to appeal to the U.N. Security council against continued presence of Red army troops on Iranian soil.

However, his government sent conflicting and bewildering orders to Hussein Ala, the Iranian envoy in Washington and delegate to the U.N. Ghavam blew hot and cold regarding the crisis with the U.S.S.R. On several occasions he endorsed Hussein Ala as Iran's official representative and then rescinded Ala's authority to speak for Iran.

After withdrawal of Iran's case from the Security council agenda, Ghavam declared (May 9, 1946), that the interest of the United Nations in Iran had been a "great help to the country during critical times."

G. I. Bill of Rights: see EDUCATION; VETERANS' ADMINISTRATION.

Gibraltar: see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

Gilbert and Ellice Islands Colony: see PACIFIC ISLANDS, BRITISH.

Ginger: see SPICES.

Girl Scouts. In 1946 the Girl Scouts strengthened their program of international friendship. Realizing the many problems which the peace would bring, they pledged themselves to continued service to home and country, as well as to helping their sister Scouts and Guides around the world. They sent Friendship Bags, food packages, funds and scouting equipment to Scouts and Guides in all parts of the world.

The first postwar international encampment of Girl Scouts and Girl Guides was held at the Chalet at Adelboden, Switzerland, in the summer of 1946. Two girls from each country attended in official uniform and days were spent cementing friendships and discussing the problems of scouting and what the girls themselves could do to help keep the peace.

Shortly before the opening of the international encampment, Girl Scout Troop 65 of Wash., D.C., sailed for England to work with the British Girl Guides in camps around the country. Troop 65 conceived the idea of paying a working visit to Eng-

land early in 1943. They earned passage for the trip by doing odd jobs such as dish washing, baby sitting and tutoring. They camped out on the Maine coast under the most primitive conditions, learning how to make do with the barest essentials of camping equipment and generally getting used to the conditions they anticipated finding in war-ravaged England. When they finally left for England, they took with them tents, tools and cooking utensils. They also carried 25 lb. of food for each girl, so that they would not use up the meagre food supplies of their British hostesses. Troop 65 worked with many different groups of Guides and were welcomed wherever they went. They helped set up and run camps for and with Girl Guide companies, Sea Rangers, companies of handicapped girls and many others.

The total registration as of Sept. 1, 1946, was 1,213,913 Girl Scouts. The World Association of Girl Guides and Girl Scouts had a total membership of about 5,000,000 girls. The new national president of the Girl Scouts, elected at the national convention at Atlantic City, N.J., in March 1946 was Mrs. C. Vaughan Ferguson of Schenectady, N.Y. Headquarters are at 155 E. 44th St., New York 17, N.Y. (C. M. R.)

Glands: see ENDOCRINOLOGY; MEDICINE.

Glass, Carter (1858–1946), U.S. politician, was born on Jan. 4 in Lynchburg, Va. For his early career, see *Encyclopædia Britannica*. He was a member of the house of representatives from Virginia, 1902–18, and served in the senate from 1919 until his death; for the brief period between these posts in congress he was secretary of the treasury. During his tenure in the house, Glass was a member of the Banking and Currency committee and an acknowledged authority on fiscal systems and financial theory. He was chairman of the committee at the time the Federal Reserve Bank act was passed and in later years became involved in the dispute over its authorship. In 1938, in a ceremony commemorating the 25th anniversary of its signing, Pres. F. D. Roosevelt paid tribute to Glass as “father” of the Federal Reserve act. The senator was again offered the post of secretary of treasury when Roosevelt took office as president, but declined, preferring to retain his seat in the senate. Although he actively participated in the emergency banking legislation enacted in the “first hundred days” of the New Deal (1933), Glass soon afterward broke with the president on fiscal policies and other domestic issues. He opposed the administration on devaluation of the dollar, the National Recovery act, relief spending policies and reorganization of the supreme court. In Sept. 1939 Glass ended his long opposition by supporting an amendment of the arms embargo provisions of the Neutrality law. He continued to endorse the president's foreign policies and in a senate statement in Jan. 1941 went so far as to propose declaration of war on Germany. Glass, who was called an “unreconstructed rebel” by the president, made his last appearance on the senate floor in June 1942. Thereafter illness prevented his attendance, but he was nevertheless re-elected for a fifth term. He died in Washington, D.C., on May 28.

Glass. The year 1946 marked the return of many workers from the armed forces to the plants and laboratories, the lifting of certain restrictions on fuel and raw materials and the resumption of automobile production in the United States with its consequent great demand for polished plate glass. Production increased about 6% in value over 1945, rising to an estimated total of \$550,000,000.

U.S. production of polished plate glass exceeded 200,000,000 sq.ft. for the first time after World War II began; more than

15,000,000,000 containers were made during the year. The serious deterrent to still greater production was the shortage of soda ash.

In England, the year witnessed technological progress in plate-glass manufacture, whereby both sides of plates are continuously ground and polished at the same time.

A leading figure in glass technology, Prof. W. E. S. Turner of Sheffield, retired from his teaching, although he continued as editor of the important journal of the Society of Glass Technology. Prof. Turner spent several months as a special lecturer on glass at a U.S. university.

The position of optical glass as a vital need for the military and naval forces was changed to its peacetime status as a minor product. Large stocks of blanks as well as finished lenses and prisms remained on hand.

Fibre glass and cellular glass, products which were made exclusively for war needs for some years, became available to the public. Numerous uses were being developed for them.

The general fact that U.S. and British glassmaking practice was at least not inferior to that of central Europe, was confirmed by the tour of H. H. Blau and C. J. Uhrmann, who studied the European factories and reported critically upon procedures and conditions.

In common with other industries, the glass industry found a dearth of trained men for research and development positions, because so many educational careers were interrupted by the drafting of college men into the armed forces. (S. R. S.)

Glennon, John Joseph, CARDINAL (1862–1946), archbishop of St. Louis and senior member of the U.S. Catholic hierarchy, died in the Dublin home of the president of his native Eire, March 9, on the eve of his golden jubilee as bishop and a bare fortnight after the Feb. 18 consistory during which Pope Pius XII had created and proclaimed him cardinal. His death, occasioned by the fatigues of the journey to Rome, brought to a close a distinguished sacerdotal and episcopal career which had come to be closely identified with the steady religious and civic development of the American midwest from reconstruction days through World War II. Born in Kinnegad, County Meath, on June 14, he was ordained priest at Kansas City, Mo., in 1884, served as vicar general of the Kansas City diocese, and was consecrated its coadjutor bishop June 29, 1896. Transferred to St. Louis as coadjutor to the archbishop April 27, 1903, he succeeded to that archbishopric Oct. 13, 1903.

An aggressive, outspoken defender of human rights in pulpit and press, at home and in both hemispheres abroad, Archbishop Glennon was widely esteemed for his eloquence, dignity and wit as orator and lecturer. But the major emphasis of his long pastoral apostolate went to work rather than to word. To provide for the needs of his St. Louis flock, numbering in 1946 500,000 souls, he brought vast ecclesiastical and social agencies into being, including 93 parishes with schools, the impressive Byzantine cathedral of St. Louis, major and minor seminaries, churches, welfare institutes, a modern medical centre comprising five major hospitals and five diocesan high schools in process of construction. Probably unmatched in history is his record of 4,700 ordinations to the priesthood, the consecration of 7 bishops and administration of the sacrament of confirmation to 225,000. His breadth of vision and deep human sympathy was given summary expression as World War II ended in a vibrant radio address appealing to Americans to “aid with our strength the rehabilitation of Europe, which has furnished us our language, literature, culture and faith,” as “with friendly hearts we receive our soldiers upon their return from the bitter experience of the blood and fever of war.” Cardinal Glennon is

buried beneath the main altar of his cathedral in St. Louis.

(J. LAF.)

Gliding. Gliding in 1946 once more reverted almost entirely to a civilian activity marked by the following events:

In the United States Franklin Hurtt and Richard Powell flying a Schweizer 2-22 set a new two-place duration record of 10 hr. and 9 min. on April 10, 1946, at Elmira, N.Y.

Paul Tuntland with 182 lb. of ballast soared a two-place Pratt Read to a new national two-place altitude record of 18,830 ft. on July 25, 1946, at Orlando, Fla.

Virginia Bennis (Mrs. Stephen) established a national single-place distance record for women, of 37 mi. in a Kirby Kite on Aug. 4, 1946, at Elmira, N.Y.

John Robinson set a national single-place goal and return record of 100 mi. in his Zanon on Aug. 14, 1946, at Elmira, N.Y.

Richard Johnson and Robert Sparling flew their Schweizer TG-2 to a two-place national record distance of 314 mi. from Prescott, Ariz., to Governador, New Mexico, on Sept. 8, 1946.

The total of Golden "C" pilots in the U.S. was raised to six when the Soaring Society of America granted a Golden "C" to Raymond Parker.

The Soaring Society of America resumed its National Soaring contests which were halted by the war with the holding of its 13th National Soaring contest Aug. 3-18, 1946, at Elmira, N.Y. Forty-nine gliders were entered in the contest; 68 pilots competed. A total of 6,397 mi. were flown in 375 hr. of soaring. John Robinson earned the title of National Soaring Champion for the third consecutive time.

During 1946 for the first time in the U.S., gliders were used as instruments of meteorological research. Dr. Horace Byers, director of the thunderstorm project of the U.S. weather bureau, invited the Soaring Society of America to participate in this thunderstorm research program by providing sailplanes and pilots. Twelve flights were made in thunderstorms in Florida during the summer of 1946. The analysis of the data gathered was not expected to be complete before the latter part of 1947.

In England the British Gliding association was reactivated on March 1, 1946. A new national single-place altitude record of 15,247 ft. was established by P. A. Willis on June 23, 1946. A general conference of the international gliding and soaring body the Federation Aeronautique Internationale was held in London during the month of September. The main purpose of this meeting was to re-establish the Federation Aeronautique Internationale which had been dormant during the war years.

The Allied occupation forces in Germany made use of the German gliding facilities and equipment. The royal air force sponsored at least three gliding schools, at Heston, Oerlinghausen and Scharfoldendorf. A group of enthusiasts in the U.S. army used the gliding facilities at Kirchheim.

(B. SK.)

G-Men: see FEDERAL BUREAU OF INVESTIGATION.

Goddard, Rayner Goddard, BARON OF ALDBOURNE (1877-), lord chief justice of England, was educated at Marlborough and Trinity college, Oxford, and called to the bar in 1899. Hard work in Clavell Salter's chambers and an exceptional memory brought him a large commercial and banking law practice. He gained wide experience of criminal matters as a recorder (Poole, 1917-25, Bath, 1925-28 and Plymouth, 1928-32), as a judge of the King's Bench division of the high court (1932-38) and as president of two important public inquiries into the exercise of powers by justices of the peace. He was appointed a lord jus-

tice of appeal and privy councillor in 1938, and a law lord and life peer in 1944. His appointment as lord chief justice in 1945 was nonpolitical, contrary to custom. By July 1946 he had succeeded by outstanding administrative ability, brisk power of decision and determination that justice should be expeditious, in causing all common law cases to be tried as soon as they were ready for hearing, and so shortening their duration often by many months. He effectively supported the strict and impartial observance of the criminal law in all courts and discouraged criminal appeals on trivial or merely technical grounds.

(A. L. C.)

Goering, Hermann Wilhelm (1893-1946), German politician, was born on Jan. 12, in Rosenheim, Bavaria. For his early career see *Encyclopædia Britannica*. A former air ace of World War I, Goering joined the nazi party in its infancy. He became president of the reichstag in Aug. 1932 and after Hitler became chancellor in Jan. 1933 Goering was promoted to reich minister for air, Prussian minister-president and minister for the interior.

As Hitler's "strong-arm" man he was charged with consolidating nazi power and increasing German armed might. He developed the gestapo, created the first concentration camps and played a leading role in the Roehm purge of 1934.

Goering was named plenipotentiary for the four-year plan in 1936, becoming, with Hitler's assent, economic dictator of the reich. In 1937 he embarked on a broad program to increase the effectiveness of the luftwaffe and to speed rearmament. Goering also originated, by his own admission, the plot for annexation of Austria in 1938 and played a prominent part in the Sudetenland seizure and in the invasion of Poland. On July 19, 1940, Hitler conferred on him the newly-created title of reich marshal. He commanded the luftwaffe during the unsuccessful blitzkrieg against England, 1940-41. Goering disapproved of the invasion of Norway because he had not received sufficient advance notice, but had an active part in planning the aggressions against Greece and Yugoslavia.

At the Nuernberg trial, Goering declared that while he regarded the soviet union as the "most threatening menace to



HERMANN GOERING conferring with his lawyer through window in the prisoners' enclosure screen, in the Palace of Justice at Nuernberg, during his trial in 1946

Germany," he objected to the attack on that country because of its timing, explaining that he had wanted to delay the offensive until Great Britain had been conquered.

While Hitler remained in Berlin during the closing phase of World War II in Europe, Goering escaped to Berchtesgaden. Because of his flight he was "excommunicated" by Adolf Hitler. On May 8, 1945, he surrendered to U.S. army forces near Salzburg. He was the leading nazi defendant that stood trial as a war criminal before the international military tribunal at Nuernberg.

The Nuernberg court, in delivering its verdict, described the reich marshal as the moving force second only to Hitler as a "leading war aggressor"; it asserted: "his guilt is unique in its enormity. The record discloses no excuses for this man." The tribunal found him guilty of all four counts on Oct. 1, 1946, and sentenced him to death by hanging. Several hours before his execution was to have taken place on Oct. 15, Goering killed himself by swallowing poison. How he secured the poison remained a mystery.

Gold. It was almost inevitable that with the end of lend-lease the situation would return to one in which the United States showed a favourable balance of trade on current account with respect to the rest of the world, and that this would bring with it a reversal of the international gold movement. It was not surprising, therefore, to find that between the end of 1945 and Nov. 30, 1946, gold stocks of the United States increased from \$20,065,000,000 to \$20,470,000,000, or by \$405,000,000.

Table I.—Analysis of Changes in Gold Stock of United States
(In millions of dollars)

Period	Gold stock at end of period	Increase in gold stock	Net gold import or export (+) or decrease (—)	Earmarked gold: decrease or increase (+) or decrease (—)	Domestic gold production
1934*	8,238	+4,202.5	+1,133.9	+82.6	92.9
1935	10,125	+1,887.2	+1,739.0	+2	110.7
1936	11,258†	+1,132.5	+1,116.6	—85.9	131.6
1937	12,760†	+1,502.5	+1,585.5	—200.4	143.9
1938	14,512	+1,751.5	+1,973.6	—333.5	148.6
1939	17,644	+3,132.0	+3,574.2	—534.4	161.7
1940	21,995	+4,351.2	+4,744.5	—644.7	170.2
1941	22,737	+741.8	+982.4	—407.7	169.1
1942	22,726	—10.3	+315.7	—458.4	125.4
1943	21,938	—788.5	+68.9	—803.6	48.3
1944	20,619	—1,319.0	—845.4	—459.8	35.8
1945	20,065	—553.9	—106.3	—356.7	32.0
1946—January	20,156	+91.0	+154.1	—12.5	4.0
February	20,232	+76.3	+82.4	—5.8	3.3
March	20,256	+23.9	+31.4	+19.7	3.6
April	20,251	—5.2	—20.5	+15.1	3.2
May	20,242	—9.1	—27.0	+27.5	3.2
June	20,270	+28.1	+36.3	+15.0	3.4
July	20,267	—3.2	+6.3	+8.0	4.0
August	20,280	+13.2	+15.2	+60.1	8.3
September	20,305	+25.3	—7.6	+12.3	6.8
October	20,402	+96.7	+24.2	+115.7	5.9
November	20,470‡	+68.3	—	+127.5||	—
Jan.-Nov.	20,470	+405.3	+294.8	+382.6	45.7

*Figures based on rate of \$20.67 a fine ounce in Jan. 1934, and \$35 an ounce thereafter.

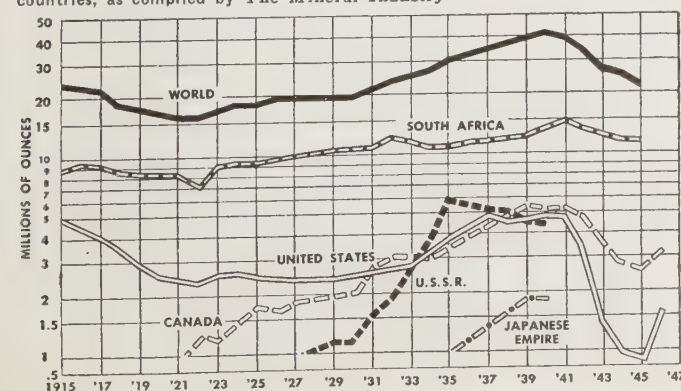
†Includes gold in inactive account.

‡Preliminary.

§Not available.

||Gold under earmark at Federal Reserve banks for foreign account on Nov. 30, 1946, amounted to \$3,911,200,000. Gold under earmark is not included in U.S. gold stocks.

GOLD PRODUCTION: world total and output of the principal producing countries, as compiled by *The Mineral Industry*



The change of direction of the gold flow actually set in in Dec. 1945, U.S. gold stocks having reached their low for this movement at the end of Nov. 1945, when they stood at \$20,030,000,000. Detailed figures on this movement were available at the end of 1946 only through October. These indicate that the change manifested itself almost entirely in the form of releases of gold from stores earmarked for foreign accounts rather than in a physical transfer of the metal. (See also FEDERAL RESERVE SYSTEM.)

(E. H. Co.)

World Production.—War conditions made data on gold production inaccessible from Europe and Asia, as well as parts of Africa and Oceania. Total output was difficult to determine in 1946, as neither Japan nor the U.S.S.R. had reported production for a decade, and world totals were estimates. The available data from the more important producing countries are in Table II.

Table II.—World Production of Gold
(Thousands of fine ounces)

	1940	1941	1942	1943	1944	1945
United States	4,863	4,832	3,583	1,381	1,022	929
Canada	5,311	5,345	4,841	3,651	2,923	2,662
Mexico	883	800	801	632	509	449
South America	1,880	1,747	1,604	1,442	1,354	1,246
India	289	286	260	252	228	170
Belgian Congo	555	561	500	453	400	381
Gold Coast	886	885	784	565	534	475
Southern Rhodesia	826	790	760	657	593	568
South Africa	14,097	14,407	14,121	12,800	12,277	12,214
Australia	1,644	1,497	1,154	751	658	635
Total (est.)	42,153	40,291	35,514	29,429	27,070	23,930

The chief producer affected by direct war activities was the Philippines, but production in several less important countries was also involved, especially Korea, Papua and New Guinea. Production was maintained throughout World War II with relatively little change in South Africa, where reductions in output amounted to only about 15%, but in most other countries the reductions were greater. In the United States and Canada gold production was purposely limited by government action, but elsewhere the declining outputs resulted from shortages of labour, equipment and supplies, as well as from rising costs.

Widespread declines in output continued in 1945. Every major country reported in the above table showed decreases, and only two or three minor producers made increases.

United States.—Restrictions on the operation of gold mines that had been ordered by the War Production board in 1942 were rescinded on July 1, 1945, but recovery in output was delayed for several months while the mines were being put back into working condition and the necessary labour force was recruited. A monthly output of 67,795 oz. in June 1945 had increased to 98,328 oz. in November, but of the year's total of 928,873 oz., 45% was produced in the first half of the year and 55% in the second half. A decline in output from November brought the Feb. 1946 figure down to 84,226 oz., after which recovery set in, but it took until May to work back to the Nov. 1945 level. The beginning of real improvement in gold production started with 113,373 oz. in May and advanced to 177,240 oz. in September, but declined to 152,956 oz. in October. The total for the 10 mo. was 1,216,289 oz., equivalent to an annual rate of 1,460,000 oz., a figure which would probably be advanced somewhat by further improvement in November and December.

Canada.—Gold production in Canada started to improve at midyear of 1945, as in the United States, but the recovery was slower—2,128,903 oz. in the first three-quarters of 1946; this figure is equivalent to an annual rate of 2,860,000 oz., 7% more than the 1945 average, but less than in 1944. (See also EXCHANGE CONTROL AND EXCHANGE RATES; MINERAL AND METAL PRODUCTION AND PRICES.)

(G. A. Ro.)

Gold Coast: see BRITISH WEST AFRICA.

Golf. Of the four major United States Golf association championships held in 1946 only one, the women's, was poorly attended, due, no doubt, to the fact that it was held at a spot remote from the main golf centres.

First major event of the year was the Open, played at the Canterbury club, Cleveland, and won by Lloyd Mangrum, purple-heart wearer from Los Angeles, after a double play-off with Byron Nelson and Vic Ghezzi. At the end of regulation 72-holes the three were tied with a score of 284. The first play-off round found them still deadlocked with 72s, but on the next trip Mangrum won the title with a 72, Nelson and Ghezzi again tying with 73s. It was perhaps the most dramatic finish there ever was in the championship with a half-dozen others in the running up to the final hole. Except for a bad break that came when his caddie inadvertently stepped on his ball, causing him to take a penalty stroke, Nelson would have been returned the winner of the championship. Mangrum appeared to be out of the running until he dropped a sensational 90-ft. putt on the

ninth green to save himself, the ball bouncing a foot into the air after hitting the back of the tin and then falling back in to save him at least one and perhaps two extra strokes. This happened in the first play-off round.

Attendance at the open was the greatest in the history of the championship, an opening-day crowd of 9,000, largest in history, turning out to witness the revival of the championship after a five-year lapse. Attendance for the four days of the championship represented an all-time high. The amateur didn't fare quite so well, although it, too, brought out a gallery second in size only to those that used to trudge around after Bobby Jones when he was monarch of all he surveyed.

Played at the Baltusrol Golf club where Jones suffered defeat by George Von Elm in the 1926 final, thus preventing the Georgian from winning the championship five times in a row, the championship drew perhaps the greatest field ever to vie for the title. Most of them were newcomers since it was last played and it was one of these who gained the crown, Stanley E. (Ted) Bishop, lanky New Englander from Natick, Mass.

In the final, Bishop defeated Smiley Quick, short, thick-set Californian who previously had won the U.S. public links title besides being runner-up in the Western amateur. Tensely-fought from beginning to end, the battle ended on the 37th green when Quick missed a 30-inch putt for a half. Indications of what was in store came in the qualifying test in which Skee Riegel of Glendale, Calif., set a new championship record by touring the course in 136 strokes (69 and 67) to pare three strokes off the former qualifying mark made by Tom Sheehan at the North Shore club, Chicago, in 1939. Considerable havoc resulted when the authorities decided to make the pairings "out of the hat," resulting in the early downfall of many of the stars, one of them being Marvin (Bud) Ward, holdover champion, who lost to Charles (Bebe) Lind, Denver university student, in the third round.

Similar fates befell Frank (Muscles) Stranahan of Toledo and Capt. Cary Middlecoff of Memphis, a pair of newcomers who were listed as favourites to gain the title.

The women's championship went to Mildred (Babe) Didrikson Zaharias of Denver, rated one of the finest woman golfers ever to swing a club. It marked her first triumph in the national, but the ease with which she defeated her opponents on the way to the final where she beat Mrs. Clara Callender Sherman of California, 11 and 9, indicated that it would not be her last. She and Louise Suggs of Lithia Springs, Ga., were in 1946 head and shoulders above anyone else in the women's sphere.

A total of 5,720 golfers entered the four championships conducted by the United States Golf association, 1,040 more than the previous high in 1940. The public links championship alone attracted 3,586 entries, surpassing the record of 2,816 established in 1941.

Another organization which enjoyed great prosperity in 1946 was the Professional Golfers association, the organization of the pros. Pursuing the policy it had carried out in all but one of the war years, namely that of conducting tournaments throughout the country, the P.G.A. held one or more tournaments every week during the year, the total prize money put up for the touring pros to shoot at being near the \$500,000 mark.

Little Ben Hogan gathered in the lion's share, his year's winnings amounting to \$42,556.10. Altogether he won 13 of the 45 P.G.A. sponsored tournaments (the total prize money was \$484,000). One of his victories came in the P.G.A. championship.

The year also saw the major British championships revived for the first time since 1939 with Sam Snead going over to win the British open, James Bruen taking the British amateur and Mrs. George W. Hetherington the British women's.

An American, George Fazio of California, also won the Ca-



CHARLES BOSWELL, blinded World War II veteran who shoots near-par golf. He tees off with the aid of a companion, who adjusts the position of the club head with respect to the ball, and steps back to let Boswell swing

nadian open, while Henry Martell, Edmonton, Alberta, policeman, won the Dominion amateur.

The biggest haul ever made by any one golfer in a single tournament came in 1946 when Herman Barron, White Plains, N.Y., pro, won the \$45,000 All-American open, his share being \$10,500.

Herman Keiser of Akron, O., won the Masters, first "dark horse" ever to gain that coveted honour. (W. D. R.)

Gonorrhoea: see VENEREAL DISEASES.

Göring, Hermann Wilhelm: see GOERING, HERMANN WILHELM.

Gorizia: see TRIESTE.

Gort, John Standish Surtees Prendergast

Vereker, 6TH VISCOUNT (1886-1946), British army officer, was born in July, the son of the 5th viscount, whom he succeeded in 1902. He was educated at Harrow and Sandhurst and joined the Grenadier guards as second lieutenant in 1905. He served throughout World War I, was wounded, and received the Victoria cross, the Military cross and the Distinguished Service order with two bars. After the war, he taught in the army staff college and the senior officers' school, was appointed commander of the Grenadier guards, 1930, and was in India as director of military training, 1932-36. In 1937 he was appointed military secretary to the secretary of state for war, with the local rank of a lieutenant general. He was named chief of the British Imperial General staff, 1937, and commander in chief of the British Expeditionary force to France, 1939. King George VI commended him for his handling of the Flanders retreat and the Dunkirk withdrawal and decorated him with the insignia of a Knight of the Grand Cross of the Order of the Bath. In 1940 he was named inspector general to the forces for training, and in May of the following year he was made governor and commander in chief of Gibraltar, then threatened by the Germans and the Franco regime. In 1942 he was transferred to Malta, which was under heavy axis air attack, as

commander in chief of that island base. He was created a field marshal in 1943. Lord Gort became high commissioner and commander in chief for Palestine and high commissioner for Trans-Jordan, Oct. 31, 1944, but resigned on Nov. 2, 1945. He died in London on March 31.

Gouraud, Henri Joseph Étienne (1867-1946), French army officer, was born on Nov. 17 in Paris. For his early career see *Encyclopædia Britannica*. Gen. Gouraud, who had been promoted to temporary general of a division at the outbreak of World War I, served on the western front and at Gallipoli (where he lost his right arm). He played an important role in the stopping of the German offensive in the Champagne sector in July 1918. After the war, he was appointed high commissioner to Syria and commander in chief of the Levant (1919) and military governor of Paris (1924). He died in Paris on Sept. 16.

Government Departments and Bureaus.

The following are the leading officers of the more important government departments and bureaus of the United States. The date for the information is Dec. 31, 1946.

Department or Bureau	Name	Post
Department of State	*Byrnes, James F. ¹	Secretary
	*Acheson, Dean	Under-Sec'y
	Cohen, Benjamin V.	Counsellor
	*Benton, William	Asst. Sec'y
	Thorpe, Willard L.	Asst. Sec'y
	Hilldring, John H.	Asst. Sec'y
	*Braden, Spruille	Asst. Sec'y
	Russell, Donald S.	Asst. Sec'y
Department of the Treasury	*Snyder, John W.	Secretary
	Wiggins, A. L. N.	Under-Sec'y
Bureau of Comptroller of Currency	Delano, Preston	Comptroller
Treasurer of the U.S.	Julian, William A.	Treasurer
Bureau of Customs	Johnson, W. R.	Commissioner
Bureau of Internal Revenue	Nunan, Joseph D., Jr.	Commissioner
Bureau of Narcotics	Anslinger, Harry J.	Commissioner
*Bureau of the Mint	Ross, Mrs. Nellie Tayloe	Director
U.S. Savings Bonds Division	Clark, Vernon L.	Nat'l Director
*U.S. Coast Guard	Farley, Joseph F., Adm.	Commandant
War Department	*Patterson, Robert P.	Secretary
	Royall, K. Claiborne	Under-Sec'y
General Staff	*Eisenhower, Dwight D., Gen. of the Army	Chief of Staff
*Women's Army Corps	Boyce, Westray Battle, Col.	Director
Army Ground Forces	Devers, Jacob L., Gen.	Comm'd'g Gen.
Army Air Forces	*Spaatz, Carl, Gen.	Comm'd'g Gen.
Department of Justice	*Clark, Tom C.	Att'y-Gen.
Solicitor General	Vacancy	Solic. Gen.
*Federal Bureau of Investigation	Hoover, J. Edgar	Director
Bureau of Prisons	Bennett, James V.	Director
Immigration and Naturalization Service	Carusi, Ugo	Commissioner
*Post Office Department	*Hannegan, Robert E.	Postmaster Gen.
Department of the Navy	*Forrestal, James	Secretary
	Sullivan, John L.	Under-Sec'y
Chief of Naval Operations	*Nimitz, Chester W., Fleet Adm.	Chief of Naval Operations
Bureau of Naval Personnel	Denfeld, Louis E., Vice-Adm.	Chief
*Women's Reserve of the U.S. Naval Reserve	Hancock, Joy B., Capt.	Director
Bureau of Ordnance	Hussey, George F., Jr., Vice-Adm.	Chief
Bureau of Ships	Mills, Earle W., Vice-Adm.	Chief
Bureau of Aeronautics	Sallada, H. B., Rear Adm.	Chief
Bureau of Yards and Docks	Manning, J. J., Rear Adm.	Chief
*U.S. Marine Corps Headquarters	Vandegriff, Alexander A., Gen.	Commandant
*Women's Reserve of the U.S. Marine Corps Reserve	Hamblett, Julia, Maj.	Director
Department of the Interior	*Krug, Julius A.	Secretary
	Chapman, Oscar L.	Under-Sec'y
Bureau of Land Management	Johnson, Fred W.	Act'g Director
Office of Indian Affairs	Brophy, William A.	Act'g Director
Solid Fuels Administration for War	*Krug, Julius A.	Administrator
Geological Survey	Wrather, William E.	Director
Fish and Wildlife Service	Day, Albert M.	Director
Bureau of Reclamation	Straus, Michael W.	Commissioner
National Park Service	Drury, Newton B.	Director
Bureau of Mines	Sayers, Royd R.	Director
Division of Territories and Island Possessions	Arnold, Edwin G.	Director
Department of Agriculture	*Anderson, Clinton P.	Secretary
	Dodd, Norris E.	Under-Sec'y
*Agricultural Research Administration	Lambert, W. V.	Administrator
Bureau of Animal Industry	Simms, Bennett T.	Chief
Bureau of Agricultural and Industrial Chemistry	Howard, L. B.	Chief

*See separate article or related articles.

¹Resigned effective Jan. 8, 1947. Gen. George C. Marshall appointed Sec'y of State.

Department or Bureau	Name	Post
Bureau of Dairy Industry	Reed, Ollie E.	Chief
Bureau of Entomology and Plant Quarantine	Annand, P. N.	Chief
Bureau of Plant Industry, Soils, and Agricultural Engineering	Salter, Robert M.	Chief
Bureau of Human Nutrition and Home Economics	Stiebeling, Hazel K.	Chief
Office of Experiment Stations	Taullinger, R. W.	Chief
Bureau of Agricultural Economics	Wells, O. V.	Chief
Extension Service	Wilson, M. L.	Director
*Farm Credit Administration	Duggan, I. W.	Governor
*Farmers Home Administration	Laseter, Dillard B.	Administrator
Forest Service	Watts, Lyle F.	Chief
Office of Foreign Agricultural Relations	Wheeler, L. A.	Director
Production and Marketing Administration	G'mer, Jesse B.	Administrator
Commodity Credit Corporation	Gilmer, Jesse B.	President
Federal Crop Insurance Corporation	Geissler, Gus	Manager
*Rural Electrification Administration	Wickard, Claude R.	Act'g Administrator
*Soil Conservation Service	Bennett, Hugh H.	Act'g Chief
Department of Commerce	*Harriman, W. Averell	Secretary
	Burden, William	Under-Sec'y
	Capt, James C.	Director
*Bureau of the Census	Taylor, Amos E.	Director
Bureau of Foreign and Domestic Commerce	Condon, E. U.	Director
*National Bureau of Standards	Colbert, Leo O.	Director
*Coast and Geodetic Survey	Trimble, South, Jr.	Chairman of the Board
Inland Waterways Corporation	Wright, Theodore P.	Administrator
*Civil Aeronautics Administration	Landis, James M.	Chairman
Civil Aeronautics Board	Ooms, C. W.	Commissioner
*Patent Office	Reichelderfer, F. W.	Chief
*Weather Bureau	*Schwellenbach, Lewis B.	Secretary
Department of Labor	Johnson, Kevin	Under-Sec'y
	Warren, Edgar L.	Director
U. S. Conciliation Service	Clague, Ewan	Acting Commissioner
Bureau of Labor Statistics	Wirtz, W. Willard	Chairman
*National Wage Stabilization Board	Goodwin, Robert C.	Director
U. S. Employment Service	Erskine, Graves B., Maj. Gen.	Acting
Retraining and Re-employment Administration	Lenroot, Katharine F.	Administrator
*Children's Bureau	Miller, Frieda S.	Chief
Women's Bureau	Beyer, Mrs. Clara M.	Chief
Division of Labor Standards	Walling, L. Metcalfe	Act'g Director
Wage and Hour and Public Contracts Divisions	Henderson, Charles B.	Administrator
Federal Loan Agency	Henderson, Charles B.	Act'g Administrator
*Reconstruction Finance Corporation	Schieck, DeWitt C.	Chairman
U.S. Commercial Company	Grant, Alan L.	President
Rubber Development Corporation		President
Federal National Mortgage Association	Allen, George E.	President
RFC Mortgage Company	Allen, George E.	President
War Damage Corporation	Allen, George E.	President
*Federal Security Agency	Miller, Watson B.	Administrator
Office of Education	Studebaker, John W.	Commissioner
Public Health Service	Parran, Dr. Thomas	Surgeon General
*Social Security Administration	Altmeyer, Arthur J.	Commissioner
Food and Drug Administration	Dunbar, Paul B.	Commissioner
*Office of Vocational Rehabilitation	Shortley, Michael J.	Director
Bureau of Employees' Compensation	McCauley, William	Director
*Federal Works Agency	Fleming, Philip B., Maj. Gen.	Administrator
Public Buildings Administration	Reynolds, W. E.	Commissioner
Public Roads Administration	MacDonald, Thomas H.	Commissioner
Bureau of Community Facilities	Field, George H.	Commissioner
Independent Offices		
*Export-Import Bank of Washington	Martin, William McC.	President
*Federal Communications Commission	Denny, Charles R., Jr.	Chairman
*Federal Deposit Insurance Commission	Harl, Maple T.	Chairman
*Federal Reserve System, Board of Governors of the	Smith, Nelson Lee	Chairman
*Federal Trade Commission	Eccles, Marriner S.	Chairman
*General Accounting Office	Ferguson, Garland S.	Chairman
*Government Printing Office	Warren, Lindsay C.	Comptroller General
*Interstate Commerce Commission	Giegack, A. E.	Chairman
Library of Congress	Aitchison, Clyde B.	Chairman
National Advisory Committee for Aeronautics	Hunsaker, Dr. Jerome C.	Chairman
*National Archives	Buck, Solon J.	Archivist
National Capital Park and Planning Commission	Grant, U.S. III, Maj. Gen.	Chairman
*National Labor Relations Board	Herzog, Paul M.	Chairman
*National Mediation Board	Douglass, Frank P.	Chairman
Railroad Retirement Board	Kennedy, William J.	Chairman
*Securities and Exchange Commission	Caffrey, James J.	Chairman
*Smithsonian Institution	Welfare, Alexander	Secretary
Tax Court of the United States	Turner, Balon B.	Presiding Judge
Tennessee Valley Authority	Clapp, Gordon R.	Chairman
U.S. Atomic Energy Commission	*Lilienthal, David E.	Chairman
U.S. Civil Service Commission	Mitchell, Harry B.	President
U.S. Maritime Commission	Smith, William W., Vice-Adm.	Chairman
U.S. Tariff Commission	Ryder, Oscar B.	Chairman
*Veterans' Administration	*Bradley, Omar N., Gen.	Administrator
Executive Office of the President		
Bureau of the Budget	Webb, James E.	Director
Council of Economic Advisers	Nourse, Edwin G.	Chairman
Office of Government Reports	Blackburn, Katherine C.	Act'g Director
Emergency War Agencies		
Office for Emergency Management (in Executive Office of the President)	Johnson, J. M.	Director
*Office of Defense Transportation		
Office of Scientific Research and Development	Bush, Dr. Vannevar	Director
Office of Temporary Controls	Fleming, Philip B., Maj. Gen.	Administrator
Philippine Alien Property Administration	Henderson, James McL.	Administrator

*See separate article.

Department or Bureau	Name	Post
War Assets Administration	Littlejohn, Robert M.	Administrator
*National Housing Agency	Foley, Raymond M.	Administrator
*Federal Home Loan Bank Administration	Fahey, John H.	Commissioner
*Home Owners' Loan Corporation	Cotter, Charles F.	Gen. Manager
*Federal Housing Administration	Foley, Raymond M.	Commissioner
*Federal Public Housing Authority	Myer, Dillon S.	Commissioner
Office of Housing Expediter	Creedon, Frank R.	Housing Expediter
*Board of War Communications	Denny, Charles R., Jr.	Chairman
Philippine War Damage Commission	Waring, Frank A.	Chairman
*Selective Service System	Hershey, Lewis B., Maj. Gen.	Director
*United Nations Relief and Rehabilitation Administration	Rooks, Lowell W., Maj. Gen.	Director General
Quasi-Official Agencies		
*American National Red Cross	O'Connor, Basil	Chairman, Central Committee
*Pan American Union	Vacancy	Director General
*National Academy of Sciences and National Research Council	Jewett, Frank Baldwin Bronk, Detlev W.	President, National Academy of Sciences Chairman, National Research Council

Great Britain.—The following were his majesty's chief officers of state and the permanent officials of the more important of the government departments of Great Britain at the close of 1946:

Ministry or Department	Name	Post
Admiralty	Viscount Hall J. G. Lang	First Lord Act'g Permanent Sec'y
Agriculture and Fisheries, Ministry of	Thomas Williams Sir Donald Vandepuer	Minister Permanent Secretary
Air Ministry	*Philip Noel-Baker Sir William Brown	Secretary of State Permanent Under-Sec'y
Assistance Board	Baron Soulbury H. Fieldhouse	Chairman Acting Secretary
*Bank of England	Baron Catto W. H. Nevill	Governor Secretary
Burma Office	*Baron Pethick-Lawrence Sir David T. Monteath	Secretary of State Perm't Under-Sec'y
Cabinet Office	Sir Norman Brook	Sec'y of the Cabinet
Cairo, British Middle East Office	Sir Arnold Overton	Head of Office
Civil Aviation, Ministry of	Baron Nathan Sir Henry Self	Minister Permanent Secretary
Colonial Office	Arthur Creech Jones Sir George Gater J. A. Calder } H. F. Downie }	Secretary of State Perm't Under-Sec'y Crown agents
Control Office for Germany and Austria	John B. Hynd	Chancellor of the Duchy of Lancaster
Customs and Excise, Board of	Sir Gilmour Jenkins	Permanent Secretary
Defense, Minister of	Sir Archibald Carter	Chairman
Dominions Office	*Albert V. Alexander Viscount Addison	Minister Secretary of State
Duchy of Lancaster	Sir Eric Machtig	Perm't Under-Sec'y
Education, Ministry of	John B. Hynd Ellen Wilkinson Sir John Maud	Chancellor Minister Permanent Secretary
Electricity Commission	Sir Cyril W. Hurcomb A. E. Marson	Chairman Secretary
Food, Ministry of	John Strachey Sir Percivale Liesching	Minister Secretary
Foreign Office	*Ernest Bevin Hector McNeill Sir Orme Sargent	Secretary of State Minister of State Perm't Under-Sec'y
Fuel and Power, Ministry of	Emanuel Shinwell Sir Donald Fergusson	Minister Permanent Secretary
Health, Ministry of	Aneurin Bevan Sir William S. Douglas	Minister Secretary
Home Office	J. Chuter Ede Sir Alexander Maxwell	Secretary of State Perm't Under-Sec'y
India Office	*Baron Pethick-Lawrence Sir David Monteath	Secretary of State Perm't Under-Sec'y
Information, Central Office of	R. Fraser	Director General
Inland Revenue, Board of	Sir Cornelius Gregg	Chairman
Labour and National Service, Ministry of	George A. Isaacs Sir Godfrey Ince	Minister Secretary
Law Officers' Department	Sir Hartley Shawcross Sir Frank Soskice	Attorney-General Solicitor-General
Lord Chancellor's Office	Baron William Jowitt Sir Albert Napier	Lord Chancellor Perm't Sec'y and Clerk of the Crown
Lord Privy Seal	Arthur Greenwood	Minister
National Insurance, Ministry of	James Griffiths Sir Thomas Phillips	Permanent Secretary Paymaster General
Paymaster General's Office	Arthur Greenwood	Minister
Pensions, Ministry of	Wilfred Paling Sir Harold Parker	Permanent Secretary Postmaster General
*Post Office	Earl of Listowel Sir Raymond Birchall	Director General Lord President
Privy Council Office	*Herbert Morrison Sir Eric C. E. Leadbitter	Clerk of the Council Secretary of State
Scottish Office	Joseph Westwood David Milne	Perm't Under-Sec'y Controller
Stationery Office, H.M.	Sir Norman Scorgie	Minister
Supply, Minister of	John Wilmot Sir Archibald Rowlands	Minister Permanent Secretary

*See separate article.

Ministry or Department	Name	Post
Town and Country Planning, Ministry of	Lewis Silkin Sir Thomas Sheepshanks	Minister Permanent Secretary
Trade, Board of	*Sir Stafford Cripps H. A. Marquand	President Sec'y for Overseas Trade
Transport, Ministry of	Sir J. H. E. Woods Sir Cyril Hurcomb	Permanent Secretary Minister Secretary
Treasury	*Clement Attlee	Prime Minister, First Lord of the Treasury
		Chancellor of the Exchequer
	*Hugh Dalton	Permanent Secretary
War Damage Commission	Sir Edward Bridges	Chairman
War Works Commission	Sir M. Trustram Eve	Chairman
War Office	F. J. Bellenger Sir Eric Speed	Secretary of State Perm't Under-Sec'y
Works, Ministry of	George Tomlinson H. C. Emmerson	Minister Permanent Secretary

*See separate article.

Government Expenditures and Government Receipts: see BUDGET, NATIONAL.

Government Printing Office: see PRINTING OFFICE, U.S. GOVERNMENT.

Governors and Premiers, British: see BRITISH EMPIRE.

Grain: see BARLEY; CORN; OATS; RICE; RYE; WHEAT.

Granite: see STONE.

Granville-Barker, Harley Granville (1877-1946), British dramatist, was born on Nov. 25 in London. Noted for his scholarship as well as for his dramatic works, he was a leading exponent for a national British theatre, and he considered that the national theatre should be on the same level with the National gallery and the British museum. As actor, producer and theatrical manager, he was influential in introducing to British audiences numerous plays of literary merit which because of their limited appeal would have been risky commercial ventures. He was a visiting professor at Yale and Harvard from 1940 to 1943, a Fellow of the Royal Society of Literature and a member of its Academic committee. Among his later works are, *The Secret Life* (1926), *Prefaces to Shakespeare*, Series 1 (1927), Series 2 (1929) and Series 3 (1936); *On Dramatic Method* (1931) and *The Study of Drama* (1934). His death was reported in Paris, Aug. 31. (See *Encyclopædia Britannica*.)

Grapefruit: see FRUIT.

Grapes: see FRUIT.

Graphite. Production of graphite in the United States increased from 7,120 short tons in 1942 to 9,939 tons in 1943, but dropped back to 5,408 tons in 1944 and 4,888 tons in 1945. Corresponding shipments were 7,253 tons, 9,597 tons, 5,768 tons and 5,334 tons. Imports declined from a high of 43,921 tons in 1942 to 26,184 tons in 1944, but recovered to 36,286 tons in 1945. Mexico, Madagascar and Ceylon furnish most of the imports.

Canada produced 1,903 short tons in 1943, 1,582 tons in 1944, and 1,840 tons in 1945, mainly of foundry grades. (G. A. Ro.)

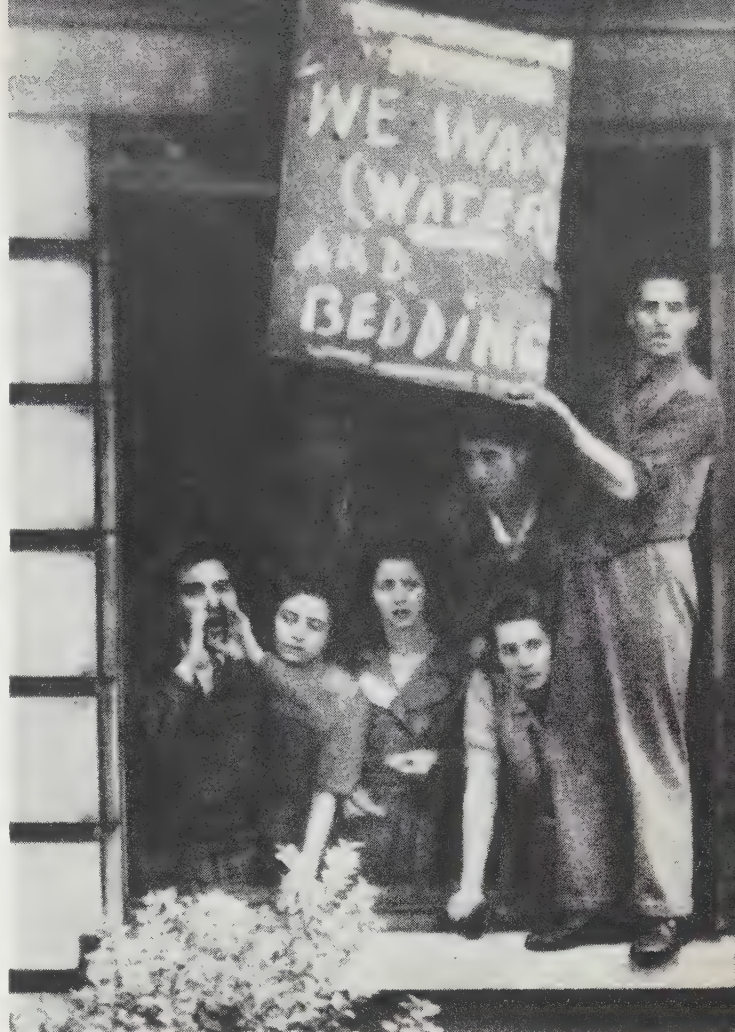
Gravel: see SAND AND GRAVEL.

Great Britain & Northern Ireland, United Kingdom of. This comprises the main island of smaller islands off the English and Scottish coasts, and the six northeastern counties of Ireland. It is a constitutional monarchy, with a king and a parliament of houses, the house of lords consisting of about 670 hereditary peers, 24 spiritual peers, 16 Scottish representative peers, a number of Irish repre-

sentative peers (in 1946, 8; vacancies are no longer filled) and a few life peers who have held high judicial office; and the house of commons, numbering 640 members, elected by universal suffrage. Flag, the Union Jack, consisting of a red cross on a white field (for England), surcharged on a diagonal red cross on a white field (for Ireland), surcharged in turn on a diagonal white cross on a blue field (for Scotland). Ruler: King George VI (*q.v.*); prime minister: Clement R. Attlee (*q.v.*). Established church: Protestant Episcopal in England, Presbyterian in Scotland. Area: 93,667 sq.mi. (England, including Monmouthshire, 50,870); pop. (est. June 30, 1946, members of the armed forces excluded): 47,175,000 (England 38,866,000). Capital: London (pop. est. June 30, 1938): city and metropolitan police districts, 8,655,000; city and metropolitan boroughs only, 4,062,800. Chief towns: Glasgow (June 30, 1938) 1,131,500; Birmingham (1945 est.) 1,001,600; Liverpool (1939 est.) 864,000; Manchester (1945 est.) 624,300; Sheffield (1938 est.) 520,000; Leeds (1938 est.) 494,000; Edinburgh (June 30, 1946) 463,100; Belfast (Jan. 1, 1939) 443,500; Bristol (1938 est.) 415,000; Hull (1938 est.) 318,700.

History.—The first year of peace was for the British people a year of continuous demobilization of the armed forces; of difficult but altogether successful reconversion of industry from war to peace production; of continued hardship in food rationing, stricter in certain categories than during the war; of an export drive hampered by insufficient coal production; of the nationalization of the Bank of England and the coal mining industry and of some disappointments in the field of foreign policy.

The Budget.—The estimates for 1946-47 showed an anticipated revenue of £3,161,300,000, an expenditure of £3,886,917,000 and a deficit of £725,617,000, nearly £1,500,000,000 less than in 1945-46. These figures do not, however, allow for £100,000,000 to £150,000,000 war damage payments, £150,000,000 to £200,000,000 excess profits tax refunds, £100,000,000 for the civil contingencies fund and £26,000,000 refund of postwar credits to men of 65 and women of 60 years of age and upwards. The payment of family allowances, which would cost £60,000,000 in a full year, began in Aug., and in Oct. old age pensions were raised to 26s. for single persons and 42s. for married couples, involving an annual expenditure of £80,000,000. The chancellor of the exchequer gave income-tax payers relief amounting to £33,000,000 by increasing to one-eighth the earned income allowance on incomes below £1,200, by restoring the personal allowance to the prewar level and by raising the married women's allowance from £80 to £110. He remitted purchase tax on certain household goods at a cost of £15,250,000 but indicated that the purchase tax was likely to remain permanent to contribute towards the cost of social security schemes (national insurance and national health service). In addition he granted reliefs of death duties on estates below £7,500 in value and a total remission on those below £2,000, but accompanied these remissions by an increase on estates from £12,500 upwards. Excess profits tax was discontinued, effective Jan. 1, 1947. The continued high rates of taxation served as one of the preventatives of inflation. So also did the government's control over capital. The Borrowing Control act empowered it to control capital issues and capital export and also enabled the treasury to guarantee loans for reconstruction and development purposes up to £50,000,000 a year. Under the act nationalizing the Bank of England, which received the royal assent in Feb., the government secured statutory power to control also short-term borrowing. The U.S. credit to Britain of \$4,400,000,000 received the president's signature on July 15, seven months after the agreement had been signed. By the end of 1946 \$600,000,000 had been drawn by Britain.



SQUATTERS who had invaded an apartment building in Regents park, London, in Sept. 1946, appealing for supplies. The local council had turned off the water, and the squatters feared they could not return if they left the building

Manpower Position.—Recovery was handicapped by lack of manpower. The available labour force and its distribution at various times are shown below:

Available Force (000s omitted)				
	1939 (June)	1945 (June)	1946 (June)	1946 (October)
Males	14,656	14,881	14,638	14,550
Females	5,094	6,768	5,885	5,806
	19,750	21,649	20,523	20,356

The total of 20,356,000 (Oct. 1946) included all males aged 14 to 64 and all females aged 14 to 59. From Dec. 1945 to Oct. 1946 the female working population decreased by about 500,000, indicating the return of women to domestic duties, but at 5,806,000 was still 712,000 above the figure for June 1939. By the end of Dec. 1946 the total armed forces had been reduced to approximately 1,250,000, which compared with 480,000 in 1938. Military conscription remained in force but after Jan. 1, 1947, no one would be called up before the age of 18 and the service of those called up in the first 13 months was to be limited to 2 years and thereafter scaled down to 18 months as from Dec. 1948. Compulsion was not to be applied to women, but volunteering would be encouraged. Estimates of recruits thus enrolled were 190,000 after allowing for deferments. When the term of service should fall to 18 months the number of conscripts would be 285,000, excluding the deferred. In addition volunteers were expected to total 450-500,000, but the results of the first recruiting campaign were not encouraging. In Oct. a decision to appoint a separate minister of defense, a post hitherto filled by the prime minister, was announced. His duties were stated to be the co-ordination of the three service

departments both as among themselves and in relation to national resources and government policy. A. V. Alexander, until then first lord of the admiralty, became the first holder of the office. Four other priority claims on the labour force were housing, exports, coal and food production.

Housing.—From April 1, 1945, to Nov. 30, 1946, the number of houses, flats, temporary houses, etc., provided was:

New permanent houses	43,098
Temporary houses	80,135
Rebuilding, adaptation and repair of existing premises	141,592
Temporary huts	3,480
	<hr/> 268,305

Causes of the relatively slow progress in the housing program other than shortage of labour were insufficient supplies of building materials and components. Occupation of disused military camps by "squatters" was a symptom of the pressure on housing. The government intended to use some of the camps for temporary accommodation, but adaptations for that purpose were necessary. Before these were made 1,178 camps were invaded by 46,335 persons. A more serious development was a well-organized occupation of privately-owned flats, but they were evacuated in obedience to a court order. Other causes of shortage of accommodation were scarcities of furniture and household equipment.

Exports.—The figures for imports and exports for 1946, 1945 and 1938 were as follows:

	Imports	Exports (in million £)	Re-exports
1938	919.5	470.8	61.5
1945	1,103.7	399.3	51.0
1946	1,297.7	911.7	50.3

The export target set for 1946 of £750,000,000 was thus exceeded by a considerable margin, but the ultimate target aimed at of a volume of exports 75% above that of 1938 (representing some £1,500,000,000 at 1946 prices) remained far distant. While exports of machinery, vehicles and chemicals showed satisfactory increases in volume (*i.e.*, after eliminating the rise in the price level), exports of cotton and particularly coal were still far below the prewar level.

Coal.—In 1946 coal production showed an increase over 1945 and the total figure for the year was expected to be in the neighbourhood of 212,800,000 short tons, some 7,000,000 short tons above the 1945 total. This higher production was secured by a labour force lower in numbers, on the average, than the 1945 strength, but younger in age composition owing to the demobilization of miners after the end of the war. The following table summarizes the position statistically:

	Weekly Averages			
	1945	July 1946	Sept. 1946	Nov. 1946
Mined coal (000 short tons)	3,745	3,801	4,005	4,183
Opencast coal (short tons)	175	215	205	180
Wage earners effectively employed (numbers)	709	699	697	692
Absenteeism (%)	16.31	14.54	16.39	14.82
Output at coal face (in short tons per manshift)	3.02	3.08	3.09	3.16
Over-all output (do.)	1.12	1.14	1.15	1.19

The increase in production was absorbed by a parallel increase in inland consumption from 200,000,000 short tons in 1945 to an estimated 206,750,000 in 1946, which reflected the high degree of employment. In the winter months of 1946 the supply position showed signs of great stringency despite the reduction of coal exports and supplies to foreign bunkers from 52,000,000 short tons in 1938 to an estimated 9,800,000 short tons in 1946.

The bill nationalizing the mines received the royal assent on July 12 after various amendments carried by the house of lords had been agreed to by the house of commons. Property of the mines became vested in the state with effect from Jan. 1, 1947. Compensation to the former owners had been fixed by arbitra-

tion at £164,660,000, a sum representing the value of the transferred assets other than ancillary assets (coke ovens, etc.)

Food Production.—In April the government issued a White Paper explaining that it had hoped to make up for anticipated shortages of fats, meat, dairy products and sugar by larger supplies of cereals, but that droughts, war destruction, lack of transport and of fertilizers had interfered. In Europe the harvest of 1945 had been 47%, in India 25%, in South Africa 40% and in French North Africa 70% below normal. The consumption of meat in the U.K. was 100 lb. per head as against the prewar 134 lb. World exports of fats were little more than half those of 1938. The production of European sugar was down by 50%. In these circumstances rationing had not only to be continued but also to be extended. In April Sir Ben Smith, minister of food, resigned and was succeeded by John Strachey, one of whose first duties was to announce bread rationing, which came into operation on July 21. Bread had not been rationed throughout the war years.

The 1946 harvest in Britain proved the latest and the poorest in quality for 30 years. Nor could it have been gathered in, such as it was, but for German prisoners of war who supplied a quarter of the labour force. Large-scale repatriation of German prisoners of war began at the end of Sept. at the rate of 15,000 men per month. Labour shortage in agriculture in 1947 therefore promised to be even greater than in the mines.

Foreign Affairs.—In foreign policy the central issues were the treatment of Germany and relations with the U.S.S.R. and the countries of the Slav "bloc." Closely connected with the soviet issue were the problems of the peace treaty with Italy, the control of the Dardanelles and the division of influences in Iran. In the middle east, Palestine and the future of Anglo-Egyptian relations dominated the political scene.

In Germany the division of the country into four zones of occupation produced different policies in each zone. Contrary to the decision of the Tripartite conference of Berlin of Aug. 2, 1945, Germany was not being treated as an economic unit, with the result that the British zone, deficient in foodstuffs, cost the British taxpayer a figure substantially in excess of the £80,554,000 provided for in the 1946-47 budget. On Dec. 2 the foreign secretary signed an agreement with the United States for the economic fusion of the British and U.S. zones, intended to bring about a self-sustaining economy by 1949 and meanwhile to reduce British and U.S. expenditure on their respective zones by about half. Relations with the U.S.S.R. and the Slav states of eastern Europe lacked cordiality throughout most of the year, although a better atmosphere prevailed after the successful conclusion, in Dec., of the council of foreign ministers in New York. This meeting produced compromise agreements on many issues which had been the source of constant conflict between east and west. While the U.S.S.R. did not maintain Yugoslavia's claims to the possession of Trieste, the western powers, Britain among them, consented to the early evacuation of the Trieste territory. Similarly, the U.S.S.R. gave way to British, French and U.S. claims for free navigation on the Danube, but secured in exchange recognition of the principle that the riparian states would have the decisive voice in the new regime of the river.

The test of strength between the U.S.S.R. and the western powers extended to neighbouring Turkey (*q.v.*). Britain, in line with the United States and other signatories of the Montreux convention of 1936 on the regime of the straits, opposed the demands of the U.S.S.R. to secure from Turkey a share in the direct control of this exit to the Mediterranean. At the end of 1946 each side maintained its position and the problem seemed nowhere near a solution. A similar test of strength proceeded in Iran (*q.v.*) where British policy—standing for the full inde-

pendence and territorial integrity of Iran—opposed Russian penetration into the northern province of Azerbaijan which took the form of a movement for autonomy led by the Russian-sponsored Tudeh party. At the end of the year this movement failed and for the time being the aim of British policy seemed to have been realized.

In the middle east the position at the end of the year was one of considerable confusion. The Anglo-American Committee of Inquiry on Palestine (*q.v.*) had in April produced a unanimous report of which the outstanding feature was the recommendation to permit the immediate immigration of 100,000 Jews from Europe. This recommendation was not accepted by the British government. Instead, it proposed a plan for the partition of Palestine recommended by the Anglo-U.S. experts. This plan was rejected by both Arabs and Jews. A round-table conference opened in London in Sept. in which both the Jews and the Arabs of Palestine refused to participate. At the end of the year the position was one of complete deadlock in negotiations, coupled with a renewal of armed coups by groups of Jewish terrorists determined to resist partition and to make of Palestine a Jewish state. While British policy had not yet adopted a new line, the old line of postponing a decision on the Palestinian issue had not proved successful.

Similarly, negotiations with Egypt (*q.v.*) about the renewal of the treaty of alliance of 1936 had reached a deadlock, one of the stumbling blocks being the Egyptian claim to assume full sovereignty over the Sudan, heretofore an Anglo-Egyptian con-

dominium. The extent of joint defense arrangements for the Suez canal was another difficulty. Under the 1936 treaty Britain kept military and naval forces in Egypt for the defense of the canal. These had been voluntarily evacuated in the course of 1946 to the canal zone proper to create a favourable atmosphere for the treaty negotiations.

The still more difficult problem of meeting the demand for complete self-government in India (*q.v.*) was brought nearer to a solution by the mission of three cabinet ministers who succeeded in producing the framework of a united India constitution acceptable to the Moslem league and the Hindu Congress party.

The mission was, however, unable to arrange for a combined interim government until a constituent assembly met to draw up the constitution and this had to be formed afterward by the Congress party alone. At the end of 1946 the situation therefore remained uncertain. (H. A. Wm.)

Education.—In 1937-38: elementary, England and Wales—departments under separate head teachers, 29,988, scholars on register 5,150,874; elementary, Scotland—schools 2,895, scholars 617,047; elementary, Northern Ireland—schools 1,700, scholars 191,862; secondary, England and Wales—grant-aided schools 1,398, scholars 470,003; secondary, Scotland—grant-aided schools 252, scholars 156,645; secondary, Northern Ireland—grant-aided schools 75, scholars 14,557; universities (1945), students: England 37,443; Wales 2,750; Scotland 10,571; Northern Ireland 2,663.

Banking and Finance.—Revenue, ordinary (est. 1946-47) £3,161,300,000. Expenditure, ordinary (est. 1946-47) £3,886,917,000. Revenue, ordinary (actual, 1945-46) £3,284,450,000. Expenditure, ordinary (actual, 1945-46) £5,484,533,000. Notes in circulation (average June 1946): £1,360,500,000; (Dec. 1946) £1,404,760,000.

Public debt (internal and external, Dec. 31, 1946): £24,785,000,000. Exchange rate (1946): £1=\$4.034.

Trade and Communication.—Roads (March 31, 1938) England and Wales (class I) 20,627 mi.; (class II) 13,070 mi.; Scotland (class I) 6,632 mi.; (class II) 3,967 mi.; Northern Ireland (class I) 1,273 mi.; (class II) 1,933 mi. Railways (Dec. 31, 1938): Great Britain, track open to traffic, excluding sidings, 20,007 mi.; Northern Ireland, standard gauge, 633 mi.; narrow gauge, 121 mi. Freight (1945) 294,694,000 short tons. Passenger journeys (1945) 1,312,800,000. Airways (March 31, 1945-March 31, 1946): aircraft mi. flown 25,738,834 mi.; passengers carried 143,950; passenger mi. flown, 295,839,835; net route mileage 66,716; ton mi. capacity 67,374,802; cargo and excess baggage 5,637 short tons; mail 3,166 short tons. Shipping: excluding vessels under 5,000 gross tons and foreign vessels on bareboat charter or requisition (Sept. 30, 1946) 13,626,000 gross tons. Under construction (vessels more than 100 gross tons, excluding non-propelled craft, Sept. 30, 1946) 1,709,000 gross tons. Shipping: (net tonnage with cargo) entered (monthly average Oct. 1945-Sept. 1946) 2,622,000; cleared (monthly average Oct. 1945-Sept. 1946) 1,640,000. Motor vehicles licensed (Aug. 31, 1946): cars 1,746,800; hackney vehicles (buses, coaches, taxis, etc.) 194,673; commercial and miscellaneous vehicles 740,479; motor cycles 438,945; total 3,030,897. Wireless receiving set licences (Sept. 1946): 10,673,000; telephones (March 1945): exchanges 5,574; call offices 52,169; telephones 3,888,626.

Table I.—Estimated Revenue and Expenditure 1946-47

Estimated Revenue 1946-47

	£	£
Income tax	1,111,000,000	
Surtax	80,000,000	
Estate duties	140,000,000	
Stamp duties	29,000,000	
National defense contribution and excess profits tax	325,000,000	
Other inland revenue duties	1,000,000	
Total inland revenue		1,686,000,000
Customs	595,000,000	
Excise	592,000,000	
Total customs and excise		1,187,000,000
Motor vehicle duties	45,000,000	
Sale of surplus war stores	150,000,000	
Surplus receipts from certain trading services	50,000,000	
Wireless licences	5,300,000	
Crown lands	1,000,000	
Receipts from sundry loans	15,000,000	
Miscellaneous	22,000,000	
Total other revenue		288,300,000
Total revenue		3,161,300,000
Excess of expenditure over revenue		725,617,000
		<u>£3,886,917,000</u>

Estimated Expenditure 1946-47

	£	£
Interest and management of national debt	490,000,000	
Payment to Northern Ireland Exchequer*	20,000,000	
National land fund	50,000,000	
Miscellaneous consolidated fund services	8,000,000	
Total		568,000,000
Supply services		
Defense		
Army	675,012,000	
Navy	243,371,000	
Air	252,380,000	
Total		1,170,763,000
Pensions		
Army	6,988,000	
Navy	11,704,000	
Air	3,120,000	
Total		21,812,000
Civil		
Central government and finance	11,277,000	
Foreign and imperial	76,400,000	
Home department, law and justice	29,898,000	
Education and broadcasting	138,888,000	
Health, housing, town planning, labour and national insurance	345,575,000	
Trade, industry and transport	147,382,000	
Works, stationery, etc.	83,015,000	
Pensions	107,433,000	
Contribution to local revenues	65,265,000	
Supply, food and miscellaneous services	1,085,616,000	
Total		2,090,749,000
Post office vote (excess over revenue)	10,520,000	
Tax collection, customs and excise and inland revenue (including pensions £1,846,000)	25,073,000	
Total		35,593,000
Total expenditure		<u>3,886,917,000</u>

*Proceeds of reserve taxes in Northern Ireland after deducting imperial contributions and cost of reserved services there.

Table II.—Overseas Trade 1938-46

	1938	1939	1940	1941	1942	1943	1944	1945	1946
	(in million £)								
Imports	919.5	885.5*	1,152*	1,145	996	1,232.6	1,306	1,101.6	1,297.7
Exports	470.8	438	408	365	271	232.8	266	396	911.7
Re-exports	61.5	45	25	12.5	4.8	6	15.6†	50	50.3

*Including munitions.

†Including relief to liberated countries.

Agriculture, Manufacturing, Mineral Production.—

Table III.—Agricultural Crops
(in 1,000 short tons) and acreage (in 1,000)

Crops	Short tons	Acres	Short tons	Acres
Wheat	1,842	1,766	2,061	2,066
Barley	999	1,013	2,000	2,211
Oats	2,243	2,427	3,025	3,570
Rye	11	14	44	55
Potatoes	5,854	704	11,164	1,423
Sugar beet	3,942	345	5,004	437
Turnips and swedes	11,285	712	11,362	758
Mangolds	4,557	216	6,776	305
Hops	15	19	17	21
Flax	54	23	115	53

*Estimates based on crop conditions as at Nov. 1.

Table IV.—Commodity Production in 1,000 short tons

Product	1938	1945
Coal	253,518	203,840
Iron ore*	13,269	15,900
Steel	11,648	13,220
Aluminum (virgin)	25.8	35.7
Superphosphate	476	1,016
Wool	55	40.8
Sea fisheries	1,172	550
Beef and veal	681	617
Mutton and lamb	239	151
Pork, bacon and ham	367	136
Butter	22.7	8.7
Cheese	48	25
Margarine	233	455

*Average metal contents 30%.

(See also BUSINESS REVIEW.)

(H. A. Wm.; X.)

Great Lakes Traffic: see CANALS AND INLAND WATERWAYS.

Greece. A kingdom in the southern part of the Balkan peninsula. Area: 50,147 sq.mi., of which 41,328 are mainland. Pop. (census May 16, 1928), 6,204,684, (est. 1940) 7,150,000. Capital: Athens (392,781). Chief cities: Thessaloniki or Salonika (236,524), Patras (61,278), Cavalla (49,980), Candia (33,404), Corfu (32,221). Religion: mostly Greek Orthodox; inconsiderable Mohammedan and Jewish minorities. King: George II. Prime minister (1946): Constantin Tsaldaris.

History.—During 1946 Greece suffered from the economic disintegration caused by World War II and from the accumulated bitter grievances of decades of civil feuds which made the much-needed internal reconciliation difficult. In the economic field the U.S. Export-Import bank granted Greece in Jan. 1946 a loan of \$25,000,000 with which to purchase supplies and equipment. The state department advised the Greek authorities to take rigorous measures to control inflation, to increase the efficiency of the civil service and to revive industry and trade. It supported the project of sending a British advisory economic mission to Greece. Great Britain gave Greece a stabilization loan of \$40,000,000 and direct economic assistance in the form of railway rolling stock, vehicles, textiles and other nonfood items. The United Nations Food and Agricultural organization prepared a sweeping 25-year plan for Greece in Sept. 1946. In Dec. 1946 President Harry S. Truman appointed Paul A. Porter, the former chief of the OPA, as head of a U.S. economic mission to Greece to examine economic conditions as related to the reconstruction and development of that country's economy. A second \$25,000,000 U.S. credit was extended to Greece for purchase of surplus property.

In the domestic situation, a clarification was brought about by the general elections held on March 31. To ensure the fairness and freedom of the elections, the Great Powers were invited to send observers. The U.S., Great Britain and France accepted while the U.S.S.R. refused. The U.S. delegation was headed by Henry F. Grady and included Maj. Gen. Harry J. Malony, Walter H. Mallory, Joseph C. Green, James G. Rogers, William W. Waymack and Herman B. Wells. Under them about 600 U.S. soldiers served in teams as election watchers throughout Greece.

The elections were held in spite of a boycott from the leftist parties. The Allied mission representing the United States,



KING GEORGE II reviewing troops upon his return to Greece, following the plebiscite of Sept. 1, 1946, which restored him to the throne

Great Britain and France, found the results to represent "a true and valid verdict of the Greek people." According to the mission the abstention of the leftist parties did not materially affect the outcome of the elections. Freedom of the press was found to characterize the election period. The report recognized "the present intensity of political emotions in Greece" but thought the elections capable of standing comparison as to decorum with general elections in democratic countries.

In the elections the Populist party (royalist) came out as the strongest. The National bloc under the leadership of George Papandreou, Sophocles Venizelos and Panayotis Kanellopoulos came second with the Liberals third. The first two parties are republicans. The Populist leader Constantin Tsaldaris formed on April 17 a new cabinet consisting mainly of royalists. Against the advice of the British government which favoured a broad coalition of reconciliation and the postponement of the plebiscite about the king's return until 1948, the government fixed Sept. 1, 1946, as the date for the plebiscite.

To ensure the regularity of the electoral lists for the plebiscite, the Greek government invited representatives from the democratic nations to assist with the revision of the electoral lists. The U.S. sent a mission of about 50 experts under Leland Morris to check the validity of the revised lists. After having observed for six weeks the compilation of the lists, the Allied mission issued a report on Aug. 19 expressing itself "satisfied that the revision and recompilation of the lists attained a degree of fairness and accuracy which justifies their use in seeking the opinion of the Greek people on matters of national import." The British mission was headed by Richard Windle, national agent of the British Labour party. The opponents of the plebiscite maintained that the anarchy and civil strife prevailing throughout the country worked against holding the plebiscite. Nevertheless, the plebiscite was held. Of 1,801,140 registered voters 1,691,592 voted. Of these 1,166,512 voted for the monarchy, 521,267 were against it, 3,813 votes were invalid. On Sept. 27 King George II returned to Greece and assumed his duties. The regency by Archbishop Damaskinos which was instituted in Dec. 1944 came to an end. The efforts to broaden the government failed. Tsaldaris reconstructed his cabinet with only very few changes, in spite of the fact that the ambassadors of Britain and of the U.S. urgently requested a broadening of the government, a measure which they regarded as a prerequisite for ending the civil strife in Greece.

This civil strife was especially acute in the northern part of Greece where the country borders on the two Communist-controlled Slav countries, Yugoslavia and Bulgaria. Though Bulgaria was on Germany's side during World War II and though its troops occupied Greek territory with German help in 1941, Bulgaria demanded western Thrace from Greece and the U.S.S.R. supported this Bulgarian demand for part of the Aegean coast. This territorial acquisition by Bulgaria would separate Turkey from Greece and at the same time allow Bulgarian, and, at least indirectly, soviet control of the Aegean approaches to Constantinople and the Straits. Yugoslavia raised demands upon Greek Macedonia with the great Aegean port of Salonika. Some of the strife was undoubtedly of local origin, expressing republican opposition to the regime; some of it was supposed to be supported by Yugoslavia and Bulgaria for reasons of territorial expansion at the cost of Greece; some of it was probably of mixed origin, Communists of Greek descent spurred on by the aspirations emanating from outside Communist centres. Greece itself put forward territorial claims for northern Epirus from Albania with the high plateau of Koritza, and for a frontier rectification from Bulgaria which would give Greece an acceptable defensive strategic position to avert a repetition of the disaster of 1941, in which Greece was attacked from Bulgaria and the Bulgarians sided with German aggression.

The nature of these claims and counterclaims and the frontier unrest produced by them drew repeatedly international attention upon this Greco-Slav struggle. At the meeting of the Security council of the United Nations early in 1946 the U.S.S.R. charged that the presence of British troops in Greece was a threat to peace and demanded their immediate and unconditional withdrawal. The Greek delegation asked that the troops remain. The British foreign secretary, hinting at the danger of a Communist-sponsored civil war in Greece, requested a direct vote of the Security council whether the British government, acting in response to the demand of the Greek government in lending some of its forces to help get order and economic reconstruction in that country, was endangering peace. When it became clear that the overwhelming majority of the Security council favoured the British stand, the soviet delegate invoked the veto power to prevent such a declaration.

With the unrest spreading along its northern frontiers, the Greek government demanded in Dec. 1946 an investigation by the United Nations. On Dec. 19 the Security council voted unanimously to send an investigating commission to the Balkans to begin its work by Jan. 15. The commission was to consist of representatives of each of the 11 nations forming the Security council and to have the right to travel anywhere in Greece, Bulgaria, Yugoslavia and Albania. The soviet government which had vetoed a similar plan on Sept. 20 agreed this time to it, though it maintained, as did Yugoslavia, Bulgaria and Albania, that the real cause of the trouble was the "reactionary" government of Greece.

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(H. Ko.)

Green, William (1873-), U.S. labour leader, was born March 3, in Coshocton, O. He spent much of his youth as a miner, and at the age of 27 was a subdistrict president of the United Mine Workers of America. He was elected president of the American Federation of Labor, 1924. Under Green's administration, the A.F. of L. remained predominantly a crafts union. When the Committee for Industrial Organization (later known as the Congress of Industrial Organizations), a group of ten unions affiliated with the A.F. of L.,

opened its campaign to establish industrial unions, Green refused to sanction the operation. This led the C.I.O., then under the guidance of John L. Lewis, to break away from the parent body in 1937. In Jan. 1942, Green and Philip Murray (who succeeded Lewis as head of the C.I.O.) accepted President Roosevelt's proposal that both unions agree to a labour peace for the duration of World War II.

In 1946 Green assailed the Case strike-control measure as "monstrous" (Feb. 28), called for extension of price controls (March 26) and frequently denounced communism. At the A.F. of L. convention in Oct. 1946, in Chicago, where he was re-elected to the presidency of the union, Green demanded lifting of government control over wages. He supported Lewis's stand on both coal strikes and, commenting on the government's decision to press contempt charges against Lewis, warned (Nov. 20): "neither troops . . . nor court injunctions, nor incarceration of miners . . . can serve to produce one single ton of coal."

Greenland. The world's largest island (839,782 sq.mi., some 705,000 sq.mi. covered by glacier), in the North Atlantic ocean, N.W. of Iceland. A Danish possession, it came under temporary United States protection in 1941. Capital, Godthaab. A population of 18,431 (1938) is scattered in small settlements on the west coast, and about 1,000 on the east coast; 391 in all are listed as Europeans (largely Danes) and the rest are native Greenlanders. Seats of the governors are Godthaab in the south and Godhavn in the north.

History.—Throughout World War II the administration of Greenland remained in Danish hands, although the United States exercised special privileges and responsibilities in accordance with the agreement of April 9, 1941, between the Danish minister in Washington, Henrik de Kauffmann, and



ESKIMO YOUNGSTERS posing for a navy photographer at their home in the frozen wastes of northern Greenland in 1946

the United States secretary of state, Cordell Hull. The United States set up bases for aeroplanes and established meteorological stations where weather conditions were studied and vital forecasts made of weather probabilities in the North Atlantic area. The Germans attempted to maintain such stations also, and there were several clashes before the Germans were finally chased out. The agreement of 1941 was ratified by the Danish Rigsdag in May 1945, and in Oct. 1945 the United States announced that it was returning to Denmark four of the army air force weather stations. In Dec. 1946 it was reported that discussions had taken place in Washington between the Danish foreign minister, Gustav Rasmussen, and U.S. officials, which might lead to Danish renunciation of the five-year-old agreement, and removal of the remaining United States troops.

In the summer of 1946 a small fleet of United States navy and coast guard vessels penetrated the Arctic ice floes into the far northern port of Thule, on Smith sound above Baffin bay—only 950 mi. from the north pole. It was a training and weather research expedition, composed of ice-breakers and a seaplane tender, and was commanded by Captain Richard H. Cruzen, who had been second in command with Byrd in the Antarctic 1939–41. A submarine from the Greenland expedition proceeded northward, hunting for underwater channels below ice as much as 60 ft. thick; the route was through the strait between the northern tip of Greenland and Ellesmere Land.

Trade and Finance.—In 1939 Greenland exported 62,231 short tons of cryolite, an ore of great importance in the manufacture of aluminum, and which had not been obtained in quantity anywhere outside Greenland. Other exports, largely fish and fish products, totalled 1,847,000 kroner (1 krone=19.308 U.S. cents in 1940). Imports in 1939 totalled 4,149,000 kr., and consisted chiefly of foodstuffs (607,000 kr.), wood (468,000 kr.), manufactures (451,000 kr.), fruits and other colonial wares (389,000 kr.), meat (253,000 kr.). The government budget for 1939–40 was balanced at 6,035,000 kr. (F. D. S.)

Greiser, Arthur (1897–1946), German politician, was a lieutenant in the German army in World War I. A native of Sroda, Poland, he entered business after the war's end, and became a member of the Danzig German-Social party in 1925. During Hitler's rise to power, Greiser joined the nazi party in Danzig. He was vice-president of the Danzig senate and senator for home affairs in the Free City, 1933, and president of the senate and senator for foreign affairs the following year (1934). From 1936 to 1939, he was senator for social affairs. Greiser, allegedly a "moderate" before the German conquest of Poland, was made *gauleiter* of Poznan after the occupation. He was accused of tyrannical rule of Poznan and of having sent thousands to death camps. After the war, Greiser was tried in a Polish court on charges of having committed war crimes. Throughout his hearing, he protested his innocence, asserting that he had been forced to obey the orders of Hitler and Himmler. If spared, he pleaded, he would serve Prime Minister Stalin faithfully the rest of his life. However, a Polish court found Greiser guilty and while a crowd of 15,000 looked on, he was hanged from a scaffold in a Poznan square, on July 21.

Grenada: see WINDWARD ISLANDS.

Grindstones: see ABRASIVES.

Gromyko, Andrei A. (1909–), soviet diplomat, was born July 5 in the village of Stayre Gromyki in the Gomel region of the U.S.S.R. He graduated from the Minsk Institute of Agricultural Economics in 1934, and in 1939 he became counsellor in the U.S.S.R. embassy in

Washington. Gromyko succeeded Maxim Litvinov in Aug. 1943 as soviet ambassador to the United States and also to Cuba. He headed the U.S.S.R. delegation at the Dumbarton Oaks conference in 1944, attended the San Francisco conference in 1945 and was named chief soviet delegate to the United Nations organization.

Gromyko staged his celebrated walkout from the council sessions in New York March 27, 1946, after rejection of his request for more time to prepare his case on the Iranian debate. He returned to the council sessions April 9; the following day (April 10) it was disclosed that he had been freed of his duties as ambassador to become permanent soviet delegate to the Security council. He was named to the U.N. Atomic Energy commission, May 3, and presented (June 19) the soviet plan for control of atomic energy which provided for an international agreement to outlaw atomic weapons but emphasized the necessity of retaining the veto. Gromyko was also in the forefront of debate on Spain and Greece, both of whose governments he denounced before the council as threats to international peace and security. It was disclosed on Dec. 29 that he had been promoted to deputy minister of foreign affairs.

Guadeloupe: see FRENCH COLONIAL EMPIRE.

Guam. Largest island of the Marianas group in the Pacific. Guam has an area of 225 sq.mi. It is in 13° 26' N. lat. and 144° 39' E. long., and is 3,600 mi. W. of Hawaii, 1,353 mi. S. of Yokohama and 1,506 mi. E. of Manila. Pop. (1946) 23,136, of whom 22,698 were natives. Capital Agaña (10,004).

History.—In Dec. 1941 Guam was captured by the Japanese. It was reoccupied by U.S. forces on July 21, 1944, and later served as headquarters of the Pacific fleet of the U.S. navy and as an important air base for the bombing of Japan. New breakwater and harbour facilities completed at Apra in 1946 made it possible to accommodate 400 ships, and caused it to be described as the future "Pearl Harbor of the western Pacific."

Government.—Naval civil government was restored on May 30, 1946. The president of the United States appoints a naval officer as governor. A popularly elected two-house legislature acts in an advisory capacity. Natives serve as associate justices of the court of appeals and as commissioners of municipalities. Guam has unorganized territorial status and the native Chamorros are nationals of the United States. At the time of the resto-



WRECKED ARMY TRANSPORT PLANES and hangar on Guam after a typhoon had swept the island on Sept. 21, 1946

ration of naval civil government, Rear Adm. Charles A. Pownall, was inaugurated governor of Guam.

Industry and Trade.—Agriculture is the main industry. Fruits and vegetables are produced for home consumption. Copra, chief export before World War II, was still an unimportant item of production in 1946 because of war damage to plantations.

The local wholesale and retail establishments did a total business of \$330,009.29 in July 1946. Only natives are permitted to lease land or to engage in business. A majority of the population was employed by the U.S. navy during 1946.

Finance and Education.—Island revenues before World War II ranged from \$154,797 in 1933 to \$289,587 in 1937. This sum plus approximately \$35,000 appropriated each year by the U.S. congress met the costs of government. Revenues were not expected to produce more than \$100,000 in 1946. As of July 1, 1946, claims for damage resulting from the war totalled \$7,859,770.55.

There were approximately 7,500 children of school age; 7,000 were enrolled in school. All of the 165 teachers were natives. The English language was employed in all schools.

(P. A. V.)

Guatemala. A Central American republic bounded by Mexico, British Honduras, Honduras and El Salvador. Area: 42,364 sq.mi.; pop. (1943 off. est.) 3,450,372, two-thirds of whom are Indian. Capital, Guatemala City (1946 est. pop.), 225,000; other urban centres (1940 census) are Antigua Guatemala (12,601), Chiquimula (10,868), Comalapa (10,461), Mazatenango (14,227), Puerto Barrios (15,784), Quezaltenango (33,538), Zacapa (14,443). Religion: predominantly Roman Catholic. President in 1946: Juan José Arévalo.

History.—The leftist administration of Pres. Arévalo veered slightly toward the centre during 1946 but continued to press its reform program in the face of peaceful conservative resistance. In January the Revolutionary Action party chief, Jorge Toriello, foremost proponent of expropriating foreign businesses, was expelled from the cabinet, and a previous ruling nationalizing the air line Aerovías was declared illegal by congress.

In July, however, congress required that at least 85% of the employees of all companies be nationals, and appointed a committee in September to revise existing contracts in the interests of national sovereignty. In October, rumours of impending expropriation of United Fruit company's vast holdings were spiked by official denial and by the government's impartial handling of a serious labour dispute in the company's banana plantations. An endorsement by Pres. Arévalo of Mexico's 1938 oil expropriations, during a border meeting with the Mexican chief executive, was responsible for the speculation.

Constitutional guarantees remained in force throughout the year, and frequent anti-administration demonstrations were countered by others, participated in by labour and student groups, which endorsed the government's policies and charged the disgruntled clergy with Spanish Falangist connections. The death in exile June 15 of former dictator Jorge Ubico had no effect on the political situation.

The bulk of the administration's social legislation was still pending in congress at the end of the year, but a provisional labour code went into effect in April. The literacy campaign was extended to the jails, and prisoners serving five months or more were required to learn to read and write. The socialized medicine program met vigorous opposition from the nation's doctors.

A ten-day strike in the textile mills at Guatemala City obtained a 40% wage increase. The banana plantation strike of

15,000 workers, which paralyzed the entire northern division of the United Fruit company's operations for 3 weeks, was brought to an end on Oct. 31 by the government, and the workers were obliged to negotiate for a wage adjustment.

The government undertook a vast reforestation program to curtail soil erosion. In April plans were announced for easing both the food shortage and the army's demobilization difficulties by training military personnel in modern farming methods. Private hotel interests formed a corporation capitalized at \$1,000,000 to promote the tourist trade, a growing source of national revenue, and a survey conducted by a United States commission discovered potentially important deposits of petroleum, iron, lead, zinc, copper, mica and crystal quartz in the country.

In foreign affairs, Guatemala reasserted sovereignty over the territory of British Honduras, but agreed with Great Britain to submit the dispute to the judgment of the United Nations' court of international justice. Closer collaboration with neighbouring El Salvador, with a view toward reviving the defunct Central American union, was effected in May by the elimination of passport requirements for each other's nationals and by resolutions to abolish customs duties on their mutual commerce. Nicaragua, Honduras and Costa Rica were invited to participate.

Education.—The government's literacy campaign in 1946 provided 500 adult centres with 10,000 teachers to augment the regular school system, and termination of suffrage rights for illiterates was set for March 1947. In 1943 there were a total of 2,784 schools with a combined enrolment of 152,274 students.

Finance.—The monetary unit is the quetzal, maintained at par with the U.S. dollar. The approved budget for 1946-47 estimated expenditures at 28,125,000 quetzales, ordinary revenues at 26,500,000 quetzales, and the treasury surplus at 1,625,000 quetzales, including U.S. war bonds. The new Bank of Guatemala and a monetary board were inaugurated in July to combat inflation. On Aug. 31, 1946, currency in circulation amounted to 28,315,381 quetzales; coin, 2,646,731 quetzales; and gold reserves, 28,470,792 quetzales.

Trade and Resources.—Exports for 1945 amounted to 30,435,837 quetzales (23,856,753 quetzales in 1944) and imports were valued at 23,348,833 quetzales (20,702,604 quetzales in 1944). During the first eight months of 1946, exports were estimated at 28,000,000 quetzales and imports, 18,700,000 quetzales. The United States took 91% of the exports in 1945 and supplied 67% of the imports. The leading shipments were coffee (984,321 sacks of 60 kg.), bananas (7,852,709 stems), chicle (4,091,162 lb.), mahogany (2,767,000 bd.ft.), ordinary timber, mostly pine (4,158,000 bd.ft.), and hard fibres (2,258 short tons). Banana shipments in 1946 were reduced by strikes and by wind damage to crops causing a loss estimated at 4,481,000 stems. Sugar production for 1946 was estimated at 50,000,000 lb.

Communications.—Railways amounted to approximately 600 mi. of public road and 280 mi. of private. In 1944 highway mileage was est. at 4,045 mi., of which 1,851 mi. was national and 2,194 was departmental. There were 4,228 automobiles registered in 1945. Internal and external air service was expanded during 1946, and government contracts were let for 5,000 new telephones. (See also BRITISH HONDURAS.)

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Guerrero, José Gustavo (1876–), Salvador jurist and diplomatist, was born June 26 in San Salvador. Dr. Guerrero, who received a degree of doctor of laws, was educated at San Salvador and Guatemala universities. He entered government service in the early 1900s, was deputy governor of San Salvador, 1900-01, and minister plenipotentiary to Italy, France and Spain, 1912-14. From 1914 to 1923 he was minister plenipotentiary to Italy and Spain. A member of the council of the League of Nations in 1927, he was president of the council two years later (1929). He was also minister plenipotentiary to the Holy See, 1928-30. He attended many international conferences, was vice-president of the Permanent Court of International Justice at The Hague (1931-36) and was president (1937-39). He was elected by the U.N. General assembly and Security council as one of the justices of the new U.N.-sponsored international court of justice, Feb. 6, 1946, and was elected president of the body on April 6. Justice Guerrero assumed his new post, April 18, at The Hague.

Guggenheim Memorial Foundation: see SOCIETIES AND ASSOCIATIONS.

Guiana, British: see BRITISH GUIANA.

Guiana, Dutch: see SURINAM.

Guiana, French: see FRENCH COLONIAL EMPIRE.

Guinea: see FRENCH COLONIAL EMPIRE; PORTUGUESE COLONIAL EMPIRE; SPANISH COLONIAL EMPIRE.

Guinea, New: see NEW GUINEA.

Gustavus V (1858–), king of Sweden, of whom a biographical account will be found in the *Encyclopædia Britannica*, ascended the throne in 1907, and long before 1946 had attained the rank of Europe's oldest living monarch.

At the age of 88 King Gustav continued to set an example of vigour for his people. Despite a brief illness in the spring of 1946 and an auto accident on a hunting trip, he was again hunting in November and took occasion to decry golf as an old man's game. He had completed almost 40 years as king in an era of manifold difficulties, and he had been directly instrumental in maintaining the neutrality of Sweden in both World War I and World War II.

The king's grandson, Prince Carl Johan, married a commoner, Mrs. Kerstin Wijkmark, on Feb. 20 in New York; the king removed him from the succession to the throne, and the prince became simply Carl J. Bernadotte. (F. D. S.)

Gymnastics. Frank Cumiskey, 33-year-old postal clerk from Union City, N.J., retained his all-around championship in the A.A.U. gymnastic tournament of 1946. Scoring firsts on the side horse and horizontal bar, Cumiskey scored 300 points out of a possible 330. As a result of Cumiskey's dominance, the Swiss Gymnastic society of Union City dethroned Penn State as team champion. The Swiss society scored 49 points to 41 for Penn State and 21 for the Chicago Sokol. Paul E. Fina of the Chicago Sokol was second in the all-around event with 287.9 points.

Clara Schroth of the Philadelphia Turners repeated as women's champion, but not without a struggle from Helen Schifano of the Elizabeth, N.J., Turners. Miss Schroth scored first in the flying rings, balance beam, parallel bars and free calisthenics to amass 250.1 points to 247 for Miss Schifano. Other women's champions to retain their titles were two 16-year-olds—Margaret Dutcher of Ridgewood, N.J., in clubs and Leonora Owens of Philadelphia in tumbling. (M. P. W.)

Gynaecology and Obstetrics. The most unusual recent finding in either obstetrics or gynaecology was that an attack of rubella (German measles) early in pregnancy will result in congenital deafness or eye defects including blindness, or both, in the infant in more than 50% of all instances. Congenital cardiac disease is another complication. The confirmation of the original announcements on this subject by N. McAllister Gregg and D. G. Carruthers was completed by a large group of additional observers and investigators. If a pregnant woman develops rubella during the first two months of pregnancy, approximately 90% of the infants will have such serious congenital defects that therapeutic abortion is advised.

Streptomycin was not generally available for public use until near the end of 1946. It has high and selective bactericidal effects, is given by intravenous or intramuscular injection, but was shown by Chester S. Keefer to have definite though limited value in the treatment of urinary tract infections during pregnancy or at other times. Intensive treatment for a short period yields the best results. M. Finland and his colleagues cited

cases showing a rapid development of extreme resistance to streptomycin given in inadequate dosage. Others found that such resistance may be dangerously persistent.

H. W. Johnson, in discussing the management of marginal and partial placenta praevia—the afterbirth at the opening of the uterus—in multiparas, made a statement regarding the conservative management of these conditions considered by many as an innovation. He expressed his opposition to the use of bags, version and scalp traction, stating that he had not seen maternal deaths where nature was allowed to take its course as regards labour and delivery. His ultraconservative recommendations were not refuted even by those who strongly advocated Caesarean section for almost all types of placenta praevia.

A routine Rh test of the blood of pregnant women became an established procedure in the better clinics. Once done the record is always available. The husband's blood is studied if that of the pregnant wife is found to be negative. Where an incompatibility was discovered, it was customary to determine by titer at stipulated intervals after the seventh month of pregnancy whether there is an increase in agglutinins as an indication of onset and progress of erythroblastosis in the unborn infant. As the result of such warning, elective Caesarean section may be found advisable at a date shortly prior to term and preparations can and should be made for suitable blood donors to be in readiness for transfusion of the infant as indicated promptly after birth.

A few new facts emerged and were being emphasized:

(1) Infants with erythroblastosis foetalis, although their blood is Rh positive, should be transfused with Rh negative blood because their blood may contain anti-Rh agglutinins.

(2) Even though an erythroblastotic infant's mother is Rh negative, her blood should not be used because it also contains anti-Rh agglutinins.

(3) Group O—Rh negative blood from donors who have not had erythroblastotic infants or who have never been recipients of Rh positive transfusions is used for transfusing these infants.

Sterility studies were an established and substantial part of gynaecologic practice particularly in 1946 in the United States, Canada and Great Britain, as well as many South American countries. Upon a definite routine of careful and complete study of both the husband and the wife, the average rate of pregnancies occurring in previously sterile couples classified as "relative" rather than "absolute" or pathologic sterility, continued to be about 40%. E. Viergiver and W. T. Pommerenke confirmed previous writings on the subject of how the viscosity of cervical mucus varies and the cervical "plug" becomes more permeable midway during the menstrual cycle at which time ovulation presumably occurs.

Investigations were carried on but were still unpublished concerning the effect of hyaluronidase in increasing the penetration power of spermatozoa. It had been hoped from preliminary studies by Raphael Kurzrok and others that the addition of this crystalline substance, derived from the spermatic fluid of bulls, would be of benefit in instances of sterility apparently due to male faults such as lowered total numbers or lowered motility of sperms. Kurzrok in a preliminary study was successful in obtaining pregnancies by artificial insemination in an encouraging, though still small, number of cases. The group conducting sterility studies at Saint Margaret Memorial hospital, Pittsburgh, Pa., using hyaluronidase added to spermatic fluid for artificial insemination where female faults were not more than minor factors, in a series of cases, failed to find any favourable effects, no pregnancies having resulted. Theoretically, the procedure should be of value, but in practice was still doubtful.

Several new, absorbable, haemostatic agents developed for general surgical use were found of high value in the special field of gynaecology. These are fibrin-foam (a by-product of serum albumen), oxidized cellulose (cellulosic acid) and gelatin

sponge. These haemostatic agents are applied directly to raw, oozing surfaces within the pelvis and the abdomen closed in the usual way with the assurance that they will presently absorb. The principle of their action is that they aid in the formation of and give structural support to clots.

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Gypsum. The decline in the demand for building materials after the peak of war construction is reflected in the basic data of the gypsum industry in the United States shown in the following table.

Data of Gypsum Industry in the U.S., 1939-45

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945
Mine output	3,227	3,699	4,789	4,698	3,878	3,761	3,812
Imports	1,308	1,405	1,348	394	231	342	509
Supply	4,535	5,104	6,136	5,092	4,109	4,104	4,320
Sales	4,092	4,632	5,760	4,953	4,186	3,838	3,987
Crude	868	929	1,321	1,458	1,234	1,056	1,148
Industrial	110	123	152	145	164	200	158
Building	3,114	3,580	4,287	3,360	2,788	2,582	2,681

The expected postwar upturn in building activity was not manifest in the gypsum industry during 1945. Production rose to 3,811,723 tons, only 1% over 1944, but imports rose 49% to 508,762 tons, giving a 5% increase in supply. Conditions improved somewhat in the first half of 1946; production of gypsum board, the largest item in building use, increased 38% over the same period of 1945.

In Canada, the world's third largest producer, the postwar recovery began to show in 1944 with an output of 596,164 short tons, against 446,848 tons in 1943, and continued with 822,380 tons in 1945 and 499,150 tons in the first half of 1946. Normally the United States takes the bulk of the Canadian output, and as is shown above, United States imports increased in 1944 and 1945. Great Britain is the second largest producer, with 1,532,117 short tons in 1943, and 1,482,041 tons in 1944.

(G. A. Ro.)

Haakon VII (1872-), king of Norway, of whom a biographical account will be found in *Encyclopædia Britannica*, was born Prince Charles of Denmark, second son of Frederick VIII (and brother of Christian X). Upon the separation of Norway from Sweden he was elected king by the Norwegian storting (Nov. 18, 1905), and took the old Norse name of Haakon, and that of Olav for his son, the crown prince. Haakon married Maud (1869-1938), youngest daughter of King Edward VII of England.

King Haakon held himself in the background during 1946, but he was a hard-working monarch, carefully studying men and conditions in postwar Norway. He was the central figure in Norwegian unity in peace as he had been in the strained years of war and exile.

No extraordinary event marked his reign in 1946, which is perhaps the highest praise for both king and citizens. (See also NORWAY.) (F. D. S.)

Hackworth, Green Haywood (1883-), U.S. lawyer and jurist, was born on Jan. 23 in Prestonburg, Ky. He studied at Valparaiso university, Valparaiso, Ind., the Georgetown university law school and George Washington university, Washington, D.C. He was attorney for the state department (1916-18) and solicitor (1918-25); he served on the special mission that drafted the U.S.-Turkish treaty at Lausanne in 1923 and was on the mission that negotiated the U.S.-Spanish commerce treaty in Madrid. He was appointed legal adviser to the state department July 1, 1931, and became U.S. member to the Permanent Court of Arbitration at The Hague, March 9, 1937. During World War II Hackworth attended many important international conferences and was a member of the U.S. delegations at the Moscow conference (1943), the Dumbarton Oaks parley (1944), the Inter-American Conference on Problems of War and Peace at Mexico City (1945), the United Nations conference in San Francisco (1945) and the U.N. sessions in London (Jan.-Feb. 1946). He was elected to the post of justice of the U.N. International Court of Justice on Feb. 6, 1946, for a six-year term.

Hackzell, Anders Werner Antti (1881-1946), Finnish diplomat, was born in Mikkeli. Early in his career as a lawyer, he represented Finnish businessmen and patriots in Russian courts. After his country achieved independence, he became Finnish envoy to Moscow (1922-27) and served as foreign minister (1932-36). When Field Marshal Carl Gustav Mannerheim, who took over the presidency of Finland on Aug. 1, 1944, selected a "peace cabinet" of soviet experts, he appointed Hackzell to the post of prime minister on Aug. 8, replacing Edwin Linkomies. Finland, then preparing for an armistice with the soviet, was in the process of breaking its alliance with Germany to which Linkomies had been committed. Prime Minister Hackzell was faced with the task of severing Finland's nazi connections and establishing a satisfactory basis for an armistice with the soviets. While negotiating the terms in Moscow, as head of the peace delegation in Sept. 1944, he suffered an apoplectic attack, from which he was left paralyzed. He died in Helsinki on Jan. 15.

Haiti. A West Indian republic occupying the western third of the island of Hispaniola or Haiti. Estimated area 10,695 sq.mi.; pop. (1944 est.) 3,000,000. Racial distribution is estimated at 95% Negro and almost all of the remainder mulatto. The capital is Port-au-Prince (pop. est., 125,000); other cities are Gonaïves (20,000), Les Cayes (15,000), Cap Haïtien (15,000), Jacmel (10,000), St. Marc (10,000) and Jeremie (8,000); only about 10% of the total population is urban. French is the official language, but a patois called creole is widely spoken. The official religion is Roman Catholicism but many persons in remote areas practice the folk religion of voodoo. Presidents in 1946: Élie Lescot, to Jan. 11; military junta headed by Maj. Frank Lavaud, Jan. 11-Aug. 16; Dumarsais Estime, following Aug. 16.

History.—Relatively calm political conditions were rudely interrupted in Jan. 1946 by a successful revolution. Disturbances began in Port-au-Prince early in the month and, in consequence, Pres. Lescot reorganized his cabinet on Jan. 10. An army coup d'état occurred the following day, however. Its quick success resulted in the immediate resignation of Lescot (he was exiled to Miami, Fla., Jan. 14) and the elevation of its leader, Maj. Frank Lavaud, to the provisional headship of the government. The army junta at once promised free elections for a constituent and legislative assembly, restoration of complete civil liberty and other democratic measures. Almost 1,000 candidates contested the 58 seats in the elections held May 12; the Demo-

cratic party, representing the mulatto ruling class, captured 56 of the 58 seats in the assembly. The body met first as a constituent assembly to elect a new president and draft a new constitution. On Aug. 16 the assembly chose Dumarsais Estime, aged 46, a member of the Democratic party and a former minister of education, as president. The new constitution, not completed by the end of 1946, reputedly included severe restrictions on foreign ownership of property and participation in business. The new regime conceded to labour the right to organize, but developments in the latter part of the year led some foreign observers to conclude that the mulatto minority would continue to dominate Haitian affairs.

Education.—Educational statistics are of very doubtful accuracy. The latest figures in 1946 indicated about 850 primary schools with some 85,000 enrolled, 35 intermediate schools with almost 6,000 enrolled and 6 schools of higher education (not organized as a university). Illiteracy was estimated at 92% of those more than 10 years of age.

Finance.—The monetary unit is the gourde, fixed by law at 20 cents U.S. Revenues for the fiscal year ending Sept. 30, 1946, totalled 44,557,227 gourdes (1944-45: 41,980,043). The unobligated treasury surplus on Sept. 30, 1946, amounted to 7,075,834 gourdes as against 6,832,894 gourdes one year earlier. Gross public debt Sept. 30, 1946, totalled 49,488,437 gourdes as against 52,936,369 gourdes one year earlier. The Haitian and United States governments concluded an agreement May 27 to modify the executive agreement of Sept. 13, 1941, regarding amortization of United States loans made in 1922-23. The 1941 agreement had provided for annual payments of \$700,000; the new agreement pledged payments of \$400,000 for the first six months of the fiscal year with the remaining \$300,000 to be paid in equal installments in May, June and July if the revenue outlook were for at least 35,000,000 gourdes. Total U.S. Export-Import Bank commitments to Haiti June 30, 1946, were \$8,100,000, all listed as the amount outstanding.

Trade and Communication.—The favourable balance of trade at the close of the fiscal year, Sept. 30, 1946, was 34,509,000 gourdes, the highest from 1918-19. U.S. exports to Haiti in the calendar year 1945 were \$9,400,000 (1944: \$9,200,000); U.S. imports from Haiti were \$16,000,000 (1944: \$12,500,000); the United States accounted for 79.4% of all Haitian foreign trade in the fiscal year 1944-45. Highway mileage is approximately 1,800 and railway mileage 88.

Agriculture.—Estimates of production of various crops for 1945-46 were: cotton, 13,255 bales (of 478 lb. av. wt.); durra (millet), 225,000,000 lb.; corn, 120,000,000 lb.; rice, 41,600,000 lb.; sugar, 43,816 short tons. Agricultural prospects for 1947 were considered good late in 1946.

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Hammer Throw: see TRACK AND FIELD SPORTS.

Hand-ball. The year 1946 witnessed the first postwar tournament in national A.A.U. four-wall hand-ball competition. The annual classic was held at the Olympic club of San Francisco, Calif., with a number of sectional champions, many but recently out of military service, competing. The singles crown was won by Angelo Trulio of Brooklyn, N.Y., who displaced the nine-time titleholder, Joseph P. Platak. Trulio defeated Platak in the semifinals and went on to win the crown from Gus Lewis. An interesting feature was that Trulio had won the title once before in 1932. The doubles championship was retained by Frank Coyle and Edward Linz of the New York A. C., winners of this event on three previous occasions. There were no national tournaments in the one-wall competition

during 1946.

National Four-Wall Rankings for 1946

Singles	Doubles
1. Angelo Trulio, Brooklyn, N.Y.	1. Frank Coyle and Edward Linz, New York, N.Y.
2. G. Lewis, Buffalo, N.Y.	2. Walter Plekan and G. Lewis, Buffalo, N.Y.
3. Walter Plekan, Buffalo, N.Y.	3. W. Keays and B. Maguire, San Francisco, Calif.

(Fr. Ro.)

Hannegan, Robert Emmet (1903-), U.S. politician and cabinet member, was born June 30 in St. Louis, Mo. He took his law degree at St. Louis university, 1925. He started his political career in 1933 as a democratic committeeman of a St. Louis ward. By the end of that year, he had become chairman of the city central committee and was becoming an important figure in the Democratic political machine.

In May 1942, Hannegan was appointed by President Roosevelt to the post of collector of internal revenue of the eastern district of Missouri. In Oct. 1943, he was appointed commissioner of internal revenue in Washington, D.C. He was named chairman of the National Democratic committee on Jan. 22, 1944. On May 2, 1945, President Truman announced the appointment of Hannegan as postmaster general of the U.S. and he took office June 30.

Disturbing signs of disunity in Democratic ranks led him to warn (March 21, 1946) that congressmen who failed to follow the party line might cause the party's defeat in the November elections. In November, after the G.O.P. had won control of both houses of congress, Hannegan temporarily relinquished his duties as party chairman to take a two-month rest because of illness.

Hansson, Per Albin (1885-1946), Swedish statesman, was born on Oct. 28 in the province of Scania, Sweden. His formal education was brief, consisting of but four classes in a public school, and until 1905 he worked as an errand boy and grocery clerk. When he was 24 years of age, he was editor of the newspaper, *Fram*, and a delegate to the junior branch of the Social-Democratic party. In 1914, he joined the editorial staff of the official party paper, the *Social-Demokraten*, and by 1917, he was managing editor. Elected in 1918 to the second chamber of the Swedish riksdag on the Social Democratic ticket, he became minister of defense. Despite his strong anti-militarist convictions, he continued to serve in this dual capacity, with only brief interludes, until 1926. In 1932, he was elected prime minister and continued throughout World War II in this post. With the start of that conflict, he directed all of his efforts toward maintaining the neutrality of Sweden. On Dec. 13, 1939, a coalition cabinet was formed under his leadership. By May 1940, he declared that Sweden would not sanction use of its territory by belligerents.

However, in June 1941, the government acceded to a German demand for passage across Sweden of a division of soldiers from Norway to Finland. To those who criticized the government's policy, he replied: "The foremost task of the government is still to keep Sweden out of the war and to safeguard her freedom and independence." As the war progressed he demanded absolute preparation for defense against aggression and on Jan. 18, 1943, stated emphatically that Sweden, if attacked, would fight.

Two months after the end of the European conflict (July 1945), the premier and his cabinet resigned and a new Social Democratic government was formed with Hansson still its leader and prime minister. He died at Stockholm on Oct. 5.

Harbours: see RIVERS AND HARBOURS.

Harriman, William Averell (1891—), U.S. diplomat and government official, was born on Nov. 15, the son of E. H. Harriman, railroad magnate. After graduating from Yale university in 1913, he entered railroading, eventually becoming chairman of the Illinois Central and the Union Pacific railroads as well as a partner in Brown Brothers, Harriman and Co. He entered government service in the early days of the New Deal, serving as National Recovery administration administrator, member of the business advisory council of the department of commerce and director of the raw materials division of the Office of Production Management. In March 1941 he was sent to Great Britain as lend-lease administrator with the rank of minister and in August of that year he headed the U.S. delegation of a joint U.S.-British mission to Moscow. On Oct. 1, 1943, Pres. Roosevelt named him ambassador to the U.S.S.R. and Harriman attended the tripartite conferences there the following month. He later attended the Yalta and Potsdam conferences and also the Big Three parley in Moscow in December 1945. Harriman resigned his post as ambassador to Moscow, Feb. 14, 1946, and the following month (March 23) succeeded John G. Winant as U.S. ambassador to Great Britain. On Sept. 22, however, he was appointed secretary of commerce, succeeding Henry A. Wallace in that post. The following day Harriman declared that he endorsed the Truman-Byrnes foreign policy and expressed his belief that the commerce department should remain out of foreign politics.

Hart, William S. (1872–1946), U.S. actor, was born on Dec. 6 in Newburgh, N.Y. Dissatisfied with his humdrum existence as a postal clerk in New York city, he haunted the theatrical casting offices and finally made his way behind the footlights in small roles. In the 1890s he established a reputation as an actor of force and polish and soon became one of Broadway's leading Shakespearean interpreters. He also had starring roles in melodrama. Like other Shakespearean actors—notably William Farnum and John Barrymore—who left the footlights for the screen, Hart went to Hollywood in 1914, and there he made a sensational success in western pictures. However, the scope for acting in the early "horse-operas" was limited and Hart soon became typed as the tall, stern hero, whose face only relaxed in a smile during the final fadeout when he clasped the heroine in his arms. Some of his better known films were *The Toll Gate*, *Square Deal Sanderson*, *Wagon Tracks*, *Sand*, *White Oak*, *Tumbleweeds* and *Singer Jim McKee*. During the height of his success, Hart had his own studio where he produced his western action films. He later turned to writing, producing several juvenile books and an autobiography, *My Life East and West* (1929). Many of his old films were turned over to the film library in the Museum of Modern Art. He died in Los Angeles on June 23.

Harvard University. Founded in 1636, Harvard university is the oldest institution of higher education in the United States. Gifts during the academic year 1945-46 totalled \$6,235,887.

In 1946, all departments of the university continued to operate on a 12-month, 3-semester schedule, with two regular 16-week terms and an optional intensified 12-week summer term. This system made it possible for a student to be graduated by Harvard in three years instead of the normal four. All departments of the university had special arrangements for war veterans.

During the year the university was straining all its old resources and developing new ones to accommodate veterans and young men fresh from secondary schools as well as returning

upperclassmen newly out of uniform. The opening of the fall term on Sept. 23, 1946, found the university enrolling an all-time record total of more than 12,000 students. This total continued to grow through the term. New dormitories, new living quarters for married veterans, new laboratories and vastly augmented equipment were still in process of installation. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

Hauptmann, Gerhart (1862–1946), German author, was born on Nov. 15 in Obersalzbrunn, Silesia. For his early career, see *Encyclopædia Britannica*. One of Germany's greatest dramatists and literary figures of the 20th century, Herr Hauptmann achieved fame in 1892 with his celebrated play, *The Weavers*. In 1912, he was awarded the Nobel prize for literature. Although it was not believed that Hauptmann endorsed the nazi regime, he did not publicly condemn its excesses and accepted honours from the Hitler government. His 75th birthday was celebrated by the State theatre in 1937–38 with productions of six of his plays, including such later works as *The Daughter of the Cathedral* and *The Golden Harp*. After the close of World War II, he accepted an invitation of the soviet military government to move to Berlin. He died at his home in Agnetendorf, Silesia, on June 8.

Hawaii. The territory of Hawaii consists of a group of 8 larger islands and numerous islets in the Pacific ocean between latitudes 18° 55' and 22° 15' N. and between 154° 50' and 160° 30' W. longitude. The total land area is 6,441 sq.mi. The islands are of volcanic origin. From southeast to northwest they are Hawaii, Kahoolawe, Maui, Lanai, Molokai, Oahu, Kauai, Niihau. In addition stretching northwestward beyond Niihau more than 1,100 mi. is an archipelago of rocks, reefs and shoals including Midway (longitude 177° 22' W.) which, although part of the archipelago, is not politically a part of the territory. The capital of the territory is Honolulu, on the island of Oahu. It is a completely modern city. Its 1940 census population of 179,326, exclusive of military and naval personnel, was estimated to have increased to 261,033 on June 30, 1945. The civilian population of the territory in 1940 was 423,330. The 1946 estimate was 519,503. The proportion of noncitizens in the population, which in 1940 was only 19.5%,

DAMAGED PIERS and small boats near Honolulu, Hawaii, after tidal waves hit the area on April 1, 1946



was still further reduced by death and migration.

History.—Ingram M. Stainback, appointed by the president, entered on his second term as governor on Aug. 24, 1946. Joseph R. Farrington was re-elected territorial delegate to the congress in 1946. General fund revenue receipts of the territorial government for the year ended June 30, 1946, amounted to \$28,065,240.72, of which \$26,684,913.35 was derived from taxes and \$1,380,327.37 from rent, interest and earnings. Government cost payments for the same fiscal year totalled \$23,060,168.64. As of June 30, 1946, the territorial government had a general fund current surplus of \$11,687,496.61. Outstanding bonds of the territory totalled \$14,737,000, as compared with \$26,278,000 on June 30, 1945. Bills were introduced in the congress many times to enable the people of Hawaii to become a state. In a plebiscite in 1940 there was a favourable vote of approximately 2 to 1 for statehood. The record of the territory during World War II, when its residents played a steadfast and vital part in assuring the defense of the U.S., gave a marked impetus to the movement. Further encouragement was given when, in Jan. 1946, a committee of the congress, after holding detailed hearings in Hawaii, recommended that immediate consideration be given to the statehood legislation.

Agriculture.—Hawaii's chief crops and the bases of its industry were sugar and pineapples. Sugar production totalled 821,216 tons in 1945 compared with 951,411 tons in 1940. Canned pineapple produced in 1945 amounted to 10,030,836 cases, and canned pineapple juice to 7,891,793 cases.

(E. G. A.)

Hay. The U.S. production of hay of all kinds in 1946 estimated by the U.S. department of agriculture was 100,860,000 tons compared with 108,559,000 tons harvested in 1945 and a 10-year average of 91,306,000 tons 1935-44. This 1946 crop was the smallest in five years but was exceeded only twice prior to 1942, indicating the unusually favourable weather that favoured crop production during World War II. The yields were lower than in 1945 of both wild hay and alfalfa in most states. The total acreage changed little, being 74,352,000 ac. in 1946 and 77,017,000 ac. in 1945 compared with an average of 70,431,000 ac. in 1935-44. A slight increase in clover and timothy offset a decline in alfalfa.

The total crop included 31,817,000 tons of alfalfa, 34,330,000 tons of mixed clover and timothy and 11,530,000 tons of wild hay. Small quantities of various other crops made up the remainder. Alfalfa made up about one-third of the total and continued to be grown in about the same acreage as in prewar years. The leading alfalfa-producing state was California with more than 4,623,000 tons, Minnesota 1,917,000 tons and Nebraska 1,786,000 tons. Of clover-timothy New York led with 4,676,000 tons, Wisconsin 4,383,000 tons, Iowa 3,454,000 tons.

The big production of wild hay was in South Dakota 2,024,000 tons, North Dakota 1,978,000 tons and Nebraska 1,836,000 tons. Increasing quantities of lespedeza, sweet clover and soybean hays were being produced and stored in mow and silo.

The carry-over of about 16,000,000 tons of old hay on May 1, 1946, together with the new crop of 96,000,000 tons, provided a supply of 1½ tons per hay-consuming animal. This supply was only slightly lower than in 1945 and one-tenth of a ton more than the prewar average.

Hayseed.—The weather was favourable for seed production in 1946 and the harvest was large for most varieties. Alfalfa seed turned out 1,658,400 bu., about 9% more than the previous record in 1939 and 40% more than 1945. The yield was about the average of 1.55 bu. per acre but the acreage harvested was 40% more than the average. Red clover seed harvested was almost equal to the record of 1929, 2,112,800 bu. compared

with the average of 1,314,420 bu. The yield was .82 bu. per acre on 2,584,000 ac., the largest area ever harvested. Alsike production was estimated at 390,200 bu., 11% more than 1945 and 28% more than average. This increase was because of a yield of 2.62 bu. per acre compared with 2.29 bu. in 1945 and 2.23 bu. average. Sweet clover seed turned a better yield and the crop was 616,000 bu. compared with 883,550 bu. Lespedeza seed production was 213,900,000 lb. compared with 187,000,000 lb. in 1945 and an average of 143,169,000 lb. Both acreage and yields were higher since this crop was expanding steadily. The timothy seed crop was 1,398,000 bu. compared with an average of 1,783,130 bu., 1935-44. Redtop seed was estimated at 16,100,000 lb. in 1946, near the average of 16,380,000 lb. Sudan grass seed was 21% below the crop of 1945 at only 23,000,000 lb. compared with an average of 57,514,000 lb., 1935-44. The acreage harvested was only 58,000 ac. compared with an average of 158,000 ac. The demand for seeds was strong throughout the year, large amounts going for European relief at prices well above the average. (See also ALFALFA; SOYBEANS.)

(J. C. Ms.)

Health, Industrial: see INDUSTRIAL HEALTH.

Hearing Aids: see DEAFNESS.

Heart and Heart Diseases. Two occurrences in particular marked the advances in the cardiovascular field in 1946. The first was the Second Inter-American Cardiological congress held in Mexico City in October. Prof. I. Chavez presided and, for the first time following the conclusion of World War II, invited guests were able to come from across the water. These guests from Europe who addressed the congress included Prof. Charles Laubry, Gaston Giraud and M. D. Routier of France, Prof. Ivan Mahaim and P. Duchosal of Switzerland, Prof. Jean Lequime of Belgium, Prof. Herman A. Snellen of the Netherlands, Prof. Erik Warburg of Denmark, Prof. G. Nylin of Sweden, Prof. Joseph Brumlik of Czechoslovakia and Prof. Vittorio Puddu of Italy. Many recent advances were discussed at this congress, some word of which will be presented below. An international council was organized to arrange for international co-operation in the study and treatment of heart disease and for the initiation of an International Cardiological congress at some time in the future. This committee consisted of Laubry of France, John Parkinson of England, Nylin of Sweden, N. D. Staschesko of the U.S.S.R., A. C. Taquini of Argentina, Jonathon C. Meakins of Canada, Chavez of Mexico, A. Hurtado of Peru, Paul D. White of the United States and some German-speaking cardiologist not then selected.

The second event was the resumption throughout much of the world of peacetime researches in the diagnosis and treatment of heart diseases. World War II, although it stimulated medical and surgical work along certain lines, was in general the cause of great retardation of advances in the cardiovascular field. With the release of many young medical investigators from medical service and of some of the older physicians from the overload of war duties, much new progress was expected.

New methods of study of the circulation were introduced. Two interesting developments in electrocardiography concerned the taking of endocardial electrocardiograms by way of cardiac catheterization. A. Battro of Argentina, for example, among others, obtained a large series of such cases and made thereof a report at the meeting in Mexico City. Duchosal of Switzerland ingeniously devised models of cardioelectrography which, if they could be obtained in a practical manner, might eventually prove to give patterns that are more distinctive than those obtained by other methods of electrocardiography. In a study of the veloc-

ity of the circulation there was a further development of the use of fluorescent materials and there was also an introduction of radioactively labelled erythrocytes with detection of their course in the circulation by Geiger counters. One of the most interesting developments concerned the use of catheterization of the heart for determination of pulmonary and right heart chamber blood pressure. The normal range was found to be about what had been anticipated before actual measurements were made; for example, right auricular pressure of -2 to $+2$ mm. Hg., and right ventricular systolic pressure averaging 25 mm. Hg. Under certain conditions, in particular mitral stenosis, left heart failure and congenital defects, this right heart pressure is greatly raised. Blood pressure curves in the pulmonary artery, right ventricle and right auricle were being recorded with the help of the Hamilton manometer.

Further developments also took place in the vascular surgery concerned with congenital defects and more experience was gained in the operations already introduced, in particular those of ligation of the patent ductus arteriosus, plastic surgery on the coarcted aorta and arterial anastomosis for pulmonary stenosis, in particular the tetralogy of Fallot. A new technique of anastomosing the pulmonary artery and aorta in the last-named condition was introduced by W. G. Potts, S. Smith and S. Gibson. Up to Jan. 1947 no surgery to correct intracardiac defects had been clinically introduced.

Intensive studies of hypertension and its treatment were also initiated. Trial of such drugs as tetraethylammonium bromide (or chloride) which has a specific effect on the sympathetic nerve ganglia with a marked reduction of blood pressure for some hours after administration was suggested as a means of testing the suitability of patients for sympathectomy in serious hypertension. The applicability of this therapy in the treatment itself is unsuitable because of its side effects. The reversibility of hypertension and hypertensive heart disease was clearly shown in many patients by symptoms, signs, X-ray study and electrocardiogram following specific treatment of hypertension, especially by lumbodorsal sympathectomy and also by the rice diet.

Coronary heart disease was under intensive study, particularly from the standpoint of its etiology. Young coronary heart cases of 40 years of age and younger were analyzed from the standpoint of the cholesterol content of the fasting blood and the basal metabolic rate. In the majority of young cases the fasting blood cholesterol was much too high and the basal metabolic rate low in level, approaching or even exceeding -20% . The prophylactic use of thyroid therapy in these young cases was initiated. A related study in these young coronary heart patients is that of an analysis of body build by the help of anthropometry. It was the general impression, which, however, needed confirmation or the reverse, that most of the early cases occur in the more masculine males.

Pulmonary embolism as a hazard in medical patients was clearly demonstrated and its treatment discussed. At the Massachusetts General hospital a study over a period of ten years of the incidence of pulmonary embolism in the medical and surgical wards showed more than twice the incidence in the medical patients as in the surgical patients postoperatively. The majority of the medical patients were cardiac cases who had been at rest or were invalids. The use of bilateral leg vein ligation and of anticoagulants was advocated and in both instances with definite benefit. The former is a more permanent protection. Either method of treatment may be lifesaving if carried out soon enough.

Finally, in the prevention and treatment of important cardiac arrhythmias, quinidine sulphate continued to be used freely and beneficially. A difficulty arose during World War II in the

United States because of the lack of supply of this drug. As a result, synthetic quinidine (developed from quinine) and dihydroquinidine were tested out to see if they would serve the purpose of the commercial quinidine. It was found that these two preparations were effective but that quinine, on the other hand, was much less satisfactory. Fagarine, a new drug being tested in Argentina, was suggested as a possible substitute for quinidine, but up to Jan. 1947 it had not been proved as effective or safe.

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Helicopter: see AVIATION, CIVIL.

Helium. Although no official report was made revealing the progress in helium output in the United States during World War II, it was generally known to have increased several fold, through the addition of new plants and the enlargement of the single prewar plant. The latest official statistics available at the close of 1946 placed the output at 9,500,000 cu.ft. in the fiscal year 1939-40, 16,173,000, cu.ft. in 1940-41, and 15,721,000 cu.ft. in the second half of 1941, and while no later figures were given, a report stated that postwar output could supply for industrial and scientific use, over and above government requirements, monthly amounts up to 10,000,000 cu.ft. The chief war uses were for the inflation of blimps for submarine patrol work, the inflation of weather observation balloons, and the provision of an inert atmosphere for the arc welding of magnesium. (G. A. Ro.)

Hemp. The war boom in hemp-growing for fibre ended with the 1944 crop when 72,600 ac. was grown in five states. In 1946 only 4,600 ac. were planted for fibre, all in Wisconsin, and a yield of about 975 lb. of fibre per ac. was expected in December. Only 400 ac. were planted for hempseed, all in Kentucky, returning a crop of 212,000 lb. The growth of the crop was under the control of War Hemp Industries, Inc., a government agency. At the maximum period of development there were 42 processing plants in operation. Domestic hemp production could not compete with the imported product because of the low price of the latter. In prewar years most of the United States supply came from Italy. Imports averaged around 700 tons before World War II but increased to 1,195 tons in 1941 and 2,144 tons in 1942. World War II cut off imports which began to increase in 1946. (J. C. Ms.)

Herriot, Edouard (1872—), French politician, was born July 5 at Troyes in Champagne. See *Encyclopædia Britannica* for his early career. The elections of May 1932, marked by a swing to the left, brought Herriot back into power as premier and foreign minister for the third time. While he opposed Germany's claim to armament equality, he did agree at the Lausanne conference, June 1932, to reduce Ger-

man reparations. Herriot insisted that France should pay its war debt instalment to the U.S. at the appointed time, but the chamber of deputies balked and his government was overthrown on Dec. 14, 1932. Herriot was vice-premier in the Doumergue cabinet (1934) and the Flandin government (1936), and in June 1936 he was elected president of the chamber of deputies.

He remained in France after the German occupation in June 1940 but was arrested in 1942 for protesting against Henri Pétain's dissolution of the permanent bureaux of both houses of parliament. He was liberated by soviet troops from a German prison camp in April 1945 and returned to France. He testified at the trial of Pétain (July 30, 1945) and accused the aged marshal of having staged a coup d'état in 1940 when he abolished the third republic. Herriot resumed leadership of the Radical Socialists and was elected to the national assembly Oct. 21, 1945. He was re-elected in the national balloting on June 2 and Nov. 10, 1946, and was named to the French academy on Dec. 15. The following month he was elected president of the national assembly of the fourth republic (Jan. 21, 1947).

Hertz, Joseph Herman (1872–1946), British rabbi, was born on Sept. 25 in Rebrény, Hungary, and was educated in the United States. In 1913 Dr. Hertz became chief rabbi of the United Hebrew Congregations of the British empire and thereafter took a leading role in Zionist affairs, associating himself with numerous organizations working for the advancement of British Jewry. He was made a Companion of Honour in 1943. Dr. Hertz died in London on Jan. 14. (See *Encyclopædia Britannica*.)

Hess, Rudolf Walther (1894–), German politician, christened Richard Rudolf, was born on April 26 at Alexandria, Egypt. He studied in Switzerland and at Godesberg, Germany, and met Adolf Hitler while serving in the German army during World War I. He participated in the Munich beer hall putsch on Nov. 9, 1923, was imprisoned with Hitler in the Landberg fortress and in 1925 became Hitler's personal secretary. After the nazis took power, he was appointed (April 21, 1933) as personal deputy of the fuhrer, and on Dec. 1 of that year he was named reich minister without portfolio. Hess gave vigorous support to Hitler's policy of rearmament.

On May 10, 1941, Hess made a spectacular and "unauthorized" flight from Germany to Scotland, to bring peace proposals to the British. The British held him incommunicado throughout the war. At the time nazi authorities tried to explain his flight on grounds that he was suffering from "hallucinations and a mental disease." Subsequently it was revealed at the Nuernberg trial that Hitler knew of Hess' peace proposals but had no knowledge of his intended flight.

Hess allegedly was suffering from a mental ailment in 1945 when the international military tribunal opened the trials of war criminals at Nuernberg, and he created a sensation on Nov. 30 when he declared that he was in full possession of his senses and that he had been feigning amnesia. The court, in its final verdict, said that there was not sufficient evidence to establish Hess' guilt on charges of committing war crimes and crimes against humanity. However, it did find him guilty of conspiracy to commit acts named in all three counts and of crimes against the peace and he was sentenced to life imprisonment, Oct. 1, 1946.

Highways: see ROADS AND HIGHWAYS.

Hillman, Sidney (1887–1946), U.S. labour leader, was born at Zagare, Russia (then in Lithuania) on March 23, the son of a merchant. He became active in

Russian revolutionary movements and, hounded by tsarist police, he fled to England. He then emigrated to the United States (1907) where he worked first as a clerk and later as a garment cutter. He became a labour organizer, and in 1915, the first president of the Amalgamated Clothing Workers of America, a position which he held until his death. After a period of bitter struggle, the organization won almost universal adoption of a 44-hour work week in the clothing industry, substantial wage increases and establishment of management-employee relations on a stable basis. By the time of Hillman's death, the union's membership had increased to about 350,000. In 1933, President F. D. Roosevelt named Hillman as a member of the NRA's Labor Advisory board, and in 1935 he was appointed a member of the National Industrial Recovery board. (Subsequently, he was named as one of the vice-presidents of the Congress of Industrial Organizations). He became a key figure in U.S. defense activity in 1941 when Roosevelt made him associate director general of the Office of Production Management and director of its labour division. In that capacity, he played an important part in preventing and settling strikes on defense projects. In July 1942, he resigned his post as special assistant to the president on labour matters to resume active guidance of the A.C.W.A. The following year, he became chairman of the C.I.O.'s Political Action committee, which, it was conceded, had effectively mobilized enough labour and liberal votes to elect Roosevelt to his fourth term in 1944. In 1945, Hillman attended the World Trade Union conference in London, where he urged (Feb. 13) prompt creation of a new permanent World Labour organization to speak for labour in the peace settlement. He was elected, Oct. 6, 1945, as one of the vice-presidents of the new World Federation of Trade Unions. Hillman headed a W.F.T.U. commission that went to Germany in early 1946 to study labour conditions; the body reported on Feb. 27 that the occupation authorities of all four zones still maintained nazis in responsible administrative positions. He died at Point Lookout, L.I., N.Y., on July 10.

Hirohito (1901–), emperor of Japan, was born April 29, the son of Emperor Yoshihito. For his early career, see *Encyclopædia Britannica*. On Pearl Harbor day, Dec. 7, 1941, he proclaimed the nation at war with the United States and the British empire. During the early part of World War II, when Japan was amassing victories, the emperor remained in semi-seclusion. Toward the end of the war, however, he admitted in an imperial rescript that the situation was "truly grave." After the Potsdam declarations, the atomic bombings and Russia's entry into the war, the Japanese indicated they were willing to end the conflict provided the emperor retained his prerogatives. President Truman answered (Aug. 11, 1945) that Hirohito would be permitted to retain his throne for the time being, subject to the authority of the supreme Allied commander. Thus Hirohito on Aug. 15 (Tokyo time), 1945, broadcast to his subjects that he had ordered acceptance of the "provisions of the joint declaration" of the Allied powers. He later blamed Hideki Tojo, former premier, for "misusing" his war rescript, and pledged that any social reforms in Japan would be made by constitutional means. In a rescript issued Jan. 1, 1946, the emperor declared to be false the "conception that the emperor is divine and that the Japanese people are superior to other races and fated to rule the world."

In keeping with his new character as a "mortal," the emperor made several tours among his people in 1946 and during a visit to war-damaged areas in Yokohama on Feb. 19, he stopped and talked with women workers in industrial plants; subsequently the soviet authorities were said to have complained that Hirohito's freedom to travel permitted him to build up sentiment

favouring the monarchy. On Nov. 3 the emperor read an imperial rescript before the diet officially promulgating the new constitution which outlawed war as an instrument of national policy and reduced the throne to the status of a national symbol.

Hispanic America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH COLONIAL EMPIRE; GUATEMALA; HONDURAS; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

Hispaniola: *see* DOMINICAN REPUBLIC; HAITI; WEST INDIES.

Hockey: *see* ICE HOCKEY.

Hogs. The decline in hog production in the United States, begun in 1945 after the high record year of 1944, was checked in 1946. On Jan. 1, 1946, the number on farms was estimated by the United States department of agriculture at 62,344,000 head compared with 59,759,000 head a year earlier and the record number of 83,852,000 head of 1944. The annual pig crops likewise declined from the record of 121,706,000 pigs raised in 1943 to 81,424,000 head in 1946. The spring pig crop of 1946 was slightly above 1945 at 52,324,000 head while the fall crop was only about 30,000,000 head. The total pig crop was considered inadequate and the United States department of agriculture set the goal for the spring of 1947 at 58,000,000 head or about 11% above the 52,324,000 head produced in 1946, or about equal to the average for 1941-45. Large supplies of corn and other feeds were available and the 1946 spring pigs were fed out to heavy weights.

The slaughter of hogs in July-August was 36% above the same period a year earlier but then dropped to a low record when price control was restored in September and early October. Receipts at the markets were extremely responsive to the price changes. Hog prices were above both 1945 and the average for 1935-44 at \$14.30 through 1946 to July when the price control lapsed and the top of \$23 per 100 pounds was reached for October and an average of \$22.70 for December, compared with \$14 average for the whole year 1945.

Support prices on hogs were to be mandatory through 1948. A new schedule was announced by the government on Oct. 4, 1946, ranging, for different grades, from \$15 per 100 pounds on Oct. 1 to \$13 on Dec. 29. With the removal of all price ceilings on Oct. 15, 1946, prices again advanced, only to decline later when consumer demand slackened. Lard continued scarce.

Pork consumption at 69 lb. per capita continued higher in 1946 than in 1945 but below 1943-44. Lard consumption was only 11.3 lb. per capita in 1946 compared with 12 lb. in 1945. With the reduced purchases for relief and military forces the supply for civilians was increasing at the end of the year and appeared to equal the strong demand from heavy consumer employment. (*See also* MEAT.) (J. C. Ms.)

HOLC (Home Owners' Loan Corporation): *see* HOUSING.

Holland: *see* NETHERLANDS.

Home Building, Federal: *see* HOUSING.

Home Economics. The American Home Economics association membership reached 16,637 in 1946. The national president reported that in 1946 the association gave leadership in the formulation of the permanent school lunch legislation and saw it come through to enactment; strengthened its support for legislation of particular interest to consumers; helped build a youth organization, the Future Homemakers of America, as a part of home economics programs in secondary schools; strengthened the 336 college home

economics clubs with memberships that reached 18,000 during the year; developed an apprentice training plan to include nursery schools, extension service teaching and home economics in business.

The association held 15 province "work shops" which were attended by about 700 students and faculty advisers from 150 of its college clubs.

The largest single project of the association in 1946 was the "Consumer Speaks" project with which 30 states co-operated on four projects dealing with house dresses, fruit, meat and household equipment.

U.S. Office of Education.—The enrolments in homemaking education federally reimbursed in 1946 showed a total enrolment of 912,941. Of these, 527,355 were recorded in all-day schools and 385,586 were recorded in part-time and evening schools.

Approximately two-thirds of the public high schools offered home economics courses, and approximately 66% of the girls and 5% of the boys in these schools were reached with home economics instruction.

During the school year 1945-46 conferences and classes in homemaking education for adults emphasized helping families with postwar problems in child development, family relationships and housing and money management in light of rising prices. Emphasis was also given in many schools to the problems of families in other lands, to the cultural contributions different forms of family life make to the world and to sharing material goods with peoples in other countries. Home, school and community projects carried on or participated in by high school home economics pupils stressed co-operation among family members and among school or community groups, particularly in improving living conditions with the materials available.

U.S. Bureau of Human Nutrition and Home Economics.—The outstanding accomplishments of 1946 included: An appraisal of the nutrition value of national food supply; devising an objective method for deriving family food budgets from customary food patterns in accord with a selected set of nutritional specifications; making a study of how foods supplement each other in nutritive value; continuing research on nutritive value of the aminoacid content of protein-rich foods of both plant and animal origin; developing further a study of dried eggs by adding powdered egg shell to increase calcium content of dried eggs; gathering information of importance to the development of the school lunch program; completing canning studies on 12 commonly canned low acid vegetables, two meats and one kind of poultry, which marked a long step forward in improving the canning process; developing considerable work on freezing and packaging foods at home for freezer storage in addition to developing useful information on handling food in home freezers when freezer service is temporarily interrupted.

Considerable work was done in 1946 on the following studies: miscellaneous clothing purchases which are a key to clothing buying-patterns of farm and urban men; durability of construction in cotton garments; home tailoring of women's garments and clothing conservation; quality of fabrics on retail market; knitted cotton fabrics; protective finishes for cotton fabrics.

Use of these research findings of the bureau of human nutrition and home economics was made in 1946 as follows: On popular requests, the bureau distributed 4,951,349 copies of its popular and technical bulletins. This included 29 printed and processed publications, 20 technical articles for professional journals, 159 popular articles and fact sheets for press and radio use; 31 radio scripts and broadcasts. In addition an educational motion picture, *Freezing Fruits and Vegetables*, was filmed.

The home economics extension service helped more than 2,225,000 families with preservation of home-raised food; helped about 17,000 schools to establish or maintain school lunch programs; made 2,000,000 and more contacts with families on clothing problems through classes or radio programs; helped 162,000 families and communities use electricity to better advantage; assisted more than 250,000 families in improving family relations; gave help to 201,779 families in child development and guidance; assisted 451,280 families with home recreation and gave considerable help with an expanding health program; gave assistance to 1,600,000 young people between 10 and 20 years of age who carried on one or more projects through 4-H clubs and to the 400,000 4-H club members who worked on home safety.

Experiment Station Research.—A survey of home economics research in land grant college institutions in reports both published and unpublished indicates that research on nutritive value of foods, human nutrition and home economics offered rich fields for investigation in 1946. There was considerable development and improvement in methodology. (See also DIETETICS; FOOD RESEARCH.)

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Home Loan Bank, Federal: see HOUSING.

Home Owners' Loan Corporation: see HOUSING.

Homma, Masaharu (1888?-1946), Japanese army officer, was an observer with the British forces in France during World War I. He served as Japanese resident officer in India, 1925, and as military attaché in London, 1930, and was decorated with the Military cross of the British empire. In 1939 he commanded Japanese forces at Tientsin, China, when the Japanese army blockaded the foreign concessions there. In Dec. 1941, a few days after the attack on Pearl Harbor, Homma, then a lieutenant general, led the Japanese invasion of the Philippines. Although it had been commonly supposed that Homma had been superseded by Gen. Tomoyuki Yamashita after the campaign had bogged down at Bataan and Corregidor, subsequent evidence suggested that Homma held the supreme command throughout the campaign.

He surrendered to U.S. army forces in Tokyo after the close of the war and in Dec. 1945 was brought to trial. He was formally charged with having been responsible for the "Death March on Bataan," which occurred shortly after the Japanese conquest and in which an estimated 17,200 Filipinos and U.S. soldiers were killed. The trial opened in Manila, Jan. 3, 1946, with a military commission presiding. Convicted, Feb. 11, for ordering the death march and for condoning other atrocities, he was sentenced to be shot. Homma's appeal to the United States supreme court was rejected. The general was executed by a firing squad at Los Banos, Luzon, on April 3.

Honduras. A republic of Central America bounded by Guatemala, El Salvador and Nicaragua. Area: 59,145 sq.mi. with 14,870 sq.mi. in dispute. Pop. (1945 official est.) 1,201,310, including approximately 35,000 tribal Indians. The capital is Tegucigalpa with a pop. (1945) of 55,715; other principal cities are San Pedro Sula (22,116) and La Ceiba (12,185); smaller urban centres are Puerto Cortés (about 8,000), Choluteca (5,000), Santa Rosa (6,000) and Tela (9,000). Religion: Roman Catholic; language: Spanish. President in 1946: General Tiburcio Carías Andino.

History.—The year 1946 was peaceful except for demonstrations by Democratic Action groups which were rigorously suppressed. Gen. Carías completed his 13th year as president without serious challenge, but early in the year he was reported to have promised to step down from power in 1947 and allow a free election of his successor with ample guarantees for the opposition. Dr. Octavio Williams, the vice-president, and Dr. Juan Manuel Gálvez, former cabinet member, announced their candidacies early and were seeking the support of Gen. Carías. A large measure of freedom of speech, assembly and press were allowed during the early months, after wartime state-of-siege restrictions were lifted late in 1945, but a wave of popular criticism of the Carías régime resulted in new suppression measures in July and August. Police raids broke up student mass meetings and closed newspaper offices in Tegucigalpa and other cities.

Food scarcities and black market operations as well as political suppression were noticeable during the year. Honduras did not participate in the movement for Central American reunion which was launched by the Salvadorean government.

Education.—There were 1,083 primary schools in 1944 with 53,956 students and 1,803 teachers; 21 intermediate schools had 2,787 students; and the national university had 367 students. Less than 25% of the school-age children were enrolled during 1944, and approximately 82% of the population was illiterate, but a nation-wide effort to reduce this figure was under way with each literate citizen under obligation to teach at least five persons to read and write each year.

Finance.—The monetary unit is the lempira, valued at 49.02 cents U.S. on Nov. 15, 1946, but U.S. coins account for almost half of the money in circulation. The budget for 1944-45 provided for expenditures of 11,384,521 lempiras. On June 30, 1946, \$800,000 was outstanding and \$1,700,000 remained undischarged of the total U.S. Export-Import bank credits authorized for Honduras.

Trade and Resource.—Exports during 1944-45 were valued at \$12,133,070, up 28% over the previous fiscal year, while imports (up 8%) amounted to \$13,247,486. The United States purchased 83% of the exports and supplied 66.5% of the imports. Bananas (12,906,716 stems) comprised 53% of the exports; silver (3,055,197 troy oz.), 11%; gold (21,746 troy oz.), 6%; coconuts (13,799,114 units), 6%; livestock (43,930 head), 5%; coffee (2,724,508 kg.), 4%; tobacco (1,597,992 kg.), 3%; cigars (91,558,000 units), 1%; and lumber, mostly mahogany and pine (1,667,103 bd.ft.), 1%. A new saw mill with a capaci-

ty of 6,000,000 bd.ft. a year was established on the south coast in 1946. The 1946 abacá crop was estimated at 5,800,000 lb. (2,520,375 lb. in 1945). Coffee was expected to fall 40% short of the 1945 production.

Communications.—The railways (about 900 mi.) were confined to the banana area of the north; highways (about 740 mi., 450 mi. surfaced) connected most of the chief cities; but airways (serving some 40 municipalities daily) remained the most effective means of internal communication. The government operated 2,321 mi. of telephone and 4,140 mi. of telegraph lines in 1944; fruit and mining companies operated 1,624 mi. of telegraph.

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Honduras, British: see BRITISH HONDURAS.

Honey: see BEEKEEPING.

Hong Kong: see BRITISH EMPIRE.

Hoover, Herbert Clark (1874–), U.S. statesman and 31st president of the United States (1929–33), was born Aug. 10 in West Branch, Ia. For his earlier career see *Encyclopædia Britannica*.

In March 1946 Hoover accepted Pres. Harry S. Truman's offer to investigate food conditions in Europe. As honorary chairman of the president's National Famine Emergency committee he toured the greater part of Europe and the far east. On his return to the United States he reported (May 13) that the world grain shortage of 3,600,000 tons could be eased by better co-operation from Britain and the soviet union plus more vigorous conservation in countries with grain surpluses. Shortly afterward Hoover departed for South America as U.S. "food ambassador" to enlist the help of the Latin American republics in staving off the world food shortage.

While in Lima, Peru, he made a denial of charges (June 4, 1946) appearing in South American Communist newspapers that he was playing politics with food; and on June 15 he said that Communists the world over were "trying to break down the provision of food for hungry people and thus produce chaos."

Hopkins, Harry Lloyd (1890–1946), U.S. politician, was born on Aug. 17 in Sioux City, Ia. He was graduated from Grinnell college (Iowa) in 1912 and then went to New York, where he engaged in social service work. He was called to Albany in 1931 by Gov. Franklin D. Roosevelt to take the post of executive director of the New York state temporary relief organization. When Roosevelt became president, he again called on Hopkins to come to Washington in 1933, to take over the post of federal emergency relief administrator. Hopkins thereafter organized and directed the Civil Works administration, the Federal Surplus Relief corporation and the Works Progress administration. In the next five years, during which Hopkins expended some \$10,000,000,000 for relief, he was the target of both praise and criticism.

By 1938 he had become a close adviser and personal friend of President Roosevelt, and the latter named him secretary of commerce in that year. Two years later ill health forced Hopkins to resign. In Jan. 1941, however, he went to London as the president's personal envoy. On March 27 of that year he was named lend-lease co-ordinator and journeyed to both London and Moscow to confer with high government officials on the lend-lease program. He was chairman of the Anglo-American Munitions Assignments board (1943) and attended the principal war conferences at Washington, Casablanca, Quebec, Cairo, Tehran and Yalta. He also was named to a special committee

to study manpower problems.

After the death of Roosevelt in April 1945, Hopkins remained to advise and assist Pres. Harry S. Truman. His last diplomatic mission was to Moscow, where (May–June 1945) he laid the plans for the Potsdam conference of the Big Three. His influence with Premier Joseph Stalin later smoothed over a snag at the San Francisco conference, where the United Nations were deadlocked over the issue of freedom of discussion in the Security council. Hopkins resigned as adviser to Pres. Truman on July 3, 1945, because of his failing health. He died in New York city on Jan. 29. (See also *Encyclopædia Britannica*.)

Hops. The 1946 hop crop in the United States was 53,171,000 lb. compared with 56,772,000 lb. in 1945 and a 10-year average of 39,631,000 lb., 1935–44. The yield was 1,306 lb. per acre which was above the 10-year average of 1,168 lb. but below the 1,395 lb. yield in 1945. Yields were reduced by September rains in Oregon and Washington, while California yields were

U.S. Hop Production by States, 1946, 1945 and 10-Year Average
(In pounds)

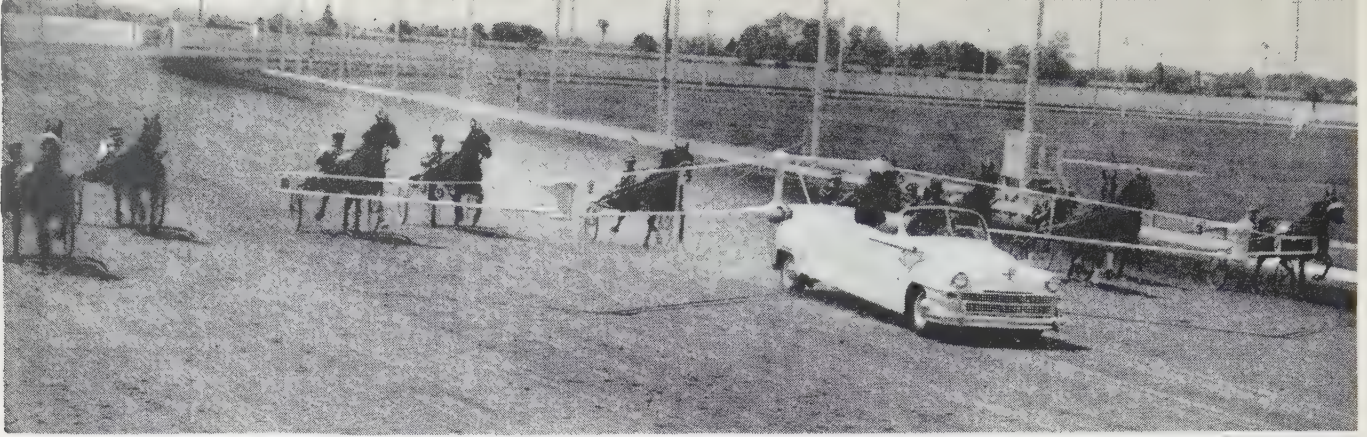
State	1946	1945	Average 1935–44
Washington	19,720,000	21,996,000	11,499,000
Oregon	18,800,000	20,398,000	17,719,000
California	14,651,000	14,378,000	10,413,000

about up to 1945. The season average price in 1945 was 70 cents per pound which was almost twice the parity price of 41 cents. Through 1946 prices rose steadily to an average of 90 cents for the year. (J. C. Ms.)

Hormones: see ENDOCRINOLOGY.

Horse Racing. Horse racing in North America, and especially in the United States, in 1945 had reflected the abnormal and disturbing conditions under which it was carried on, yet despite these it attained an altogether unexpected volume of success. In 1946, with these drawbacks for the most part removed, it registered gains far in excess of what might legitimately have been expected and registered new "highs" that were again surprising. The removal of wartime restrictions had, of course, much to do with this, but even with their being discounted, the official returns were sufficiently amazing.

There was \$32,300,000 distributed to the money-winners in 19,587 races run at "recognized" meetings held in the U.S., Canada and Spanish North America, between Jan. 1 and Dec. 31, 1945. In 1946 this rose to \$49,289,144 which was paid out to the money-winners in 23,941 races. The total attendance at these meetings rose from 17,227,548 to 26,834,218, during the same period. The total amount of money wagered in the totalizers rose from \$1,421,951,753 to \$1,794,386,668. Thus the daily average attendance rose to 11,177 persons and the daily average amount bet by them to \$747,350. The largest amount of money distributed in stakes and purses by any association was \$2,482,888, by the Los Angeles Turf club, of Santa Anita park, Arcadia, Calif. The largest daily distribution was \$52,070.57, by the Westchester Racing association, Belmont park, Long Island. About 19 different associations distributed more than \$1,000,000 each. The largest number of days' racing given at any one point was 103, at Pascoag, R.I., over a half-mile track. This, one of numerous similar so-called "merry-go-rounds" which such places provide for the use of taxation-revenue raising for state purposes, turned more than \$1,000,000 into the state treasury. (A "merry-go-round" is a meeting at which the horses racing and the contests are of the lowest possible grade.) Hence, it is not at all surprising that taken en bloc the 20 different states in which racing was held under legal provision received the sum of almost \$1,800,000,000.



STARTING GATE for harness races being demonstrated by inventor Steve Phillips at Westbury, N.Y., in 1946. Speed is increased gradually to get horses in gait and position. When they reach the starting point the wings are folded and the car leaves the track

In 1946 the King Ranch's three-year-old colt Assault, by earning \$424,195, placed to his credit the largest sum ever amassed by a race horse in a single season, the previous record having been \$308,275 by Gallant Fox in 1930. Besides this, the leading winning sire of 1946, Mahmoud (imported), was credited with a grand total of \$680,900 captured by his get, the previous leader having been War Admiral, whose get won \$591,352 in 1945. In this direction it is significant of the trend of the times to state that whereas War Admiral's credit was the first in history, at home or abroad, showing earnings of \$500,000 or more by the get of any single sire, in 1946 no less than seven different horses passed that "line of demarcation." Assault, aside from being voted the "Horse of the Year" was also voted the champion three-year-old; Col. C. V. Whitney's filly First Flight, the best two-year-old; Calumet Farm's Armed, the best handicap horse and W. L. Brann's Gallorette, the best all-aged mare. The honours as steeplechaser went to K. Miller's Elkridge. The leading money-winning stable was that of Calumet Farm, with a credit of 71 races and \$564,095. The leading money-winning trainer was H. Jacobs, with 99 races and \$560,077, but the leading race-winning trainer was W. Molter, with 122. Ted Atkinson led the jockeys both in points of races (233) and money (\$1,036,825). Such audits as these had the natural consequence of raising race horse values to new highs, for with single events being worth as much as \$100,000 to the winner, prices naturally kept pace. "The pulse of the market" is always gauged by the average selling price for yearlings at public sale. This rose from \$5,146.37 for 986 head in 1945 to \$5,983.42 for 1,265 head in 1946. The top price for a single colt, \$65,000, had, however, been excelled in previous seasons; but a unique record of its kind was set when in the late fall Mrs. Elizabeth N. Graham paid \$50,000 for a weanling colt by War Admiral—Baby League, by Bubbling Over, own brother of Busher, the "Horse of the Year" in 1945. A notable development of the season was the rush to import horses from foreign lands for both breeding and racing purposes with some very large prices being paid.

While the season did not proceed so sensationally with harness racing as with thoroughbred, it followed similar lines and was similarly successful. For the first time in history the Grand Circuit invaded California where a long spring meeting was

given at Santa Anita, the program including two \$50,000 events, won respectively by Kaola (trotting) and Blue Again (pacing), but as usual the richest event of the year was the Hambletonian stake for three-year-olds, worth \$57,485.57 and won by Chester-town, owned by Mr. and Mrs. Walter E. Smith. The strength of the trotting market was shown by the price of \$50,000 paid by an Italian buyer for the young stallion Dr. Spencer (1:59 $\frac{1}{4}$), the seller being E. J. Baker; and the same sum was paid for the two-year-old Hoot Mon (2:03 $\frac{1}{2}$), the season's leading stake-winner of his age. (J. L. HE.)

Great Britain.—In 1946 a return was made to a more normal racing program; more courses were opened, and the Derby and St. Leger were once again run on their own courses. Stake money showed a very substantial increase over the meagre prizes of the war years, the value of the Ascot gold cup alone having risen from £1,455 in the previous season to £7,200.

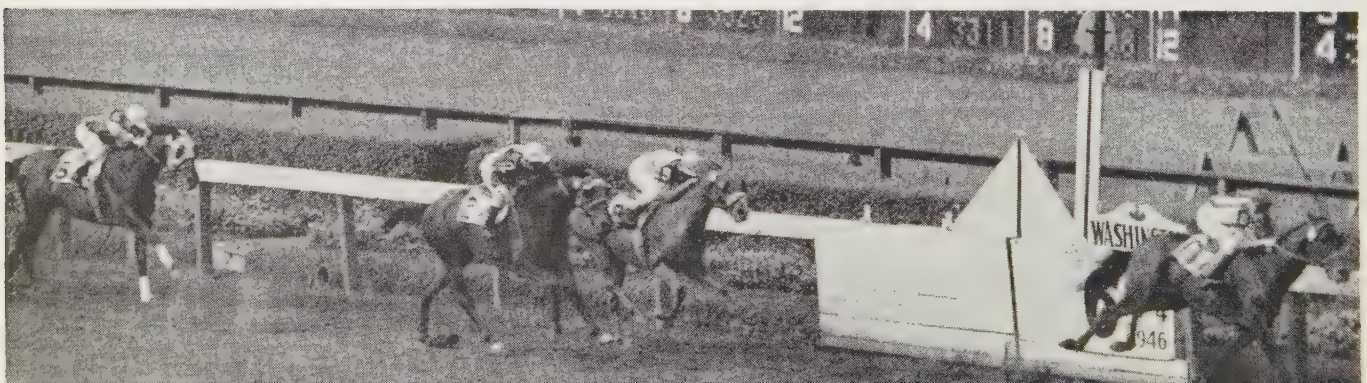
Unexpected results occurred in the races for the Two Thousand Guineas and Derby. At the close of the 1945 season among the six most promising two-year-olds were five colts by Hyperion: Gulf Stream, Aldis Lamp, Edward Tudor, Radiotherapy and Khaled. But the winner of the Two Thousand Guineas was Happy Knight, a Colombo colt who had run only once before. Airborne, a gray by Precipitation, won both the Derby and St. Leger. Khaled, however finished second in the Two Thousand Guineas, as did Gulf Stream in the Derby; Radiotherapy was third in each of these races.

The One Thousand Guineas was won by King George's Hypericum, a daughter of Hyperion. Steady Aim won the Oaks for Sir Alfred Butt.

A wartime diet, coupled with the restricted paddock room necessitated by the ploughing-up program, left its inevitable mark upon the homebred runners, with the result that horses which came over from France met with an unprecedented run of success, particularly in the long-distance races. Thus, Marsyas II won the Queen Alexandra stakes at Ascot, the Goodwood and Doncaster cups, White Rose stakes, and Lowther stakes; Caracalla II won the Ascot gold cup; Priam II the Hardwicke stakes at Ascot; Ardan the Coronation cup at Epsom; Sovereign the very valuable King George VI stakes, a new race, more than 2 mi., in which he beat Airborne; Felix II the Jockey club cup; and finally the three-year-old Sayani defeated 33 others by a head in the Cambridgeshire, under 9st.-4lb., the highest weight ever carried to victory in this race.

The Middle Park stakes, the "Two-year-old Derby," was won by Princess Aly Khan's Saravan. Monsieur l'Amiral, the winner of the Cesarewitch, was also French-bred, though in English ownership. Amongst the best of the homebred stayers (apart from Airborne) were Reynard Volant, winner of both the Ascot and Goodwood stakes, Voluntary, Trimbush and Wily; these four, as well as the French horse Marsyas II were descendants of Son-in-Law. The Bug, a three-year-old by Signal Light, proved the best sprinter, winning all his five races. Of the younger horses, Tudor Minstrel remained unbeaten throughout the season, but he did not meet either Petition or Ranjit, his two most formidable rivals,

ETERNAL REWARD winning the \$102,250 American Derby at Washington park, Chicago, Ill., on Aug. 24, 1946. At 102-1 odds, he scored one of the great upsets in turf history



both of whom won four of their five races.

Gordon Richards was champion jockey in the 1946 season for the 19th time. H. Wragg, retiring after a long and distinguished career, rode for the last time in the Manchester November handicap and won on Las Vegas. (F. M. Pr.)

Horses. The decline in the number of horses and colts continued through 1946 at about the same rate as in earlier years. The steady increase in tractor power continued to force the horse off farms and out of cities. On Jan. 1, 1946, there were estimated to be 8,259,000 horses on farms compared with 8,841,000 in 1945 and 10,935,000 in 1939. The war emergency did not check but rather accelerated it since the loss from 1945 to 1946 was about twice that from 1939 to 1940. The release of 50,000,000 ac. from the production of feed for work animals which occurred previous to 1939 was increased by 5,000,000 ac. in 1940-45.

An outlet for the surplus horses developed in the relief shipments to Europe by the United Nations Relief and Rehabilitation administration. More than 150,000 mares were requisitioned for shipment to Europe and were expected to be shipped before the work was completed. Exports of horses on private accounts were 14,000 head in 1945 and 54,000 in the year ending June 30, 1946.

The value of horses per head continued to decline through 1946 notwithstanding the demand for export and slaughter. The Dec. 1945 average price was \$56.70 per head, in Oct. 1946 \$56.50 and in Dec. 1946 \$55.50. This was in contrast to the sharp rise in prices of all other farm animals. In 1918 horses and mules made up 26% of the animal units on farms but in 1946 less than 18%.

The slaughter of horses for meat continued at a high level—77,887 head in 1945 and about 65,000 head in 1946. Most of the meat for human consumption was exported by U.N.R.R.A. to Europe. The bulk of horsemeat produced in the United States was made into dog and other pet animal feeds. Retail shops for the sale of horsemeat were opened in New York during the period of severe meat shortage.

Mules.—The number of mules declined less rapidly than horses and on Jan. 1, 1946, there were estimated to be 3,196,000 head on farms compared with 3,405,000 a year earlier and 4,250,000 head in 1939. More than half of the mule population was in the southeastern states—Texas, Georgia and the Carolinas. Mississippi maintained its mule population, the Carolinas lost less than 3% and Texas 13% during 1945. The value of mules held firm and even advanced through 1946. The average value was estimated at \$96.10 per head in Dec. 1945, \$106.00 in Oct. 1946 and \$105.00 in Dec. 1946.

The mules were valued most highly in the Carolinas where the average on Jan. 1, 1946, was \$229 in North Carolina and \$217 in South Carolina compared with an average of less than \$100 for the northern states from New York westward to the mountain states. The army's uses for mules practically disappeared and the chief support of the market was the demand for export to eastern Europe where the mule was still a preferred farm power animal. Exports of mules by U.N.R.R.A. and other agencies were more than 4,500 in 1945 and 60,000 in 1946. (See also SHOWS.) (J. C. Ms.)

Horse Shows: see SHOWS.

Horticulture. European countries began readjusting their horticultural activities with the help of the United Nations Relief and Rehabilitation administration (U.N.R.R.A.) but met many obstacles. The Netherlands exported a large number of spring bulbs to the United States but shipping conditions caused a large proportion to reach their destination late, with corresponding losses. Visitors to the Nether-



THE RED HYBRID TEA ROSE RUBAIYAT which was the only rose to receive an All-America Rose award in 1946; the award committee designated it the All-America Rose Selection for 1947

lands reported a total lack of shade trees along the streets and roads, all having been cut down for fuel.

Denmark began growing orchids and other plants on a large scale, stock having been saved by using heat from peat fires.

Central European countries were worse off because of a lack of fertilizers, lack of manpower and attacks by grasshoppers. Locust pests appeared in Italy, Greece and other countries in unprecedented numbers, but the use of a new insecticide called gamm-exane promised better control in the future.

South America also had heavy losses from locusts. Argentina imported 4,000 lb. of DDT for distribution in infested areas.

The U.S.S.R. continued to develop citrus plantings and began experimenting with the Kazanlyk rose; which yields attar of roses. The U.S.S.R. also began planting a protective fence of trees and shrubs for about 1,000 mi.

Yugoslavia had smaller crop yields than were expected and potatoes intended for seed were used as food. U.N.R.R.A. distributed great quantities of vegetable seeds in Europe and in China, where 3,435,000 U.N.R.R.A. seed packages were delivered. People in China were found eating straw, weeds and the bark of trees.

In England conditions were somewhat improved but there was a great lack of fertilizer and insecticides. The country continued to grow and eat greatly increased quantities of potatoes, with the per capita consumption up 95%. Home-grown potatoes took the place of imported potatoes and other food formerly imported.

In the United States, the Oregon section had an increased apple crop, but in the east the yield of McIntosh apples was greatly reduced by a widespread blight. Similar losses were sustained by tomato growers from the worst blight in history, which ruined both commercial and amateur crops, greatly reducing the number of tomatoes available for canning.

Much anxiety was created by the spread of the Dutch elm disease in the eastern states and a disease known as *Phloem necrosis*, deadly to elm trees, in the Ohio river valley. The

use of DDT in fog-producing sprays gave promise against the Dutch elm disease by destroying the carriers. Dusting forest lands by plane went far toward controlling gypsy moths in the eastern states.

Maine grew more potatoes than found a market and many were lost through freezing, but the government subsidized them. Oregon and Washington had very large crops of potatoes and also of cranberries. Massachusetts' output of cranberries was very large and sold at high prices.

The grape-producing area in New York and northeast Pennsylvania was expanded 25% by the planting of 18,000,000 grape cuttings.

Shipping strikes delayed receipts of rotenone from Peru, which had become almost the only source for that commodity and which exports about 8,000,000 lb. annually. Cryolite stocks were low.

Seed production, especially on the west coast, was somewhat below the average. European countries began again to produce vegetable seeds, causing U.S. growers to expect a gradual falling off in demands from abroad. Bulb growers in the northwest apparently found no serious competition from European countries, in spite of increased imports.

Several important insecticides came onto the market and attracted wide attention, among them benzene hexachloride, which was offered as a certain means of controlling wireworms in the soil. Previously, there had been no adequate control for these pests, which sometimes ruin an entire field of potatoes and other root crops. A material known as DD, another new chemical, gave control of nematodes, which abound in the soil of some western and southern states, and in greenhouse soil. Experiments at Cornell university found fermate useful in the rose garden, especially in combination with sulphur, to give protection from blackspot and mildew. Sabadilla dust used experimentally was found the most effective remedy yet introduced for dealing with chinch bugs, which often ruin lawns. Also, it was found useful in controlling squash bugs. Rynania gave greater control of the European corn borer than any other remedy which had been introduced, but gave no results in combatting the corn earworm. Experiments showed that DDT and magnesium oxide in combination successfully protected stored seeds, especially beans, from attacks by weevils. DDT, used for the first time in many gardens, gave unusual protection from thrips on gladioli.

Weed killers under various trade names appeared in the market. 2,4-D, a synthetic hormone substance named 2,4-dichlorophenoxyacetic acid, caused certain weeds to grow so fast that they destroyed themselves. It was found successful in killing dandelions, plantain and chickweed in lawns.

The red, hybrid tea rose "Rubaiyat" was the only rose to be approved by the All-America Rose committee in 1946; it thus became the All-America rose selection for 1947.

The George Robert White medal of honour for 1946 was awarded by the Massachusetts Horticultural society to Dr. Elmer D. Merrill, retiring director of all of Harvard university's botanical and horticultural institutions. (See also BOTANY; VEGETABLES.) (E. I. F.)

Hospitalization Insurance: see INSURANCE.

Hospitals. Outstanding in the hospital world for 1946 were the final report of the Commission on Hospital Care and the passage of the Hospital Survey and Construction act by the 79th congress.

The Commission on Hospital Care was an independent commission headed by Dr. Thomas S. Gates, chairman of the University of Pennsylvania, assisted by representatives of pro-

fessional, industrial, public welfare, farm, labour and other consumer groups. This two-year study was financed by grants from three of the large foundations and carried out by a professional and technical staff under the direction of Dr. Arthur C. Bachmeyer, director, University of Chicago clinics.

The report finds a need for 195,000 additional general hospital beds and the replacement of 25% of the existing 503,000 existing general hospital beds due to obsolescence or other unsatisfactory conditions. It proposes larger, more comprehensive facilities and elimination of many small hospitals; outlines an integrated hospital system of complete medical centres in large communities, regional and district hospitals in intermediate areas, and smaller hospitals, medical and health centres in less populous and rural areas. It suggests methods for attracting physicians and skilled medical personnel to rural areas and for utilization of the services of specialists and consultants in these areas.

The Hospital Survey and Construction act (S. 191) was passed by the 79th congress and approved by the president on Aug. 13. The purpose of the act is to assist states (a) in surveying existing hospital facilities and potential needs and to develop programs for meeting such needs and (b) to construct public and other nonprofit hospitals in accordance with such programs and authorize the appropriation of \$3,000,000 for the purpose of making the above surveys. These funds were to be allotted to the several states on the basis of population but not to exceed 33⅓% of the total cost of such surveys. In order to become eligible for these funds, each state was to designate a state agency as the sole agency for carrying out the survey and devising the program.

Section 621 of the act authorized the appropriation of \$75,000,000 each year for five years to assist states in the construction of hospitals provided for in the approved state programs. It was provided that the funds should be allocated to the several states according to a formula based on the total population and average per capita income in such a manner that low-income states should receive larger per capita allotments than high-income states.

The provision of the act set the total number of beds provided in any state at not to exceed 4½ beds per 1,000 of population for general hospitals, 2½ beds for tuberculosis for each death from tuberculosis per year, 5 beds per 1,000 of population for mental patients, and 2 beds per 1,000 of population for chronic disease patients.

At the close of 1946, 41 states were in process of making the necessary surveys and formulating their state-wide programs, 5 had made preliminary surveys, and 2 were awaiting the meeting of their legislatures for enactment of the necessary enabling legislation.

Another development which promised to be of great importance in the financing of hospital operation was the adoption by the Veterans' administration of the principle of remunerating civilian hospitals for the care of veterans with acute service-connected disabilities on a so-called "reimbursable cost" basis. In view of the fact that the better service the hospital renders its patients, the more it costs the hospital, the formerly used flat rate system had a net effect of penalizing the hospital which gave the best care and rewarding the hospital which gave the poorest care. The entire formula for computing "reimbursable cost" had not been completed by the end of the year.

Hospitals continued to operate under overcrowded conditions due largely to lack of sufficient bed facilities but, in many cases, due to inability to secure sufficient nursing personnel to properly care for as many patients as might be accommodated in the physical facilities available. (See also VETERANS' ADMINISTRATION.)

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Hotels. With no substantial reconversion problems to meet, the hotel industry might have been expected to make rapid progress toward a return to normal operating conditions in the year 1946. Unfortunately for the travelling public this did not occur. Rather, hotels and their patrons were increasingly plagued with difficulties akin to those experienced by the greater industry which hotels serve—transportation.

The primary trouble was a demand for accommodations which exceeded capacity everywhere. Travel reached new peaks, in spite of the fact that automobiles had scarcely begun to return to the highways. Long lines of waiting guests, their luggage stacked, were daily observed at every registration desk from coast to coast. A situation completely beyond the control of management developed, and standards of hotel service deteriorated to a degree that even wartime years did not witness.

Continuing emergency regulations, high house counts and shortages of every kind of replacement material and equipment restricted hotel maintenance to a point below the minimum requirement for proper upkeep of the properties. Personnel was continually scarce. Understaffed departments were helpless to meet the excessive demand upon every type of hotel service. Morale of employees was affected. There was much complaint of discourtesy.

A black market in hotel rooms rapidly became a nationwide problem. For this the travelling public itself was largely at fault. Bribes, or tips as they were sometimes euphemistically termed, were offered to hotel clerks in large amounts. The temptation in many cases became too much to resist. In one particular instance two clerks on night duty were offered a total of \$250 within three hours. There were stories of managers who succumbed to venality. Auditors reported that rooms were being withheld for bribes, and often some were left unsold while guests clamoured vainly for their confirmed reservations.

Hotel management was equally troubled in the conduct of restaurants. Food scarcities and rationing limited menus and handicapped intelligent planning. By midsummer policy changes of the Office of Price Administration often reversed without apparent reason except political expediency, skyrocketed prices and increased difficulties on every hand. Patrons of restaurants suddenly clamoured for beef when none was available.

Cooking equipment for replacement of apparatus, obsolete or worn out by overuse, was unobtainable. It was impossible to procure new silverware or china. Linen became threadbare. Patterns no longer matched. Maitre d'hôtels turned in desperation to stainless steel, to any substitute. Imperative renewals to the extent of millions of dollars were of necessity deferred until 1947, even 1948.

Tipping in overcrowded restaurants grew out of all proportion. Waiters in popular night clubs earned more than their superiors. All of it was take-home pay, since it was not a common practice to report tips as income for tax purposes. Late in 1946 the internal revenue bureau launched a campaign to estimate annual tip income of service employees for taxation, but no method of computation had been agreed upon by the year's end.

For the first time recognition was given to the difference in earnings between tip and nontip employees, and allowance was made for this difference in wage adjustments. Hotels, completely unionized, found themselves faced with wage demands beyond their capacity to pay. There were hotel strikes in New York, Washington, Pittsburgh and Los Angeles. The ratio of pay roll



LAKE STEAMER "City of Grand Rapids," which accepted transient overnight guests during excursion cruises during the late summer of 1946 to relieve a critical shortage of hotel accommodations in Chicago

to receipts became a threat to the solvency of the industry. In a large Chicago hotel monthly pay checks totalled \$225,000 against monthly room rental revenues of \$200,000. For each dollar of hotel income as much as 50 cents went to the employees.

With mounting expenses and frozen ceiling charges only abnormally high room demand saved hotels from financial disaster. National accounting firms reported the unprecedented rate of 96% room usage for the 12 months, a figure impossible to maintain. The "break even" point of occupancy percentage rose from the old figure of 66% to 85%.

In spite of chaotic conditions the great hotel chains expanded. Hilton, Kirkeby, Sheraton and others acquired control of additional hotels. It was significant that these chains contented themselves with the acquisition of hotels already built. Even gossip about construction of new hotels subsided. Estimated cost of a modern hotel of the steel frame type rose to \$15,000 a room, completed. The Statler company announced that it would build a 1,400-room hotel in Los Angeles, but this plan was abandoned, at least temporarily, when it was discovered that a minimum room charge of \$8.80 per day would be necessary to yield even a moderate return upon the investment.

In the summer of 1946 a situation of utmost gravity to management and patronage alike developed. In June an early morning fire swept the Hotel LaSalle in Chicago, long considered to be of the highest type of so-called fireproof design. Sixty-one deaths resulted, with many more injured, and the hotel was so badly damaged that it was unable to open by the end of the year. A wave of hotel fires followed. In Dubuque, Ia., the Canfield hotel burned with 19 fatalities. Then in December the most disastrous conflagration in the history of hotel enterprise gutted the Wincoff in Atlanta, Ga. Fire regulations in that city did not require buildings to be equipped with fire es-

capas and more than half the residents of the hotel died or were injured in the catastrophe.

Hotel executives, who had relied, perhaps too complacently, upon the false assurance of the phrase "fireproof" were forced to revise their conception of fire safeguard. The immense increase in the use of cigarettes had more than doubled the fire hazard. Warnings were posted, urging greater care in the disposal of burning cigarettes since every lighted cigarette was a potential fuse. Realistic studies revealed that stair wells and elevator shafts became flues which permitted the rise of hot and poisonous gases, as well as flames, with unbelievable rapidity. A reappraisal of fire danger resulted, with enactment of new regulations in municipal and state codes.

Thoughtful managers went beyond these requirements. Doubled inspection, rapid disposal of combustibles, installation of safety equipment of every character, structural changes to enclose stair and other vertical openings, sprinkler systems, not demanded by law and other measures were taken to combat this increasing menace.

At the end of 1946 the beginning of a decline in travel as well as in patronage of night clubs and amusement restaurants became discernible. Lowest occupancies in the history of hotel operation in ten years were recorded in the Christmas period. Hotel proprietors and directors were once again faced with the problem of revising policies to meet decreasing receipts and rising operating costs.

(E. By.)

Housing. Housing continued to be a problem of the greatest urgency in 1946. Returning veterans demanded homes. A department of labour survey of 197 cities published in May 1946 showed that only 6 cities did not have an acute housing shortage. The materials output, hampered by reconversion problems and by strikes, could not satisfy all housing, industrial and commercial requirements.

Wilson W. Wyatt, expeditor and administrator of the National Housing agency, set a goal of 2,700,000 homes for the Veterans' Emergency Housing program for 1946 and 1947. For 1946, he set a goal of 1,200,000 homes started, of which 700,000 would be conventionally built homes, 250,000 permanent prefabricated and assembled on site from prefabricated parts, 250,000 temporaries (200,000 would be war-built temporaries moved to other sites and 50,000 would be new trailers). For 1947, he set 1,500,000 starts of which 900,000 would be conventionally built homes, 600,000 permanent prefabricated and assembled on site from prefabricated parts. According to estimates this would leave 3,916,000 families doubled up and, therefore, there would still be a need for 1,958,000 units. This estimate did not take into account the need to replace existing substandard units.

To accomplish this goal Wyatt did the following: (1) on Jan. 15, 1946, returned 18 scarce building materials to priority ratings (by Nov. 1 there were 66 materials on the priority list); (2) promulgated on March 26, 1946, Veterans' Housing Order No. 1 placing limitations on con-



CECIL JENSEN of the *Chicago Daily News* drew a pessimistic picture of the plight of the veteran looking for a home in 1946, in this cartoon "Golden Wedding Celebration"

struction competing for materials with housing. Builders of commercial and industrial construction were required to apply to local Civilian Production administration committees for permission to proceed. The committees were to screen out nonessential construction. But interest in local industrial and commercial advancement worked against curtailment. On May 9, 1946, CPA tightened its order, but by that time a huge amount of non-housing construction was under way. There was, however, a sharp decline in new approvals. In the week ending April 25, the dollar volume of approvals had been \$230,000,000; in the week of June 14, the dollar volume of approvals was only \$36,000,000. Further

Table I.—Dwelling Units Put under Construction in the U. S.
Jan. through Sept. 1946

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
New Permanent*	36,100	43,100	60,400	66,100	67,500	63,600	64,300	63,500	56,600	521,200
Conventional†	34,900	41,500	58,200	63,500	64,500	60,300	60,500	59,800	53,100	496,300
Factory-Built‡	1,200	1,600	2,200	2,600	3,000	3,300	3,800	3,700	3,500	24,900
Conversions§	5,000	7,000	8,000	11,000	10,000	8,000	6,300	5,900	5,600	66,800
Temporary Re-Use||	13,000	11,000	13,000	19,000	25,000	20,000	31,000	28,200	32,000	192,200
Trailers¶	2,400	2,200	2,500	2,600	2,900	3,000	3,100	4,100	4,500	27,300
Total	56,500	63,300	83,900	98,700	105,400	94,600	104,700	101,700	98,700	807,500

*Bureau of Labour Statistics estimates.

†Bureau of Labour Statistics estimates adjusted to exclude factory-built units.

‡National Housing agency reports on factory shipments.

§Preliminary National Housing agency estimates based on priority authorizations issued by Federal Housing administration.

¶Federal Public Housing authority reports. Family equivalent units financed by federal and non-federal funds. (A family equivalent unit is one family unit or two dormitory units.) Total living accommodations started amount to 226,500 units, comprising 157,800 family units and 68,700 dormitory units.

||Bureau of Census reports on factory shipments, Jan. through Aug.; NHA estimate for Sept. From: Veterans' Emergency Housing program published by NHA, vol. 1, no. 5, Oct. 1946.

Table II.—Dwelling Units Completed in the U. S.
Jan. through Sept. 1946

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
New Permanent*	18,700	20,300	22,600	26,400	30,300	34,900	41,000	42,200	49,800	286,200
Conversions†	5,000	5,000	5,000	6,000	8,000	10,000	9,800	8,600	7,200	64,600
Temporary Re-Use‡	2,700	2,200	3,300	3,400	2,600	3,800	7,500	8,600	18,000	52,100
Trailers§	2,400	2,200	2,500	2,600	2,900	3,000	3,100	4,100	4,500	27,300
Total	28,800	29,700	33,400	38,400	43,800	51,700	61,400	63,500	79,500	430,200

*Bureau of Labour Statistics estimates. Breakdown of conventional and factory-built units not available.

†Preliminary National Housing agency estimates based on priority authorizations issued by Federal Housing administration.

‡Federal Public Housing authority reports. Family-equivalent units financed by federal and non-federal funds. Total living accommodations completed amount to 60,900 units, comprising 43,300 family and 17,600 dormitory units.

§Bureau of Census reports on factory shipments, Jan. through Aug.; NHA estimate for Sept. From: Veterans' Emergency Housing program published by NHA, vol. 1, no. 5, Oct. 1946.

restrictions upon commercial, industrial and public construction were made in Aug. and Sept. Nonresidential construction was reduced to \$155,000,000 in Aug. and in Sept. to \$115,000,000. (3) Because the veterans' demand was for moderate and low cost homes, priorities issued after March 26, 1946, were issued to veterans and to builders for homes costing no more than \$10,000 or renting for no more than \$80 a month. (4) In an attempt to minimize faulty construction NHA required (June 1946) all builders (except veterans building for their own occupancy) to submit detailed plans and specifications to be checked against Federal Housing administration standards and had FHA make two inspections of new construction (one at roughing-in and one at completion). (5) In order to hasten construction, the president and the housing expediter asked congress for certain aids on Feb. 7, 1946. On May 22 congress passed the Veterans' Emergency Housing act. It gave emergency powers to the housing expediter and provided \$400,000,000 for premium payments for scarce materials and market guarantees for new materials and for factory-built houses. It authorized up to \$2,000,000,000 for a continuation of the war-born Title VI FHA guarantee provisions of 90% mortgages on home loans by private lending institutions. This legislation, coming late in the first half of 1946, had no effect upon building in that period. The first premium payment arrangement was announced on June 19 and the first guaranteed market contract on Oct. 19. (6) The expediter urged the passage of the Wagner-Elender-Taft (W-E-T) bill cited as the "General Housing Act of 1945" which was introduced in congress on Oct. 29, 1945. It passed the senate in 1946 but died in committee in the house. A separate attempt to create a permanent National Housing agency through the president's authority to reorganize executive departments was rejected by both houses.

For the 1,200,000 goal of permanent and temporary homes set for 1946, more than 800,000 starts were made in the first 9 months.

In terms of houses ready for occupancy the Veterans' Housing program got a slow start.

Costs rose. The spiral continued upward month by month.

Table III.—Average Percentage Increases in Prices of Homes and Home Sites:

Sept. 1945 to Feb. 1946

	HOMES		HOME SITES		
	Under \$6,000	\$6,000-12,000	Raw Land	lots	H-2 Houses Above Ceilings
All cities	17.7	14.8	23.0	23.3	30.5
Cities 100,000 and over	17.3	15.8	27.6	26.6	30.0
Cities under 100,000	17.8	14.6	21.8	22.4	30.7

Source: NHA report.

The greatest lack was in the production of new permanent rental units desired by the veteran who did not want to buy at inflated prices. There was practically no new construction for those of moderate or low income.

On Nov. 10, 1946, building materials were released from Office of Price Administration control. The president requested Wyatt to present a new housing program. When it was presented, the president disagreed. Wilson Wyatt resigned on Dec. 4, 1946. The president, in accepting the resignation, praised his accomplishments but stated that the housing program must now be adapted to "the government's announced policy of relaxing controls." On Dec. 12, the president appointed Raymond M. Foley, commissioner of FHA, as administrator of NHA and Frank Creedon as housing expediter, separating the two offices which Wilson Wyatt had held. On Dec. 14, the president issued a new housing program emphasizing the need to stimulate rental housing and the policy of relaxing controls. He announced the discontinuance of the priority rating system for builders; a gradual relaxation of the nonhousing construction order; relax-

ation of the veterans' preference order insofar as persons building homes for personal occupancy were concerned; authorization of housing construction by federal permits issued on the basis of year-round occupancy, restricted floor footage (no price ceiling on sale housing), and, in the case of rental housing, maximum rents averaging not more than \$80 per unit per project; continuance of premium payment and guaranteed market programs; studies which would promptly lead to recommendations for legislation for federally-aided housing for low income groups. (See also BUILDING AND CONSTRUCTION INDUSTRY; BUSINESS REVIEW; CENSUS DATA, 1946; FEDERAL WORKS AGENCY; MUNICIPAL GOVERNMENT; PUBLIC HEALTH ENGINEERING.)

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Federal Home Loan Bank Administration.—The Federal Home Loan Bank administration directs the operations of the Federal Home Loan Bank system and the Federal Savings and Loan Insurance corporation—two permanent, self-supporting agencies, established to encourage home ownership and economical home financing and to protect savings. The administration supervises federal savings and loan associations. FHLBA also directs the Home Owners' Loan corporation, which was in liquidation during 1946.

Federal Home Loan Bank System.—Established in 1932, the Federal Home Loan Bank system provides a nation-wide home mortgage credit reserve for thrift and home-financing institutions. During 1946 11 regional Federal Home Loan Banks served member home-financing institutions in their respective areas by making short-term and long-term loans to them. From the time they were created, they had advanced \$1,925,115,719 to their member institutions, of which \$258,443,608 was outstanding on Nov. 30, 1946.

Of the 3,696 member institutions of the system at the end of the year, 3,659 were savings and loan associations, co-operative banks and home-stead associations; 25 were mutual savings banks and 12 were insurance companies. Assets of members amounted to approximately \$10,000,000,000.

Federal Savings and Loan Associations.—Chartered and supervised by the Federal Home Loan Bank administration, federal savings and loan associations are locally operated home-financing institutions, either newly-organized after they were authorized by congress in 1933 or converted from state charter. On Nov. 30, 1946, there were 1,471 federal associations in operation with combined assets of \$4,580,000,000.

Federal Savings and Loan Insurance Corporation.—In 1946, about 4,900,000 investors in 2,495 savings and loan associations were protected up to \$5,000 each by the Federal Savings and Loan Insurance corporation, created in 1934. Insurance is mandatory for federal associations, optional for state associations.

Home Owners' Loan Corporation.—From 1933 to 1936 the HOLC refinanced delinquent mortgages on more than 1,000,000 homes by providing low-interest, long-term loans, which in the meanwhile have enabled most owners to retain their properties. In these rescue operations, \$3,093,000,000 was loaned, an amount later increased to nearly

"RHODY VET ROW" was named by the student veterans who occupied this block of Quonset huts on the Rhode Island State college campus in 1946; each hut accommodated 11 students





PREFABRICATED HOUSES on the University of Chicago campus which were occupied by married veteran students and their families in 1946

\$3,500,000,000 through advances to borrowers and other costs.

Up to Oct. 31, 1946, about 81% of this investment had been liquidated. When liquidation was completed, the corporation expected to return to the U.S. treasury its \$200,000,000 of original capital, plus a moderate return.

Federal Housing Administration.—The Federal Housing administration was established in June 1934 by the National Housing act "to encourage improvement in housing standards and conditions, to create a sound mortgage market, and to provide a system of mutual mortgage insurance."

Under the Veterans' Emergency Housing program, the FHA is the operating constituent of the NHA which processes and issues priorities on materials for housing for veterans. It also insures home loans which meet FHA conditions.

The FHA does not lend money but insures residential mortgage loans made by private lending institutions and also insures lenders on property improvement loans. The maximum interest rate, under Title II of the National Housing act, is 4½% plus the FHA insurance premium of one-half of 1%, both calculated on annual outstanding balances.

In peacetime, FHA insurance normally is governed by Titles I and II of the National Housing act. Title VI was added as a defense war measure.

Title I provides for FHA insurance of qualified financial institutions on loans for property improvements, alterations and repairs. Although loans for those purposes ordinarily are limited to a maximum amount of \$2,500 and a maximum term of 3 years, loans up to \$5,000 for terms up to 7 years are insurable if the funds go to provide additional housing accommodations for veterans. Title I loans are repayable in monthly installments.

Title II provides for insurance of mortgage loans ranging up to \$16,000 made by approved lending institutions. All loans are amortized in monthly payments and under certain circumstances may be repaid over periods of as long as 25 years.

Title VI was added to the National Housing act specifically to assist in providing housing for defense and war workers. A separate Housing Insurance fund, nonmutual in character, was established. FHA temporarily stopped taking applications for Title VI loans in Sept. 1945 when its authorization was virtually used up, but such insurance was resumed in May 1946 upon the approval of the Veterans' Emergency Housing act.

Mortgages insured under Title VI are limited to a maximum of \$5,400 on a single family house; \$7,500 on a two-family house; \$9,500 on a three-family house; and \$12,000 on a four-family house. Insured loans may cover up to 90% of necessary current costs. In areas where builders cannot provide sound standards of construction, design or livability within these limits, the federal housing commissioner may permit maximum mortgage amounts up to \$8,100 on a single family house; \$12,500 on a two-family house; \$15,750 on a three-family house; and \$18,000 on a four-family house.

Title VI authorizes FHA also to insure mortgages on large-scale rental projects for a maximum of 90% of FHA cost estimates.

Before FHA resumed Title VI insurance in May 1946 with a total insurance authorization of \$1,800,000,000, it had insured loans for approximately 450,000 dwelling units for war workers. Amendments permit FHA to issue additional insurance up to \$1,000,000,000 for housing for veterans and members of the armed forces. This may be increased with the approval of the president by an additional \$1,000,000,000.

By the end of 1946, the long-term program of the FHA had enabled more than 1,760,000 families to build, purchase or refinance their homes or to rent modern quarters. FHA insurance written under Title II

amounted to more than \$5,442,000,000 as of Nov. 30, and FHA-insured property improvement loans under Title I exceeded 6,064,000 in number and aggregated \$2,427,000,000.

In addition to being self-supporting, the FHA was able, under the participation provisions of the Mutual Mortgage Insurance fund, to declare on certain groups of mortgages 41,000 dividends through March 31, 1946. By Jan. 1, 1946, equity balances had accumulated in a total of 81 groups. Dividends would be received eventually by approximately 226,000 mortgagors who still remained in these groups on that date.

Federal Public Housing Authority.—The Federal Public Housing authority has responsibility for federally-financed public housing functions. At the beginning of 1946, the FPFA had four principal assignments:

1. To provide federal aids for low-rent housing built before the war, or deferred because of the war, and to convert war housing under the U.S. Housing act to low-rent status.

The U.S. housing act program provides public housing for low-income families formerly living in slum dwellings. Administration of this program, in co-operation with local housing authorities, is FPFA's basic and long-run job. Projects are financed with loans from the FPFA or private investors. All loans are being repaid in full, with interest, in accordance with established amortization plans. To help keep rents within the means of low-income families, the FPFA and the community make annual contributions.

As of Nov. 1, 1946, the total housing built or authorized under the U.S. Housing act comprised 193,522 dwellings in 747 projects. This total included some 21,000 low-rent units on which construction had been deferred pending availability of labour and materials.

2. To provide emergency temporary housing for veterans, in co-operation with schools and other local bodies by re-using any surplus war housing on hand, plus barracks and quonset huts.

Congress appropriated \$445,000,000 to pay the federal costs of relocation and remodelling, and in the same legislation authorized FPFA to transfer additional temporary structures to local bodies for remodelling at their expense. Including units on which local bodies were bearing all expenses, the temporary re-use program was expected to provide about 250,000 dwelling accommodations for veterans.

3. To manage public war housing during the period of reconversion and demobilization for distressed families of veterans and servicemen, for certain civilian employees of the war and navy departments and of private industries completing war contracts and for distressed families dislocated as a result of the war or demobilization.

The major wartime function of FPFA was to provide some 700,000 housing units—about four-fifths of all publicly financed war housing—for in-migrant war workers and their families. Most of this housing remained in the total housing supply, and would be managed by FPFA until disposed of.

In addition to veterans accommodated by the re-use of surplus facilities, on Nov. 1, 1946, about 272,000 veterans' and servicemen's families were living in public housing remaining at its wartime location. Such families accounted for more than 44% of all occupied war and low-rent housing units in programs administered by the FPFA.

4. To dispose of federally-owned housing as it becomes surplus. On Nov. 1, the FPFA still had about 517,000 units to dispose of when they become surplus to veterans' and other demobilization needs. Within the requirements of law and sound housing policy, housing would be disposed of in ways consistent with local plans. Most of the stock consisted of 249,000 temporary units, which must be removed from the site within 2 years after the emergency; and 169,000 units to be sold for permanent residential use.

In addition to these assignments, other FPFA housing included: (a) 50 projects built by the Public Works administration and operated as low-rent housing; (b) 30 subsistence homesteads projects, which were transferred from Farm Security administration and were being disposed of; (c) 3 greenbelt towns which were transferred to FPFA in 1942 for management and eventual disposition; and (d) mortgages on 3 limited dividend projects constructed by private corporations with the aid of government loans.

(H. F. V.)

Great Britain.—At the end of World War II, 4,000,000 new houses were needed in Great Britain within ten years; precisely that number had been destroyed or damaged by enemy action during the war. In addition, housing was urgently needed to provide accommodation for those living in overcrowded conditions, to accommodate all the young couples who had married since the war and to allow for the increased number of families. The Labour government adopted two main policies: the creation of temporary prefabricated houses as a short-term measure, for which no further contracts would be made after Dec. 31, 1946, and the construction of permanent standard houses of the size 950 sq.ft. floor area and more, recommended by the Dudley report. The government decided that houses should be built for letting at rents that the working classes could afford, and that houses built for selling should be in the proportion of one house for sale to four houses to let. By the end of 1946, 96,000 temporary houses and some 20,000 permanent houses had been constructed, while a further 100,000 houses had been provided by the reconstruction of war-damaged property.

In the late summer of 1946 large numbers of families, discontented with the slowness of the housing program, took forcible possession of unoccupied service camps with the general

sympathy of the community. When they extended their activities to unoccupied dwelling houses, blocks of flats and hotels, public sympathy evaporated and the government took all legal action necessary to restrain the "squatters."

There were many bottlenecks in materials and in fittings. The shortage of steel was most marked, but there were other shortages of such materials as asbestos and wood-wool which caused delay. The building industry was, however, rapidly mobilized; building workers were given special opportunities of early release from the forces, and by the middle of the year there was a larger labour force employed in house building than at any previous time in British history. This fact was reflected not so much in the number of houses actually constructed as in the number of sites acquired by local authorities and the number of sites which were in actual course of preparation. By the end of 1946 the number of sites acquired by local authorities amounted to 700,000 while the number of sites under active preparation was 300,000.

Rents tribunals, with power to reduce rents, were set up in London and elsewhere to hear complaints of excessively-rented furnished accommodation.

Europe.—The U.S.S.R. began the task of rebuilding the wrecked houses in formerly occupied regions with great energy. The government allocated the sum of 42,300,000,000 roubles for the period 1946–50, as against a previous expenditure of 15,500,000,000 roubles in the period of the third Five Year plan. The aim was to build 72,400,000 sq.m. of living space in the five-year period, with an additional 12,000,000 sq.m. to be built by individual owners aided by government loans. Partly in order to avoid a high labour turnover, business organizations were encouraged to provide blocks of one-family and two-family houses with gardens and vegetable plots to be sold on the instalment system to workers, clerks, technicians and engineers.

A vigorous attack was also being made on the rural housing problem, and loans to collective farms and to peasants for the next five-year period provided for a total of 3,400,000 houses.

Sweden proceeded steadily with a rehousing program particularly notable for the high standard of architectural design. The number of houses and flats built during 1946 was approximately 45,000 in the urban areas.

In the British zone in Germany the work on the reconstruction of damaged houses was concentrated on those houses which had been damaged up to 60%. A modest program for the construction of miners' houses was planned but the only houses erected in 1946 were for testing experimental forms of construction. (G. McA.)

Housing Administration, Federal: *see* HOUSING.

Housing Agency, National: *see* HOUSING.

Housing Authority, U.S.: *see* HOUSING.

Howland Island: *see* PACIFIC ISLANDS, U.S.

Human Nutrition and Home Economics, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Humbert (1904–), prince of Piedmont, was born Sept. 15, the son of Victor Emmanuel III. His education emphasized military arts and sciences and included a period at the Royal Military academy in Turin. In 1930 Humbert married Princess Marie José, daughter of King Albert of Belgium. In 1940 he was placed in command of Italy's army of the Alps, with the rank of full general. On June 5, 1944, Humbert was designated lieutenant general of the realm when Victor Emmanuel signed over to him all his royal powers without exception, retaining for himself only the designation "King of Italy and

head of the house of Savoy." The prince was backed by a political party drawn largely from aristocratic families and military and naval officers.

After the abdication of Victor Emmanuel III, Humbert assumed the throne, May 9, 1946, as King Humbert II. However, following the elections of June 2, in which the Italian people voted in favour of a republic, Humbert went into exile, June 13, after a rule of only 35 days.

Hungary. A republic in central Europe. Area 35,911 sq.mi.; pop. (Dec. 1936) 8,989,000. The majority of the population is Roman Catholic but there is a large Protestant, and there was a considerable Jewish, minority. Capital: Budapest. Chief cities (pop. 1939): Budapest (1,115,877); Szeged (141,254); Debrecen (128,442); Kecskemét (83,837). President: Zoltan Tildy; prime minister (1946): Ferenc Nagy.

History.—The elections on Nov. 4, 1945, had resulted in a sweeping victory for the Small Landowners party. The chairman of the party became prime minister. His cabinet, however, represented a coalition in which the Communists, though they had received only 17% of the votes, held decisive key positions. At the same time they dominated the all-important supreme economic council. The leading representative of the Communist party in the cabinet was vice-premier Matthew Rakosi, in the supreme economic council, Zoltan Vas.

On Feb. 1, 1946, the national assembly proclaimed the end of the 1,000-year-old Hungarian monarchy. Hungary had been a republic before for two short-lived periods in 1848 under Lajos Kossuth and in 1918 under Count Michael Károlyi. Now Zoltan Tildy was elected president of the Third Hungarian republic for a four-year term. The majority party, the Small Landowners, suggested Deszö Sulyok as prime minister but as a result of Communist opposition another member of the party was elected premier. On Feb. 4, Ferenc Nagy. The party was forced one month later under Communist pressure to expel 20 "reactionary" members who under the leadership of Deszö Sulyok formed a new party called the Kossuth party. The ministry of the interior, which controls the very active secret police, remained in Communist hands when Imre Nagy was replaced by Ladislaus Rajk.

The main effort of the government was directed toward

PEOPLE OF BUDAPEST, Hungary, seeking to get in, or on, a train for a ride to the country where they could search for food, which was exceedingly scarce in their city during 1946



stemming the economic chaos and at the same time toward preserving some economic independence from Russia. Russia had successfully established economic control over the two most important natural resources of Hungary, oil and bauxite, and acquired controlling shares in Hungary's transportation, especially the navigation of the Danube and the air lines, and in Hungary's leading financial and credit institutions.

The Hungarian economic crisis was aggravated by the payment of reparations to Russia, which carried heavy penalties for any arrears in payment. The Russian government agreed to extend the period of reparations payments from six to eight years. The U.S. government complained in several notes, of which the most important was that of July 23, that the Russian government refused to honour its agreement at the Yalta conference to concert the policies of the Big Three governments in assisting the peoples of the former axis satellites to solve by democratic means their pressing political and economic problems. The note requested that the soviet chairman of the Allied Control commission in Hungary be asked to co-operate so that the economic disintegration of Hungary might be halted. The United States at the beginning of the year had granted a loan of \$10,000,000 to Hungary and U.N.R.R.A. relief had been a great help to the country. To assist in the stabilization of Hungary's currency, the U.S. government turned over to Hungary \$32,000,000 of Hungarian gold reserves held in Germany.

The tremendous inflation in Hungary brought the country to the brink of catastrophe. The value of the pengő, which normally was 20 cents, had dwindled by May 14 so much that the dollar reached the fantastic value of 2,500,000,000 pengős. On that day a new bank note of 1,000,000,000 pengős went into circulation, after a 100,000,000 pengő note was issued on April 29. This dizzying process of inflation crippled the whole national economy. In a desperate effort to check this development, the government worked out a plan for a severe deflation. On Aug. 1 a new currency was introduced. Its unit, the forint, represented 0.0757 grams of fine gold. The official dollar exchange rate was fixed as 11.7393 forint to one dollar. The strict deflation process brought about an economy of sharp economic restriction. On Dec. 10 the first Hungarian budget after 1943 was announced in the parliament. It called for an expenditure of 4,420,700,000 forint (roughly \$376,000,000), against an estimated income of 4,045,000,000 forint.

The Small Landowners party was determined to establish the new Hungary on the prosperity of the small independent farmer class. The second land reform by its redistribution of land created some 400,000 new proprietors with holdings of 7 to 13 ac. who were added to a similar number holding from 25 to 50 ac. The party drew up a program for them to engage in intensive types of agriculture and modern poultry and dairy methods. These quality food products could be exported to western and central Europe in return for manufactured goods. Agricultural co-operative societies after the Scandinavian model were to help in the development of this new independent farm class which would represent a bulwark for democracy.

The Russian occupation forces and the Hungarian Communists conducted a sharp campaign against a number of Catholic youth organizations and against the Boy Scouts. The resignation of a number of leading members and journalists of the Small Landowners party, of a number of non-Marxist prefects, and a general purge of the political life were demanded categorically at the end of June. A renewed wave of arrests on political charges was carried through, among them personalities who had had a clean record of opposition to the Germans. The Hungarian government complied and dissolved the Boy Scouts, the Catholic youth groups, an organization similar to the Y.M.C.A., and a student union. The Small Landowners party replaced the

entire management of its own youth organization. The government also called upon the Catholic priesthood to refrain from all anti-Communist or political activities.

A number of former prime ministers and ministers of the Hungarian governments favourable to Germany were executed by sentences of the people's court. Among them were Ferenc Szalasi, Bela Imredy, Laszlo Bardossy and Doeme Sztójay.

At the Paris peace conference in Oct. 1946 the peace treaty with Hungary was elaborated. The U.S. delegation attempted to reduce the amount of reparations payable by Hungary from \$300,000,000 to \$200,000,000, but was not successful. Concerning the amount of compensation which Hungary must pay for damage to Allied property, the French proposal for a 75% compensation was accepted. The difficult problem of population transfer between Czechoslovakia and Hungary was settled by compromise according to which Hungary should enter into bilateral negotiations with Czechoslovakia in order to solve the problem of those inhabitants of Magyar ethnic origin residing in Czechoslovakia who would not be settled in Hungary within the scope of the treaty of Feb. 27, 1946, on the exchange of population between the two countries. Should no agreement be reached within a period of six months after the coming into force of the Hungarian peace treaty, Czechoslovakia should have the right to bring the matter before the council of foreign ministers.

(H. Ko.)

Finance.—The monetary unit is the forint, formerly the pengő, containing 0.0757 grams of fine gold. The official exchange rate in 1946 was 11.7393 forint to one U.S. dollar. The revenue for 1944 was \$196,000, expenditure \$205,000. Gold reserves were \$3,000 and the national debt was \$217,000. Values were computed on the basis of the 1945 value of the pengő (30,000 pengős=\$1).

Transportation and Communication.—Hungary had in 1945, 4,848 mi. of railroads, 15,159 mi. of highways and 1,222 mi. of waterways. There were 39,618 telephones, 6,214 mi. of telegraph lines and 178,319 radio sets. All these figures were preliminary.

Trade.—The principal items of export and import for 1944 were as follows:

Exports			Imports		
	\$	Tons		\$	Tons
Wheat	686	60,676	Timber and wood . .	559	135,966
Livestock	1,000	56,000	Raw metals	976	10,207
Poultry	186	9,000	Raw cotton	300	1,183
Electrical machinery and apparatus . .	404	...	Paper and manufactures . . .	2,000	97,696

(1945 value of pengő used)

Nearly all of the trade was carried on with Germany.

Agriculture, Manufacturing, Mineral Production.—In 1943 mineral production was as follows: lignite, 11,892,274 tons; coal, 1,513,017 tons; bauxite, 1,099,544 tons; iron ore, 377,428 tons. The 1945 crops included: turnips, 1,804,729 tons; wheat, 725,095 tons; corn, 2,062,566 tons; potatoes, 1,863,761 tons; sugar beets, 195,642 tons. Livestock for the same year numbered: swine, 1,145,504; cattle, 1,008,700; sheep, 311,152; horses, 368,844. The value of manufactures for 1943, based on the 1945 value of the pengő, was: food, \$73,000; textiles, \$41,000; metals, \$28,000; machinery, \$57,000. (See also RUMANIA.)

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Hunter College. Hunter College reopened its Bronx campus to students on Oct. 14, 1946. Previously (1943-45) this campus had served the United States navy as a training school for WAVES. Then (1946) it became the headquarters of the Security council of the United Nations. About 600 male veterans were admitted to a course of study in the liberal arts. The regular college curriculum was enlarged to include courses leading to the B.S. degree in music and home economics. New interdepartmental majors in liberal arts were introduced early in 1946. Library facilities in the Bronx buildings were being expanded considerably. More intensive use of the buildings on Park and Lexington avenues was made necessary by abnormally heavy enrolment. Offerings in the evening college and particularly in adult education were greatly increased, since the number of students was nearly twice as large as it was in 1939. Gifts and bequests during 1946 included the James Picker fund, the Clara Fischer fund and the Abbie W.

Nooney bequest, all designed to aid needy students. Other donations were received from the Altman foundation, the Littauer foundation and the Jewish Education association. Generous public support was also accorded the student activities conducted at Sara Delano Roosevelt Memorial house. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (G. N. S.)

Hurdling: see TRACK AND FIELD SPORTS.

Husseini, Haj Amin el (1900–), Arab politician and grand mufti of Jerusalem, was born in 1900 and educated at El Azhar university in Cairo. During World War I he served with Feisul al Husain at Damascus and gave lukewarm support to the Allied cause. Husseini was appointed grand mufti of Jerusalem by the British in 1921 and was one of the prime instigators of anti-Jewish disturbances in Palestine. He encouraged the violent Arab attacks on Jews in 1937, and in July of that year was forced to flee to the Lebanese republic. He went to Iraq after the outbreak of World War II and later made his way to Rome and Berlin, where he became an active anti-Semitic propagandist and broadcast anti-Jewish and anti-British propaganda over axis radio channels to the middle east.

The mufti again became a fugitive after the collapse of Germany and in May 1945 crossed into Switzerland. Denied refuge by the Swiss, he was deported to France, but turned up in Alexandria, Egypt, on June 20 where he was given sanctuary by King Farouk. Both the British and French governments were accused of collusion in the latest flight of Husseini although official spokesmen of both countries denied the charges. Shortly after his arrival in Egypt, the grand mufti was appointed spiritual head of the newly-created Palestine committee formed by the anti-Zionist Arab league.

Hutchins, Robert Maynard (1899–), U.S. educator, was born Jan. 17 in Brooklyn, N.Y. His father, William James Hutchins (1871–), minister and theologian, was subsequently president of Berea college in Kentucky. Hutchins left Oberlin college, Oberlin, O., in 1917 to enlist in the U.S. ambulance corps, winning the *Croce di Guerra* in action with the Italian army. Entering Yale university, New Haven, Conn., in 1919, he received his A.B. in 1921 and his LL.B. (*magna cum laude*) in 1925, subsequently receiving honorary degrees from many colleges and universities. In 1923 he was appointed secretary of Yale university and in 1927 dean of its law school. In 1929, at the age of 30, he became the fifth president of the University of Chicago, where his reforms and proposals for reform made him one of the best known and most controversial figures in the history of American education.

In 1946, with his famous "Chicago plan" in full operation and the university relieved of its wartime training and research, Hutchins, having resigned the presidency and taken the post of chancellor the year before, took a year's leave of absence to be chairman of the board of editors of *Encyclopædia Britannica*, Inc. Announcing his intention to devote himself to the spread of adult education through the reading and discussion of the "great books," Hutchins declared: "The world may not last long enough for the restricted campus education of today to affect the course of events. If there is a choice to be made between youth and adult education, then the urgency of our time gives priority to the adult." Prior to his assumption of full-time duties with the *Britannica*, Hutchins was chairman of the executive committee of its board of directors, a director of *Encyclopædia Britannica Films Inc.*, and editor-in-chief of a set of

the "great books" scheduled for publication by the *Britannica* in 1948.

His university activities in 1946 included the consolidation of his college reforms in the Chicago four-year liberal arts curriculum beginning with the usual junior year in high school. He also established on the campus the Institute of Nuclear Studies and the Institute of Biophysics, for research in the physical and biological adaptations of atomic energy. Although he opposed the entrance of the United States into the war in 1940 and 1941, the University of Chicago, under his administration, played a central role in the development of the atomic bomb.

In 1946 he also campaigned, in speeches and writings, for international civilian control of atomic energy and against peacetime military conscription. Calling for immediate world organization and the abandonment of national sovereignty as the only hope of saving civilization from atomic destruction, he accepted the chairmanship of the Committee to Frame a World Constitution. (M. S. MR.)

Hygiene, Industrial: see INDUSTRIAL HEALTH.

Ibn-Sa'ud (1880?–), king of Saudi Arabia, was born about 1880 in Riyadh, the son of 'Abd-al-Rahmān, leader of the Wahabi sect of Arabs. Ibn-Sa'ud was christened 'Abd-al-'Azīz Ibn-'Abd-al-Rahmān Ibn-Faisal Ibn-Sa'ud. For his early history, see *Encyclopædia Britannica*.

In 1933, Ibn-Sa'ud granted concessions for exploitation of his oil-rich lands to the Standard Oil Co. of California and later gave similar privileges to the Texas Co. The rentals from these leases made him independently wealthy.

Ibn-Sa'ud was neutral during World War II, although he favoured the British. He later endorsed the pan-Arab stand in the controversy over establishment of a Jewish homeland in Palestine.

He journeyed to Cairo in Jan. 1946 for a conference with King Farouk and the two monarchs jointly declared that "Palestine must remain an Arab country." Ibn-Sa'ud (May 6, 1946) branded the United States-British inquiry commission's report recommending the admission of 100,000 Jews into Palestine as "an injustice without precedent." He criticized Pres. Harry S. Truman's appeal for admission of more Jewish immigrants into Palestine and declared in a letter to the president on Oct. 17, 1946, that his statement was in complete contradiction to a presidential assurance to the Arabs and violated previous promises made to them.

ICC: see INTERSTATE COMMERCE COMMISSION.

Ice Cream. The total 1946 ice cream production was estimated by the U.S. department of agriculture at about 750,000,000 gal., the largest on record, compared with 471,265,000 gal. in 1945 and an average of 315,126,000 gal. 1937–41. During the first seven months of 1946 production was 84% more than the same period of 1945. This great increase followed the termination of the control on ice cream manufacture on Sept. 1, 1945. Only the shortage of sugar was restrictive. Fall production declined in 1946 through November which was only 7% more than the same month in 1945. The output of ice cream varied by months from 39,755,000 gal. in January, always the low month, to 99,190,000 gal. in July which usually is the high month. The states of highest production were, in order of output, Pennsylvania, New York, Ohio, Illinois and California. Per capita consumption in prewar years was about 10 lb., then rose to 15 lb. in 1945 and nearly 20 lb. in 1946. Supplies for civilians were short early in 1946 but became easier in the fall. The smaller supplies needed for the armed forces eased the

general supply situation. The output of sherbets and other frozen dairy foods declined as plenty of ice cream became available. The sugar used in these substitutes for ice cream was shifted to the latter when control ceased. (J. C. Ms.)

Ice Hockey. Les Canadiens de Montreal came back into their own as the double kings of hockey, winning the National league championship and going on to corner the Stanley cup and the world championship which went with it. Montreal won the regular league campaign by five points, humbled the Chicago Blackhawks in four straight semifinal cup games and won the Stanley trophy with four out of five victories over Boston.

The seasoned line of Maurice Richard, Elmer Lach and Toe Blake once again led the Canadiens, in league as well as cup competition. In 9 Stanley cup games the Canadian No. 1 line scored 19 goals and had 22 assists. During league action the Richard-Lach-Blake combination led all scoring units with 69 goals. Of equal importance to the Montreal victory was the goal-tending of Bill Durnan, who won his third straight Vezina trophy as hockey's leading goalie. Durnan allowed 104 goals in 40 games and scored 4 shutouts.

Hockey established a new attendance record during 1945-46 when more than 2,000,000 fans witnessed the 150 league games. The Chicago stadium, home of the Blackhawks, led in attendance with 419,924 spectators for 25 home games, an average of 16,797. Chicago drew the largest hockey crowd in history when 18,475 witnessed a Hawk game with Montreal on Jan. 20. In 1944-45 Chicago drew 348,821 spectators for 25 dates.

The Dr. David A. Hart trophy, awarded to the player "most useful" to his team, went to Chicago's Max Bentley. Bentley was the league's leading scorer with 31 goals and 30 assists. Edgar Laprade, New York forward, was named the outstanding rookie of the year, while Montreal's Toe Blake won the Lady Byng trophy as the league's most gentlemanly player.

In the American league the Buffalo, N.Y., Bisons captured the championship for the third time in four years. Buffalo won the eastern division title and defeated the Cleveland Barons, 4 games to 3, in the final playoff. Kansas City, Mo., topped the U.S. hockey league and went on to defeat Tulsa, Okla., in the playoff finals, 4 games to 2.

For the third straight year, the Boston Olympics won the Eastern league championship, but lost to the Vancouver, B.C., Canucks, 4 games to 3, in the final of the Amateur Hockey association playoff. Vancouver won the northern division of the Pacific Coast league and toppled Portland, Ore., in the playoff windup. Yale and Dartmouth were tied for first in the Eastern Intercollegiate league.

The entire Chicago first line of Doug and Max Bentley and Bill Mosienko was placed on the National league managers' all-star team. Jack Stewart of Detroit and Ed Bouchard of Montreal were placed on defense, while Harry Lumley of Detroit and Durnan shared the goal-tending assignment. (M. P. W.)

Iceland. An island republic of the north Atlantic. Area, 39,709 sq.mi.; pop. (census 1940) 121,474; (est. 1945) 126,000. Capital, Reykjavik, the only large town (pop. 1945 est. 46,000). Religion, Lutheran Christian. President, Sveinn Björnsson. Prime minister, Olafur Thors (whose two-yr.-old coalition government resigned on Oct. 10, but continued to function on an interim basis).

History.—Iceland's chief problems in 1946 continued to stem from the fact that it was an innocent bystander in a world of tensions.

Government and people were struggling to reorient the economy to the new peacetime situation. During World War II the

United States had bought most of Iceland's fish and lend-leased them to Great Britain—90% of Iceland's exports went to Britain, while the United States supplied 65% of Iceland's imports. With the close of the war Britain ceased buying the fish, perhaps largely because of the high prices caused by Icelandic inflation. New markets had to be sought, and on May 27, 1946, Iceland signed a trade agreement in Moscow. A few months later a soviet trade delegation visited Iceland. It was authorized to purchase the entire fish catch and offered prices considerably more than war rates—about 30% higher on frozen fillets and 60% on herring oil. The U.S.S.R. also offered to sell Iceland all needed imports, such as coal, lumber, etc.

The United States had found Iceland important as a North Atlantic base for shipping and for flying. Long term privileges were therefore sought by the United States at Keflavik airport, developed by the U.S. during World War II. But the United States-Icelandic agreement provided for the withdrawal of U.S. soldiers as soon as the emergency was over. The soviet union repeatedly called attention to the continued presence of the soldiers of the United States in Iceland. The difficult negotiations were avoided by the Icelanders for some months, but an agreement was ready for the Althing in September. It provided for the withdrawal of all U.S. military personnel (already down from 45,000 to 1,000), but provided for special privileges at the Keflavik airport for U.S. planes en route to Germany for the duration of the U.S. occupation of Germany. The Icelandic Communists, who held 10 seats out of the 52 in the Althing and 2 places in the coalition cabinet, led a vicious attack against the treaty. In September a general strike protested its ratification, and when the Althing approved it (Oct. 5) by a vote of 32-19 the Communists withdrew support from the government (Oct. 10). The whole cabinet resigned, but Olafur Thors was asked to continue in office until a new government could be formed.

General elections on June 30 left the party line-up much as it had been—the Progressives lost two seats to the Social Democrats. The vote gave:

	Votes	Seats
Independence party	26,428	20
Progressive party	15,072	13
Communist party	13,049	10
Social Democratic party	11,911	9

Iceland clung to its neutral status and did not join the wartime United Nations. It was, however, among the first to apply for membership in the postwar United Nations organization, and on Nov. 9, 1946, it was officially admitted, along with Sweden and Afghanistan.

Finance.—Monetary unit: króna=18 U.S. cents (1939), about 15.37 U.S. cents in 1942. In 1939 government revenues were 19,930,879 krónur (estimated for 1943 at 33,736,100 kr.); expenditures, 19,378,318 kr. (estimated for 1943 at 28,333,238 kr.); national debt (1939), 56,648,000 kr.; notes in circulation (Dec. 31, 1945) 177,410,000 kr.; gold reserve (Dec. 31, 1945) 5,736,000 kr. Bank deposits were 452,421,000 kr. in July 1943. Note circulation jumped from 24,580,000 kr. in Jan. 1941 to 123,810,000 kr. in Aug. 1943; loans in the same period from 92,137,000 kr. to 170,594,000 kr. Gold reserves and bank capital remained in 1946 practically at the 1939 figures.

Trade and Communication.—In 1945 exports totalled 267,261,000 kr. and imports 319,755,000 kr.; 90% of the exports went to Great Britain and most of the rest to the United States while about 65% of the imports were supplied by the United States and 21% by the United Kingdom. Exports were almost entirely fish and fish products (95%); imports consisted chiefly of: fuels and lubricants 26,000,000 kr., metal and mineral products 39,000,000 kr., machinery and appliances 31,000,000 kr., textile products 56,672,000 kr., food products and tobacco 40,000,000 kr., and wood cork and paper 26,000,000 kr.

Iceland has no railroads, but in 1944 highways totalled 3,107 mi. There were 1,923 passenger cars, 192 busses, 1,991 trucks and 172 motorcycles. Also in 1944 Icelanders could listen on 11,500 telephones and 27,339 radio sets.

Of the population 7.2% was engaged in business, 21.3% in industry and 8.7% in communications.

Agriculture.—For 1944 the chief crops were: field hay 140,000 metric tons, meadow hay 80,000 metric tons and potatoes 8,000 metric tons. Of the population 30.6% was engaged in agriculture. The planted and seeded area covered 135,000 ac. Livestock (1944) numbered: sheep 610,000, cattle 40,000, horses 60,000, goats 2,000, hogs 1,000, poultry 75,000 and fur-bearers (fox and mink) 5,000.

Fisheries.—Of the population 15.9% was engaged in fisheries, and the

total product was 461,314 metric tons (1944).

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Ice Skating. Following a four-year recess because of World War II all national ice skating championships, speed and figure, were contested during 1946. Bob Fitzgerald, a 22-year-old air corps veteran, brought the men's speed championship to Minneapolis, Minn., once again, defeating a fellow townsman, defending champion Ken Bartholomew in the process.

Fitzgerald won the nationals with a 180 to 130 margin over Bartholomew. He also captured the 41st annual North American championship over his fellow townsman, 140 to 130. Mrs. Elaine Bogda Gordon of Chicago, Ill., captured the women's national speed championship, while Eileen Whalley of Winnipeg, Man., topped the women's field in the North American.

Bartholomew, who won the national and North American in 1942 before going into the army, defeated Fitzgerald in the eastern championships. Norma Davis of Long Island, N.Y., won the eastern women's. Robert Beal of Poughkeepsie, N.Y., won the men's middle Atlantic, while Beatrice Amann of Meriden, Conn., and Norma Davis of New York city were tied in the women's division. Roy Erickson of Brooklyn swept the men's indoor competition with firsts in the New York state, tri-state and eastern championships.

Richard Button of Philadelphia, Pa., won the national men's figure skating championship, revived after a two-year recess. Gretchen Van Zandt Merrill of Boston, Mass., won her fourth straight women's title. Other national figure skating champions were: pair—Donna Jeanne Pospisil and Jean Pierre Brunet, New York; four—Joan Yocum, Jacquelyn Dunne, Edward Van Der Bosch and Larry Van Der Bosch, Chicago; dance—Anne Davies and Carleton C. Hoffner, Jr., Washington, D.C. (M. P. W.)

Ickes, Harold L. (1874–), U.S. government official, was born March 15 at Frankstown Township, Pa. He was graduated from the University of Chicago law school, Chicago, Ill., in 1907. President Franklin D. Roosevelt, after assuming office in 1933, selected Ickes as his secretary of the interior. In July of the same year, he appointed him head of the Public Works administration. Ickes also held a multitude of other posts. He became solid fuels administrator in Nov. 1941 and coal mines administrator in 1943, and was petroleum administrator for war (Dec. 1942–Nov. 1945). In Feb. 1944 his proposal that the U.S. government build an oil pipe line across Arabia aroused the ire of many U.S. oil companies and the plan eventually fell through. In the fall of 1945, Ickes travelled to London where he signed the revised Anglo-American oil pact (Sept. 24).

Ickes stated before a senate naval affairs committee (Feb. 5, 1946), that Edwin W. Pauley, who was then up for consideration as under-secretary of the navy, tried to use political pressure to halt a government suit over oil lands. This led President Truman to assert that Ickes may have been mistaken in his charges, and Ickes thereupon resigned from the cabinet on Feb. 13.

Idaho. One of the far northwestern states of the U.S., belonging to the group regionally designated as the Pacific northwest and part of the original Oregon territory, Idaho was admitted as a territory by authority of Pres. Abraham Lincoln in 1863 and as a state on July 3, 1890; it is popularly known as the "Gem state." Area, 83,557 sq.mi., pop. (1940) 524,873, of which 66.3% was rural, 33.7% urban; (est. 1944) 531,573. There were 3,537 Indians in the state in 1940. Principal cities (1940) were Boise, the capital (26,130), Pocatello (18,133), Idaho Falls (15,024), Nampa (12,149) and

Twin Falls (11,851).

History.—State officers for 1945–46 were all Democratic, but new officers elected in Nov. 1946 (all Republican) were: governor, C. A. Robins; lieutenant governor, Donald S. Whitehead; secretary of state, J. D. Price; attorney-general, Robert Ailshie; auditor, N. P. Neilson; treasurer, Leila D. Painter; superintendent of public instruction, Elton Jones; both senate and house with a large Republican majority. The most important questions be-



GOV. C. A. ROBINS of Idaho, was elected on the Republican ticket on Nov. 5, 1946

fore the legislature were the acceptance of Peabody institute recommendations toward a revision of the public school system, increased taxation to carry on proposed postwar road improvement and public building construction. The following were elected to the U.S. congress: Henry Dworshak (former U.S. representative (Republican) senator; Representatives John C. Sanborn (Rep.) and Abe Goff (Rep.); Glen Taylor (Dem.) was elected to the senate in 1944.

Education.—School population 1945–46 greatly increased in the higher branches because of returned servicemen and women and totalled approximately 126,000. Elementary schools remained about the same with 81,673 pupils and 1,020 elementary schools with 3,800 teachers. High school enrolment was about 30,000 pupils with 1,318 teachers in 176 high schools.

Social Insurance and Assistance, Public Welfare and Related Programs.—There were two institutions for the insane—one at Blackfoot and one at Orofino, also a home for the feeble-minded at Nampa and a school for the deaf and blind at Gooding. A new tuberculosis hospital was also established in 1946 at Gooding. The penitentiary at Boise had an average of 235 inmates during the year; it has a capacity of 400. The State Industrial (Reform) school is located at St. Anthony and had a fairly constant population of 250.

Communications.—There were 4,910 mi. of state highway and approximately 33,000 mi. of county and forest roads with large appropriations for 1947 construction. There were about 3,000 mi. of railroads and an increased number of commercial air lines throughout the state. Telephone companies owned about 162,000 mi. of wire with an estimate of 86,000 instruments in use. Telegraph mileage approximated 9,000 mi.

Banking and Finance.—On Dec. 31, 1946, there were 36 state banks and 54 national banks with a combined capital of \$6,240,000 and a surplus of \$3,971,000; deposits for 1946 were \$148,999,000.

Agriculture.—Southern Idaho's main sources of income were dairying, fruit, hay, sugar beets, beans and potatoes.

Principal Agricultural Products of Idaho, 1946 and 1945

Crop	1946	1945
Wheat, bu.	31,148,000	30,696,000
Corn, bu.	1,289,000	1,334,000
Oats, bu.	6,806,000	6,806,000
Barley, bu.	11,600,000	11,840,000
Sugar beets, short tons	900,000	800,000
Dry beans, cwt.	1,824,000	1,726,000
Dry peas, bu.	1,500,000	1,760,000
Hay (tame), tons	2,246,000	2,103,000
Potatoes, bu.	49,321,000	44,220,000

Manufacturing.—No accurate figures were obtainable for 1946, but most factories had been reconverted to prewar use and were expected soon to be on a productive basis.

Mineral Production.—Because of strikes, portal legal procedure, etc., no average figures were available in 1946. Principal mineral products of the state were gold, silver, lead, copper and zinc. Idaho had 3 gem collecting associations which derived a sizeable income from the manufacture of jewellery and novelties from the state's 73 varieties of precious and semi-precious stones. (L. Md.)

Illinois. A north central state of the United States, admitted to the union in 1818, nicknamed the "Sucker state," sometimes called the "Prairie state." Total area 56,400 sq.mi. of which 55,947 sq.mi. are land. Pop. (1940) 7,897,241, including 3,957,149 males and 3,940,092 females; 7,504,202 white, 393,039 nonwhite. Population classed as urban was 5,809,650, rural not on farms 1,119,488, rural farm 968,103. Chicago (3,396,808) is the largest Illinois city, followed by Peoria (105,087); Rockford (84,637); East St. Louis (75,609); Springfield, the state capital (75,503).

History.—Despite two coal strikes, closing most of the state's mines, and the railroad strike, 1946 was a year of practically full employment in Illinois. Production was somewhat spotty. Only 2,966 Illinois veterans required a full year of government unemployment aid. A survey of 1,150 major manufacturing concerns disclosed an employment increase of 110,000 in 1946.

Illinois participated in the Republican sweep of the 1946 elections Nov. 5. The entire state Republican ticket was elected but the major change occurred in Chicago and Cook county where normal Democratic majorities were wiped out in most of the contests.

The total vote, 3,619,322, was a record for an off-year election but the gain in the poll of Cook county was 482,985 while the rise "down state" was only 87,025 over the previous off-year election of 1942. William G. Stratton, Republican candidate for congressman at large, defeated Mrs. Emily Taft Douglas, Democratic incumbent, by a plurality of 367,469, reversing Mrs. Douglas' 1944 plurality of 191,235. Richard Yates Rowe, Republican candidate for state treasurer, polled a plurality of 474,184 over Sam Keyes, Democrat. Vernon L. Nickell, Republican, state superintendent of education, had a plurality of 520,093 over his Democratic opponent, C. M. Engle.

A proposal to pay a bonus to all Illinois veterans of \$10 for every month in service at home and \$15 for every month served overseas was adopted by a vote of 2,173,425, for, to 980,345, against. A proposed constitutional amendment to make the state constitution easier to amend was defeated for lack of a majority of all votes cast. The vote was 1,273,653, for, to 368,108, against.

Dwight H. Green, Republican, was governor of Illinois in 1946; Edward J. Barret, Democrat, was secretary of state. Other incumbents, all Republicans, were Hugh W. Cross, lieutenant governor; Arthur C. Lueder, state auditor, and George F. Barret, attorney general.

The results of the 1946 elections gave the Republicans 20 representatives in congress from Illinois, the Democrats 6.

Education.—Public schools of Illinois in 1946 had 1,148,195 pupils, of whom 396,644 were in Chicago, 751,551 down state, with approximately 33,000 teachers.

Illinois ranked 40th among the states in percentage of school costs borne by the state. In 1946 approximately \$55,000,000 in state appropriations went to schools. Despite 174 consolidations affecting 897 school districts, the state still had more school districts than any other. The total was in excess of 11,000. Passage of a minimum teacher's salary law of \$100 per month, intended to force consolidation, did not prove effective and increases were planned.

The total of Illinois' educational expenditures for the year 1946 computed in full, was \$204,754,288.

Social Insurance and Assistance, Public Welfare and Related Programs.—

For the fiscal year ended June 30, 1945, expenditures for old age pensions and other public aid and welfare work constituted 43% of the cost of state government, the total being \$8,964,487. In 1946 the number of pension receivers rose to 126,388 and the average pension paid increased 18% over the year previous.

State unemployment compensation receivers dropped from around 80,000 in midsummer to 50,000 in Dec. 1946. Veterans drawing unemployment compensation under the federal veterans' readjustment act dropped from 74,500 in August to 30,000 in Dec. 1946. In the same period job offers increased from 136,940 to 143,452. Planned expenditures for public works and public housing were virtually at a standstill in 1946 because of shortages of labour and materials.

Communications.—Highway construction in 1946 amounted to only \$14,000,000 and about \$35,000,000 of unobligated highway revenues lay in the state treasury at the end of the year. Total collections of highway revenue for 1946 were about \$46,000,000.

Before World War II, Illinois had 13,683 mi. of high-type paved roads connecting with 75,000 mi. of township roads, lanes, etc., of which 50,000 mi. were unsurfaced. Illinois railway mileage in 1946 was 11,758, giving service to 80% of the communities in the state.

Banking and Finance.—The feature of Illinois banking in 1946 was the chartering of numerous new national and state banks. The state prohibits branch banking and after the failure of many small banks, 1931-33, was handicapped by the lack. This was only partly taken care of by a mushroom growth of private "currency exchanges."

The Illinois banking system comprised on June 30, 1943, 813 banks, of which 340 were national; 120 state banks were members of the federal reserve system; 353 state banks were nonmembers. The growth of deposits and holdings of government bonds was so rapid that the bank call at the end of 1945 disclosed that deposits of Chicago banks alone had increased to a greater total than those of the entire state on June 30, 1943.

The state government operated in 1946 on the biennial appropriations of the general assembly of 1945 which totalled \$773,000,000 and were to run until June 30, 1947. Total expenditures for the fiscal year ending June 30, 1945, were \$226,531,927 divided as follows: relief, pensions and social welfare 43%; highways 18%; education 15%; debt retirement 6%; federal aid matching 4%; all other purposes 11%. State revenues for the same fiscal year were \$270,066,886 classified as follows:—sales tax 33%; motor fuel tax 13%; liquor taxes 9%; motor vehicle taxes, 8%; federal aid 15%; public utility tax, 4%; cigarette tax 4%; all other taxes, licences and fees 11%.

Because of heavy sales tax collections the state's general revenue balance rose to \$169,266,062 in Oct. 1946, but was reduced to \$165,657,737 because of the state's purchase of an office building in Chicago for \$6,000,000. This balance was partly earmarked to care for a \$101,000,000 postwar public works and building program. The state debt prior to the referendum authorizing the soldier bonus bond at \$150,000,000 in noncallable bonds due in 1954 and 1959.

Agriculture.—Illinois farmers produced crops valued at \$1,100,000,000 in 1946, a year of bumper yields and high prices.

Table I.—Leading Agricultural Products of Illinois, 1946 and 1945

Crop	1946	1945
Corn, bu.	514,368,000	391,000,000
Soybeans, bu.	75,036,000	74,000,000
Oats, bu.	168,693,000	158,102,000
Wheat, bu.	19,553,000	25,000,000

Manufacturing.—The value of products manufactured in Illinois in 1939, according to the U.S. biennial census (last before World War II), was \$4,794,860,733; the number employed was 688,800; total wages and salaries were \$988,453,881. The principal industries and the value of their products were as follows: meat packing \$479,501,224; steelworks and rolling mills \$207,301,815; petroleum refining \$122,933,528; tractors \$121,550,621.

Table II.—Production of Coal and Petroleum in Illinois, 1944, 1943 and 1942

	1944	1943	1942
Bituminous coal, net tons	73,492,000	72,430,000	65,071,000
Petroleum, bbl.	76,987,000	77,637,000	106,590,000

Mineral Production.—Bituminous coal production was cut sharply in 1946 by two strikes of the United Mine Workers of America and by some sympathy walkouts of members of the rival Progressive Mine Workers union. Oil production continued to depend largely upon new wells. As many as 35 new wells with total daily production of 4,389 bbl. were reported in one week of October as a result of intense exploration. The value of minerals produced in Illinois in 1944 was \$331,497,000. (L. H. L.)

Illinois, University of. George Dinsmore Stoddard, formerly New York commissioner of education and president of the University of the State of New York, became president of the University of Illinois on July 1, 1946, upon the retirement of Arthur Cutts Willard, president from 1934.

Dr. Andrew C. Ivy, noted Chicago physiologist and clinical investigator, became vice-president and head of the Chicago professional colleges of the university in Sept. 1946, succeeding Dr. Raymond B. Allen, executive dean.

The university met one of the greatest emergencies in its history by providing educational facilities for almost every individ-



STUDENTS lined up at Chicago's Navy pier on Oct. 15, 1946, to enrol in the new Chicago undergraduate division of the University of Illinois

ual who qualified for admission in the fall of 1946. Two undergraduate divisions were opened at the Navy pier in Chicago and at Galesburg, Ill., and the extension division offered freshman courses in 30 high schools throughout the state. Including the medical, dental and pharmacy schools in Chicago, total enrolment reached 27,216, of whom more than 50% were veterans.

Temporary housing of various kinds enabled 18,560 to enrol at Urbana-Champaign, 4,000 were at Navy pier and 2,000 at Galesburg.

The institute of aeronautics, a pioneering venture launched in 1945 as a horizontal administrating unit for all university aeronautical activity, had become a leader among institutions of higher learning. Flight instruction was provided at the 762-ac. airport. Organized on a similar basis was the new institute of labour and industrial relations, established in Sept. 1946, and engaging in research, extension programs and on-campus instruction.

Under construction on the Urbana campus was a new building to house a betatron designed to generate more than 250,000,000 electron volts of energy and expected to produce cosmic ray effects in the laboratory. The betatron was invented in 1940 by Prof. Donald W. Kerst of the university's physics department.

A university committee continued to work with community leaders in effecting the development of industrial and recreational resources in the southern Illinois region, where there was surplus labour and widespread dependency. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

Illiteracy. The year 1946 saw a sharp focusing of the eyes of the world on education and the need for reducing the illiteracy rates in every nation.

The educational situation in Germany was typical of the situation throughout the war-devastated countries of Europe. The university student taking notes on the margins of newspapers exemplified one of the most pressing needs of the Ger-

man educational situation, paper. This was only one example of a dearth of teaching and learning aids at every level. Even where school buildings escaped fire and bomb, many were still unavailable for educational purposes because of requisitioning by the occupation forces, by United Nations Relief and Rehabilitation administration and by German housing authorities. On Sept. 1, 1946, 349 elementary schools in the U.S. zone were still used for purposes other than education. Another distressing fact was the lack of youth in the ranks of the German teaching profession. The average age of teachers in one section was 52.

The minister of education in New Zealand stated that New Zealand's objective is a maximum of 30 children in primary and secondary school classes and extension of the distribution of free textbooks. A school building program designed to raise the standard of classroom accommodations at all levels was to be put into effect and the compulsory school age was to be raised.

In Ecuador it was estimated that almost-two thirds of the 3,000,000 inhabitants were incapable of the fundamental processes of reading and writing. Following Frank C. Laubach's "Each one teach one" theory, every literate pupil was instructed to pass on his knowledge to one of his less fortunate fellows. More than 60,000 people were instructed in the rudiments and received the diploma which admits them into the ranks of enfranchised citizens.

Of Mexico's 20,000,000 people 45% were still illiterate in 1946. Experience proved that additional schools were not enough to boost the literacy rate. When the children could bolster the family budget by working, parents were reluctant to send them to school and adults employed for long hours at low wages refused to attend educational centres. The Mexican literacy law makes it compulsory for each educated citizen between 18 and 60 years old to teach one illiterate person between 6 and 40 to read and write. All children between 6 and 14 and all illiterates between 14 and 40 are required to learn.

In the U.S. a comprehensive one-year project to attack the problems of functional illiteracy among Negro adults was advancing into its third phase. The purpose of the project is the lifting of the educational level of the large group of adult Negroes described as "functionally illiterate."

The interest of the United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.) was drawn to the problem of illiteracy throughout the world and U.N.E.S.C.O. members proposed that "this Organization should launch upon a world scale an attack upon ignorance, by helping all member states who desire such help to establish a minimum Fundamental Education for all their citizens." At the Nov. 19, 1946, U.N.E.S.C.O. conference in Paris, it was suggested that in the education section of the permanent secretariat a panel on fundamental education be established, consisting of a permanent staff continuously in service at U.N.E.S.C.O. headquarters in Paris supplemented by other personnel to be brought in for consultation at various times. This staff would be available for conferences and consultation in every country and for the study of achievements, national needs and the part U.N.E.S.C.O. should take in the movement. Some of the proposed activities of the panel are: preparation of bibliographical data; statistical studies; dissemination of lists, brochures and governmental enactments; documentation of films, radio programs, charts, maps and all teaching aids.

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Illumination: see ELECTRICAL INDUSTRIES.

I.L.O.: see INTERNATIONAL LABOUR ORGANIZATION.

Immigration and Emigration. The migration of aliens to and from the United States is regulated by law and treaty, and is under the jurisdiction of the commissioner of immigration and naturalization of the department of justice. The principal immigration acts are the act of Feb. 5, 1917, which sets certain mental, physical, moral, racial and economic standards; and the quota act of May 26, 1924, which limits the number of aliens who may enter for permanent residence from certain countries.

More than 76,000,000 aliens and citizens, principally persons who crossed and recrossed the land borders, entered the United States during the fiscal year ended June 30, 1946. Arrivals and departures during 1945 and 1946, exclusive of border crossers, travellers between the United States and the insular possessions and agricultural and railway track labourers admitted from Mexico, were as reported in the table.

*Arrivals and Departures of Aliens and Citizens
During Fiscal Years Ended June 30, 1945 and 1946*

	1946	1945
Arrivals:		
Aliens admitted	312,190	202,366
Immigrant	108,721	38,119
Nonimmigrant	203,469	164,247
U.S. citizens	274,543	175,568
Aliens debarred	2,942	2,341
Departures:		
Aliens	204,353	93,362
Immigrant	18,143	7,442
Nonimmigrant	186,210	85,920
U.S. citizens	230,578	103,019

During the fiscal year 1946, 108,721 immigrant aliens were admitted to the United States for permanent residence. This represented an increase of 185% over the 38,119 immigrants admitted in the previous year and was the largest number admitted in any year after 1930. The principal countries from which these immigrants came were: England (30,922); Canada (20,414); Mexico (7,146); and France (5,708). Among the immigrants were 2,551 displaced persons from the U.S. occupation zones in Europe who were admitted under the president's directive of Dec. 22, 1945. There were 29,095 quota immigrants admitted, or 18.9% of the permissible quota of 153,879, and 79,626 non-quota immigrants. The principal groups of nonquota immigrants consisted of 44,775 wives, 61 husbands and 721 alien children of citizen members of the U.S. armed forces admitted under the

IMMIGRANT ORPHANS sent to the U.S. by the U.N.R.R.A. arrived in New York on June 18, 1946. The one on the left was from Lithuania, and the other two from Poland



act of Dec. 28, 1945, and 29,396 natives of nonquota countries. More than half of the war brides came from England and most of the natives of nonquota countries came from the bordering countries of Canada and Mexico. Aliens admitted for temporary stay and resident aliens returning from a brief sojourn abroad totalled 203,469.

There were 18,143 emigrants who departed during the fiscal year 1946, as compared with 7,442 in the preceding year, or an increase of 144%. The principal countries to which the emigrants went were Great Britain (3,798); West Indies (1,384); France (1,192); and Mexico (1,069).

During the fiscal year, 2,942 aliens seeking admission for 30 days or longer and 2,708 aliens who wished to come in for less than 30 days were excluded from entry into the United States.

The continued man power shortage led to further appropriations for the continuation of the importation of alien labourers from near-by countries. On June 30, 1946, there remained in the United States 65,745 agricultural labourers and approximately 3,000 railway track workers.

The number of illegal entries to the United States increased greatly, especially along the Mexican border. The immigration border patrol apprehended 99,591 deportable aliens, the greatest number recorded from the time the patrol was organized in 1924. During the fiscal year 1946, 14,375 aliens were deported from the United States, 101,945 aliens who had been adjudged deportable were allowed to depart at their own expense without warrants of deportation and 21 indigent aliens were returned to their own countries at the expense of the government of the United States. (See also ALIENS; CENSUS DATA 1946; REFUGEES.) (U. C.)

Imports: see INTERNATIONAL TRADE; TARIFFS. See also under various countries.

Income, Distribution of: see WEALTH AND INCOME, DISTRIBUTION OF.

Income and Product, U.S. Preliminary estimates of the national income and gross national product of the United States for the year 1946 show only moderate changes from the 1945 aggregates. The national income increased slightly to \$164,000,000,000, compared with the 1945 total of \$161,000,000,000. On the other hand, a small decline was recorded for the gross national product which decreased to \$194,000,000,000 in 1946 as compared with \$199,200,000,000 in 1945. In the case of both aggregates the current dollar totals for 1946 reflect the substantial rise in prices which occurred after the middle of the year as wartime controls were relaxed. Nevertheless, the reconversion of industry to peacetime production was so rapid during the year that the level of economic activity did not fall far short of wartime peaks.

Meaning of National Income and Gross National Product.—National income as understood in this survey represents a summation of the net earnings of the various factors of production derived from their association in current economic production. Both money income and income in kind are included, so long as they are derived from participation in current production. Such income receipts as relief, unemployment benefits, pensions, gifts, capital gains or losses and gains from illegal activities are excluded since they do not represent earnings derived from current productive activity. The incomes included in the compilation are net incomes; that is, in the case of business enterprises, the incomes are counted after deduction of costs of doing business and after allowance for depreciation and business taxes. In the case of corporations, the income is taken after allowance for income and excess profits taxes. The esti-

mates are limited to those incomes which are ordinarily derived from the market economy. Thus, the value of the services of housewives is not included, whereas the income derived from government employment or government obligations is included. It is well to emphasize that the national income is not simply the sum of money incomes of all persons in the United States, such as might be reported for income tax purposes.

The gross national product, as measured by the U.S. department of commerce, represents a summation of three major components: (1) the market value of goods and services flowing to consumers, (2) the value of the gross output of capital goods retained by private business and (3) the cost value of the goods and services produced or purchased by government. The gross national product differs from the national income in that no allowance is made for depreciation and other reserves (which constitute business expenses in the computation of income) or for taxes paid by business.

Taken together, the national income and national product estimates provide a comprehensive picture of the current economic activity of the United States as a whole. The two sets of estimates represent the receipts (national income) and expenditures (national product) sides of a consolidated national account showing the major transactions that occurred during the year relative to current production of goods and services. The data are useful in giving quantitative expression to economic trends and problems of the national economy as well as in comparing the operations of an individual business firm with the national totals for all economic activity.

Changes in U.S. National Income, 1919-46.—Estimates of national income from 1919 to 1946 are shown in Table I. It should be noted that the economic boom associated with World War I reached its high point in 1920. There followed a sharp and short liquidation in 1921 and then an almost continuous upsurge of economic activity during the prosperous '20s, with a new high for national income in 1929 not surpassed until 1941.

The estimates in the accompanying tables are in terms of dollars, and consequently are affected by the general level of prices as well as by the physical quantity of goods and services produced. Since for many purposes the physical quantity of national production, or real national

national income rose more than \$6,000,000,000, even though the program was not inaugurated until the middle of that year. It was not until 1941, however, that the full impact of the rearmament program became apparent. In that year the national income rose by \$17,000,000,000.

With the actual outbreak of war at the end of 1941 the efforts to obtain the maximum output of armaments in the United States were intensified, leading to an ever greater use of available economic resources. As a consequence, the national income continued to expand in 1942 and 1943 with a gain in the earlier year of more than \$25,000,000,000 and a gain of more than \$27,000,000,000 in the latter.

As may be seen by a comparison of the national income in current dollars and in 1935-39 dollars as shown in Table 1, the rise in the national income after 1940 was in part the result of the rising trend of prices, but the larger part of the expansion represented an increase in real income.

The period of rapid wartime expansion of the national income came to an end at about the close of 1943. By that time the national income was flowing at an annual rate of approximately \$155,000,000,000, and represented virtually complete utilization of economic resources. Since inflation of the national income through rising prices was held in check during 1944 by the price control and rationing programs, the national income in that year rose only moderately to \$160,700,000,000. It may be seen, therefore, that the fairly substantial increase in the national income from 1943 to 1944 occurred largely during the earlier year. Even so, 1944 national income exceeded the 1943 total by only 8% in terms of current dollars, while in terms of constant dollars the increase was limited to 6%.

This trend continued until the middle of 1945 when the national income reached its wartime peak. After the end of the war in Europe there was some curtailment of the war production program but rapid re-employment in civilian industries tended to maintain the level of income. With the ending of the war in the Pacific, however, the economic situation was drastically changed. The immediate liquidation of

Table II.—National Income by Distributive Shares

Item	(In 000,000,000s of dollars)					
	1929	1932	1939	1944	1945	1946*
Total national income	\$83.3	\$40.0	\$70.8	\$160.7	\$161.0	\$164.0
Total compensation of employees	53.1	31.7	48.1	116.0	114.5	109.0
Salaries and wages	52.6	31.0	44.2	112.8	111.4	106.0
Supplements to salaries and wages . . . . .	.5	.6	3.8	3.2	3.1	3.3
Net income of corporations	7.2	-3.6	4.2	9.9	9.0	12.0
Net dividends	5.9	2.7	3.8	4.5	4.5	5.0
Corporate savings	1.3	-6.4	.4	5.4	4.5	7.0
Net income of non-corporate business	13.6	4.8	11.2	24.1	25.6	30.0
Agriculture	5.2	1.5	4.3	11.8	12.5	15.0
Other	8.5	3.4	6.9	12.3	13.1	15.0
Net interest	5.9	5.6	5.1	6.7	7.7	8.6
Net rents and royalties	3.6	1.5	2.3	3.9	4.1	4.4

*Preliminary.

Source: U.S. Department of Commerce.

Table I.—National Income in Current and Average 1935-39 Dollars

Year	Current dollars Total (in 000,000,000s of dollars)	1935-39 dollars Total (in 000,000,000s of dollars)	Per Capita (\$)
1919	\$ 67.6	\$ 47.8	\$455
1920	69.7	44.1	414
1921	52.6	40.8	377
1922	60.4	49.5	451
1923	70.0	56.7	508
1924	70.0	56.4	499
1925	74.6	59.5	518
1926	76.8	60.7	521
1927	76.2	61.9	524
1928	80.1	64.8	541
1929	83.3	68.1	566
1930	68.9	58.0	471
1931	54.5	51.0	411
1932	40.0	41.6	334
1933	42.3	45.7	364
1934	49.5	50.6	400
1935	55.7	56.1	440
1936	64.9	65.2	509
1937	71.5	69.0	536
1938	64.2	64.2	494
1939	70.8	71.9	549
1940	77.6	78.0	591
1941	96.9	92.8	696
1942	122.2	107.2	796
1943	149.4	123.7	906
1944	160.7	128.0	927
1945	161.0	125.5	899
1946*	164.0	118.2	837

*Preliminary.

Source: U.S. Department of Commerce.

income, is required, a series depicting this volume is also shown in Table I, average prices of 1935-39 being used as a base.

In assessing the importance of the rise in national income over a period of time, it is essential to take account of the increase in population. As population rises, there are more persons to share in the goods being produced for present and future consumption and also more hands available for contributing to total output. The changes in income produced per capita, after adjustment for fluctuating prices, are shown in Table I.

The outbreak of World War II marked 1939 as the end of a definite phase in the economic life of the United States. The stimulus provided by the great U.S. defense effort was already evident in 1940, when the

the war production program was begun with the result that employment and income turned downward. Although controls over peacetime production were removed, the reconversion problem was so large that the expansion of civilian output could not immediately fill the gap left by the elimination of war production. As a consequence, the level of national income in the late months of 1945 was significantly below that prevailing in the earlier part of the year.

The reconversion decline in economic activity reached its low point in the first quarter of 1946. During the remainder of the year the trend was sharply upward with the expansion in the output of civilian goods more than offsetting the further decline in the military sphere. The rising volume of production produced a corresponding upward trend in the national income, and this was augmented by a sharp rise in prices after the middle of the year as wartime price controls were relaxed. The net result was that total national income for 1946 was slightly higher than the aggregate for the preceding year.

Distributive Shares of the National Income.—The distributive shares of the national income are shown in Table II. Changes in the distributive shares in 1946 followed a different pattern than during the World War II years of income expansion. After the end of the war total wages and salaries began to decline as a result of the decline in total employment, the demobilization of the armed services and the reduction in overtime work. These contracting influences were offset to a considerable extent by the continuous increase in wage rates. In 1945 total salaries and wages were only a little more than \$1,000,000,000 below the peak level of 1944. In 1946, however, wage and salary payments dropped to \$106,000,000,000 from the total of \$111,400,000,000 in the preceding year. As civilian wages and salaries increased from \$95,200,000,000 in 1945 to \$99,800,000,000 in 1946, the reduction in the aggregate reflected the contraction of military pay rolls.

In contrast to the record of recent years corporate profits after taxes increased substantially in 1946. This component of the national income showed the largest percentage rise for the year, from \$9,000,000,000 in 1945 to an estimated \$12,000,000,000 in 1946. While the favourable level of profits indicated the rapid reconversion of business to a peacetime basis, the rise in profits resulted primarily from the elimination of the excess profits tax at the end of 1945. Only a few industries which had special reconversion difficulties or which were adversely affected by labour disputes failed to show substantial increases in profits over the preceding year. The increase in profits was not reflected in dividend payments which rose by only \$500,000,000 from the level which prevailed in 1944 and 1945. Dividend disbursements were held down in part by capital requirements in the reconverting industries, particularly by the need for raw material and goods-in-process inventories.

Noncorporate business also showed a marked increase in income in 1946. In the agricultural field there was a gain of about 20% to a total of \$15,000,000,000 compared with the 1945 aggregate of

Table III.—Gross National Product or Expenditure, 1939–45*
(In 000,000,000s of dollars)

Item	1939	1943	1944	1945	1946†
Gross national product or expenditure	\$88.6	\$187.4	\$197.6	\$199.2	\$194.0
Government expenditures for goods and services	16.0	93.5	97.1	83.6	35.0
Federal government	7.9	86.2	89.5	75.8	26.0
War	1.4	81.3	83.7	69.4	17.0
Nonwar	6.5	4.9	5.7	6.3	9.0
State and local government	8.1	7.4	7.7	7.9	9.0
Output available for private use	72.6	93.9	100.5	115.5	159.0
Private gross capital formation	10.9	2.5	2.0	9.1	32.0
Construction	3.6	1.6	1.6	2.6	8.0
Producers' durable equipment	5.5	3.1	4.0	6.6	13.0
Net change in business inventories	.9	—6	—1.7	—6	6.0
Net exports of goods and services	.8	—1.5	—1.8	.6	5.0
Net exports and monetary use of gold and silver	.2	†	—1	—1	†
Consumers' goods and services	61.7	91.3	98.5	106.4	127.0
Durable goods	6.4	6.6	6.7	7.7	14.0
Nondurable goods	32.6	55.1	60.0	65.6	77.0
Services	22.7	29.7	31.7	33.1	36.0

*Detail will not necessarily add to totals because of rounding.

†Preliminary.

‡Less than \$50,000,000.

\$12,500,000,000. The large rise in agricultural prices after the middle of the year was the primary factor accounting for the income gain. The net income of nonagricultural entrepreneurs increased by somewhat smaller proportions—the preliminary estimate for 1946 of \$15,000,000,000 contrasting with the previous year's total of \$13,100,000,000. While the rising trend of prices contributed to the income gain, it also reflected the larger volume of civilian goods being distributed to consumers.

Income from interest increased almost \$1,000,000,000 in 1946 to attain a total of \$8,600,000,000. The larger payments of interest on the public debt were the major factor in this rise, though there was in 1946 a substantial increase in private borrowing for the first time in several years. Net rents and royalties rose to only a small extent as fairly rigid controls over rents continued to be maintained throughout the year.

Gross National Product.—The decline in the gross national product in 1946 to \$194,000,000,000 from the figure of \$199,200,000,000 a year earlier resulted entirely from the drop in war spending of the government. The rapid liquidation of the war program is shown by the drop in war expenditures from \$83,700,000,000 in 1944 to \$17,000,000,000 in 1946. The curtailment of military expenditures after the end of the Japanese war had already reduced total war expenditures to \$69,400,000,000 in 1945 from the peak of the previous year.

The release of economic resources from wartime requirements permitted an expansion of all the civilian components of the gross national product in 1946. Nonwar expenditures of the federal government and the outlays of the state and local governmental bodies increased significantly, even though the continuing shortages of labour and materials were still exercising a dampening influence in such spheres as public works expenditures.

Much greater expansion occurred, however, in the availability of goods and services for private use. This vital segment of the gross product increased from \$115,500,000,000 in 1945 to \$159,000,000,000 in 1946, reflecting the increased quantity of goods and services available as well as the substantial rise in prices of those goods. The increase in capital outlays was most spectacular. Gross investment expenditures reached a total of \$32,000,000,000—more than three times as much as the preceding year and far higher than the previous record total attained in 1941. It can be seen from Table III that construction activity made a significant start to a peacetime volume of business with outlays of \$8,000,000,000 compared with only \$2,600,000,000 in 1945. Expenditures on producers' durable equipment approximately doubled from the preceding year to attain a total of \$13,000,000,000. The process of re-conversion, involving the filling of the raw materials and goods-in-process pipe line in the civilian goods industries, led to a substantial increase in business inventories, marking the first period of inventory accumulation since the first year of World War II. With the ending of lend-lease, net exports of goods and services also increased to record levels. The total net balance in 1946 of \$5,000,000,000 reflected the tremendous shortages of goods abroad that resulted from wartime limitations. Its financing was made possible in part by government loans and in part by the gold and dollar assets accumulated by foreign countries during World War II.

Consumers' expenditures recorded a substantial increase in 1946 to attain a record level of \$127,000,000,000. The increase of more than \$20,000,000,000 from the preceding year was in part the result of higher prices. It also reflected, however, the larger volume of goods and services flowing to consumers. This was made possible to some extent by the reduction in military purchases and the transfer of goods to civilian channels. In addition, there was a substantial increase in the production of the consumers' goods industries. Expenditures on durable goods of \$14,000,000,000 in 1946 were almost double the previous year's total, while outlays for nondurable goods showed a spectacular increase from \$65,600,000,000 in 1945 to \$77,000,000,000 in 1946. It was evident that civilians generally were entering the market freely to make good for wartime shortages. The unusual factor in the situation was the purchases of returning servicemen who were re-entering civilian life for the first time in several years.

Use of Consumers' Income.—Statistics on the disposition of income payments to individuals are given in Table IV. The income payments aggregate differs from the national income in several respects. It includes transfer payments of the government for such items as relief,

unemployment compensation and dismissal pay to veterans of the armed forces, whereas these payments are not included in the national income. On the other hand, the national income includes the undistributed profits of corporations and business contributions to social insurance funds which are not included in income payments.

The change in income payments from 1945 to 1946 was approximately equal to the change in national income. The disposition of this income, however, showed a marked change from the wartime pattern. It

Table IV.—Disposition of National Income, 1939–45*
(In 000,000,000s of dollars)

Item	1939	1943	1944	1945	1946†
National income	\$70.8	\$149.4	\$160.7	\$161.0	\$164.0
Add: Transfer payments	2.4	3.2	5.3	8.1	11.0
Less: Corporate savings	.4	5.5	5.4	4.5	7.0
Contributions to social insurance funds	2.0	3.8	3.9	3.8	4.0
Equals: Income payments to individuals	70.8	143.1	156.8	160.7	164.0
Less: Personal taxes and non-tax payments	3.1	18.6	19.4	21.2	19.0
Federal	1.3	16.6	17.4	19.0	16.8
State and local	1.9	2.0	2.0	2.1	2.2
Equals: Disposable income of individuals	67.7	124.6	137.4	139.6	145.0
Less: Consumer expenditures	61.7	91.3	98.5	106.4	127.0
Equals: Net savings of individuals	6.0	33.3	38.9	33.1	18.0

*Detail will not necessarily add to totals because of rounding.

†Preliminary.

may be seen that tax payments declined for the first time after the outbreak of World War II with the result that the disposable income of individuals increased more than total income payments. The spectacular postwar change came, however, in the allocation of income after taxes between expenditures and savings. As already mentioned, consumers' expenditures increased very substantially—to a far greater extent than was made possible by the reduction in taxes. This necessarily implied a substantial reduction in the volume of current savings. Net savings of individuals in 1946 was estimated at \$18,000,000,000 in contrast to the figure of \$33,100,000,000 for the preceding year and the wartime peak in 1944 of \$38,900,000,000. The 1946 level was about a normal proportion of savings to income and reflected the relaxation of the wartime incentives to save as well as the wartime restrictions on spending as a result of the shortages of goods and the limitations imposed by price control and rationing. (See also BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; WEALTH AND INCOME, DISTRIBUTION OF.) (M. Gt.)

Income Tax: see TAXATION.

India. A subcontinent projecting from the mainland of Asia, comprising 11 major or "autonomous" provinces, five minor areas directly administered by the central British government and a large number (between 500 and 600) of states under Indian rulers. British India (the 16 major provinces and minor areas) has its capital at New Delhi and is under a viceroy and governor-general (Field Marshal Viscount Archibald Wavell), who is also the representative of the crown in its relations with the native states. Total area: 1,581,410 sq.mi. (including the native states and agencies total of 715,964 sq.mi.); pop. (1941 census): 388,997,955. Chief cities (pop. 1941): Calcutta (2,108,891); Bombay (1,489,883), Madras (777,481); Hyderabad (739,159); Delhi (521,849); Lahore (671,659). Languages: Hindi, Tamil and Urdu the most important; religions: Hinduism (approx. two-thirds), Mohammedan (approx. one-fifth). Ruler: George VI, emperor.

History.—The year 1946 opened ominously. The failure of the viceroy to bring Hindus and Moslems together on his executive council had greatly exacerbated communal feeling. There was intense excitement over the trial of members of the so-called "Indian National army," who were accused of acts of barbarity against Indian sepoys, and this led to rioting in the principal cities and attacks on Europeans. Added to all this, there was a threat of a famine in southern India, because of a failure of the rains. The elections to the provincial legislatures, the first held after 1937, resulted in the return of supporters of the Indian National congress in 8 out of the 11 provinces with greatly increased majorities, while the Moslem league captured practically all the seats reserved for Moslems. The minor political parties were virtually eliminated.

In these circumstances the British government decided to send out a cabinet mission, consisting of Lord Pethwick-Lawrence, secretary of state for India, Sir Stafford Cripps, and A. V. Alexander. The object of the mission, which went to India at the end of March, was not to settle the constitution, but to set up

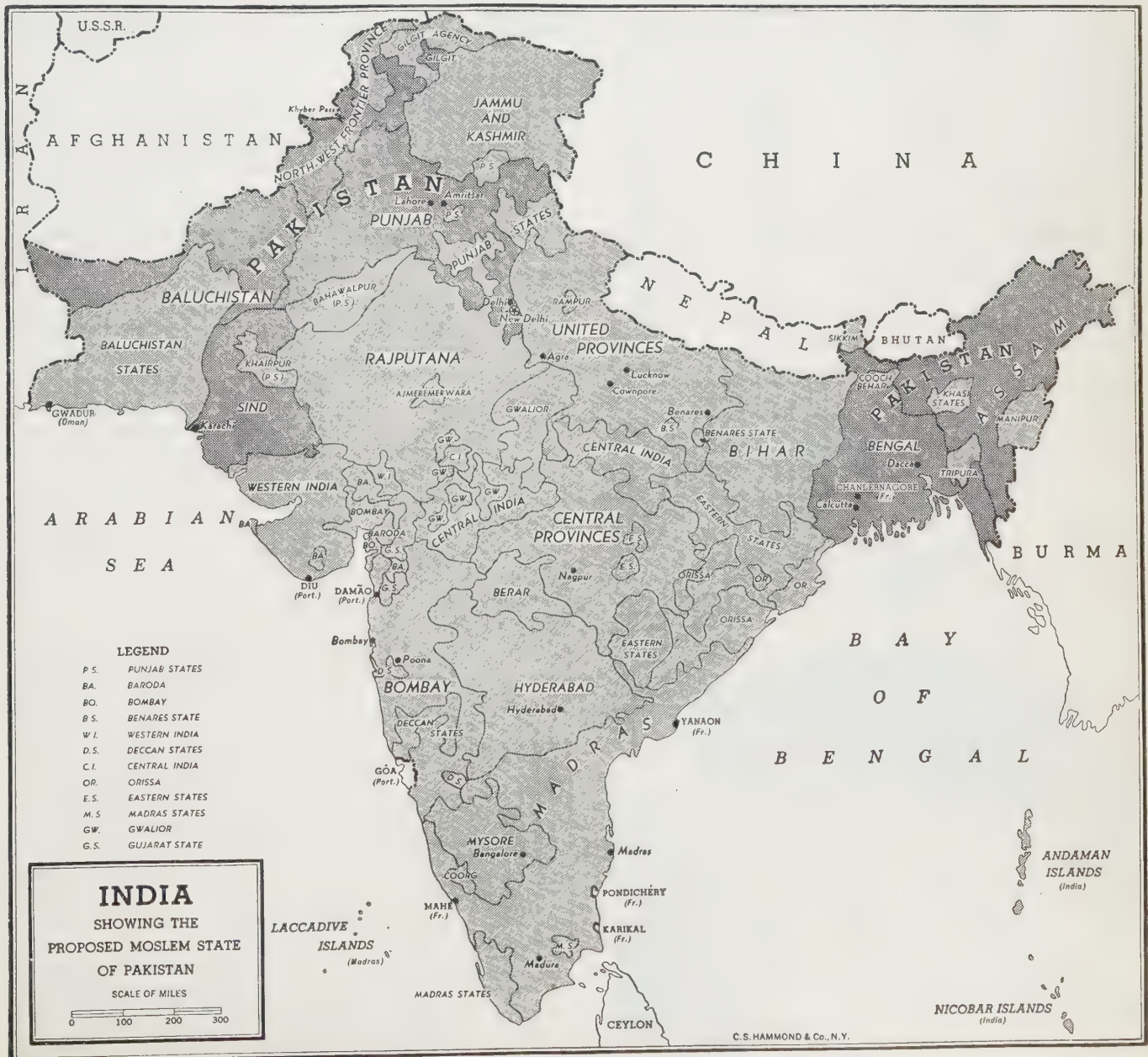
machinery through which Indians could draw up a constitution for themselves. The mission was unable to bring about an agreement, and on May 16 it was obliged to issue proposals of its own. Pakistan was rejected, but the central government was to be a minimal one, limited to defense, communications and foreign affairs. Moreover, provinces were to be empowered, if they wished, to form groups, each with its own executive and legislature. This "three-tiered" constitution would, if adopted, give the Moslems the substance of Pakistan without the partition of India to which the Congress party was so firmly opposed. A constitution-making body would be set up in which each province would be assigned a total number of seats proportionate to its population, the seats being allotted to the main communities in proportion to their numbers in each province. Representatives of the states would also be included. This proposal was accepted by both parties.

The mission returned on June 29. It had failed to secure the concurrence of the parties to an interim government, and the viceroy was forced to set up an executive council of officials as a temporary measure. On July 25 the results of the elections to the constituent assembly were announced; the congress had won 201 out of the 210 seats allotted to general constituencies,

while the Moslem league carried off 73 out of the 78 seats reserved for Moslems.

On July 29 the Moslem league, by way of protest against speeches made by Congress leaders, withdrew its agreement to the cabinet mission's long-term plan. As the result of a "direct action day," serious communal rioting broke out in Calcutta, causing more than 3,500 deaths and damage to property amounting to £1,000,000. On Aug. 25 the viceroy published the names of his new interim government. It consisted mainly of prominent Congress leaders, but Lord Wavell made it clear that the Moslem league was at liberty to propose to him 5 names out of a total of 14, of whom 6 would be members of the Congress party and 3 of the minorities. The interim government assumed office on Sept. 1 with Jawaharlal Nehru as vice-president.

On Oct. 5, by the good offices of the nawab of Bhopal, chancellor of the chamber of princes, a meeting was arranged between Mohammed Ali Jinnah and Pandit Nehru, and on Oct. 15 it was announced that the viceroy's offer had been accepted by the league. Three members of the cabinet resigned to make way for the newcomers, who did not include Jinnah. One of the league nominees was Jogendranath Mondal, the Bengal depressed classes leader. It was announced that A. Kripalani was



to succeed Pandit Nehru as president of the Indian National congress. The opening meeting of the constituent assembly, it was announced, should be held on Dec. 9, but a fresh crisis arose over the interpretation of the cabinet mission's plan. The Moslem league maintained that the question whether a group of provinces should have a separate government should be decided by a simple majority vote of the whole group, and this was the view endorsed by the British cabinet. The Indian National congress held that the provinces should decide individually whether they should form groups; if this were upheld it would disrupt the plan altogether. The Moslem league announced that they would boycott the constituent assembly until the matter was settled. A meeting between the viceroy, the Indian leaders and the British cabinet was held in London at Whitehall, but failed to arrive at any agreement, and the constituent assembly was opened without the representatives of the Moslem league or the Indian states. Pandit Nehru announced that India was to be a sovereign republic, and the meeting was adjourned until Jan. 20, 1947. (See also BURMA; FAMINES; WORLD WAR II.)

(H. G. R.N.)

Agriculture, Manufacturing and Mineral Production.—See table for latest figures on production of commodities in India.

Leading Agricultural and Mineral Products of India

Commodity	Year	000 short tons
Rice	1943-44	51,305
Wheat	1945	12,612
Maize	1940	2,341
Barley	1941	2,530
Cane Sugar (raw)	1943-44	3,817
Tea	1943	275
Rubber	1945	17.5
Tobacco	1940	524
Jute (raw)	1944	1,087
Cotton	1945	688
Linseed	1943	458
Rapeseed	1943	1,196
Ground-nuts	1943	3,714
Sesamum	1943	508
Coal (British India)	1945	29,119
Iron ore (metal content)	1939	2,193
Pig-iron and ferroalloys	1945	1,494
Steel	1945	1,416
Manganese ore (metal content)	1941	539
Chrome ore	1939	27.5
Bauxite	1946	16.5
Gold (000s of fine oz.)	1945	170
Petroleum (crude)	1944	392

"OUT OF THE FRYING PAN . . . ?" drawn by Shoemaker of the *Chicago Daily News* in 1946



Industry.—Total number of factories (1943) 13,209; average number employed 2,436,312. Cotton (1941-42): yarn spun 788,590 short tons; woven goods 4,493,613,268 yd.; number of mills (1944) 407; average number employed daily (1944) 505,562. Jute (1940): number of mills 108; average number employed 488,884. Mines (1943): average number employed 349,361.

Education.—Recognized institutions in British India (1943): primary schools for boys 153,380, for girls 22,654; scholars (boys) 8,566,838, (girls) 3,027,420. Secondary schools for boys 13,536, for girls 1,955; scholars (boys) 2,324,618, (girls) 413,159. Special schools for boys 11,017, for girls 763; scholars (boys) 437,539, (girls) 40,187. Colleges for men 389, for women 66; students (men) 134,832, (women) 13,892. Unrecognized schools: for boys 12,066, for girls 3,676; scholars (boys) 374,094, (girls) 90,599. Universities (1941) 16 in British India (students 109,098 men and 5,006 women), 3 in Native states.

Finance.—Central government: revenue (est. 1946-47) Rs.3,069,993,000; expenditure (est. 1946-47) Rs.3,556,997,000. Public debt (March 1945) Rs.18,818,966,000. Notes in circulation (July 31, 1946) Rs.12,117,374,000. Gold reserve (July 31, 1946): gold Rs.443,412,000. Sterling securities (March 1945) Rs.10,179,481,000. Currency: 1 rupee (Rs. 1): Rs. 100,000=1 lakh (written Rs.1,00,000); Rs. 10,000,000=1 crore (written Rs.1,00,00,000). Exchange rate (Sept. 1946): Rs.1=30.16 U.S. cents.

Trade and Communication.—Overseas trade (1945): imports Rs.2,159,529,000; exports Rs.2,177,536,000. Communication: roads (1942) in British India, 85,792 mi. for motor traffic and 261,340 mi. unsurfaced; railways (route mileage, March 1943) 20,698 mi. broad gauge, 16,010 mi. metre gauge, 3,868 mi. narrow gauge; shipping (monthly average 1939) 924,200 tons entered, 917,500 tons cleared; motor vehicles licensed (March 31, 1940: British India) 94,788 cars and taxis, 43,187 commercial vehicles, 8,602 cycles; wireless receiving set licenses, all India (1945) 199,589; telephones (March 31, 1944) c. 116,000, exchanges 2,600.

Indiana. An east north central state with the popular name of "Hoosier," Indiana was admitted to the union Dec. 11, 1816, as the 19th state. Total area of the state is 36,325 sq.mi., including 314 sq.mi. of inland lakes and rivers. Pop. (1940 census) 3,427,796. The 1940 census showed the population to be 55.1% urban and 44.9% rural; 93.2% native white, 3.2% foreign-born white and 3.6% Negro. Estimated population in 1946 was 3,900,000. Capital, Indianapolis (pop. 1940, 386,972), the largest city. Other cities: Fort Wayne (118,410); Gary (111,719); South Bend (101,268); Evansville (97,062); Hammond (70,184); Terre Haute (62,693); East Chicago (54,637); Muncie (49,720); Anderson (41,572).

Political History.—The general assembly did not meet in 1946. State government officials held a series of "clinics" in various cities to inform the people how their government operated. The retirement of public employees under provisions of the new state retirement act began on July 1, 1946. State troops were used in one strike at Connersville. A faction appeared in the Republican party demanding a direct primary in place of the convention system of nominating candidates for office.

Elected officers of the state in 1946 were Ralph F. Gates, governor; Richard T. James, lieutenant governor; Rue J. Alexander, secretary of state; Frank T. Millis, treasurer; Alvin V. Burch, auditor; James A. Emmert, attorney general; Clement T. Malan, superintendent of public instruction. They were all Republicans.

Education.—The number of schools in the state in 1945-46 was 2,725. Enrolment in the elementary or common schools was 458,822, with 11,656 teachers. Enrolment in the high schools (grades 9-12) was 169,555, with 9,522 teachers. Parochial schools had an enrolment of 46,800 in the elementary grades and 9,352 in high-school. For the year 1945-46, the state added \$30,983,825 to the \$79,420,756 raised by local units of government for the support of schools. The state provided \$7,460,875 for the 4 state colleges.

Social Insurance and Assistance, Public Welfare and Related Programs.—In 1945-46 the state's welfare program cost \$26,628,620, of which \$10,725,288 was paid from federal funds, \$7,990,961 from state funds and \$7,912,371 from county funds. Old age assistance cost \$17,877,825, blind assistance \$720,819, aid to dependent children \$2,803,035 and child welfare \$3,271,468. Receipts of the state for unemployment insurance for the year ending June 30, 1946, were \$25,513,716. Benefits paid out were \$29,595,365, not including federal payments to war veterans.

In 1946 the state maintained nine institutions for mental cases, including an epileptic village; seven homes, hospitals and schools; three university hospitals; and six correctional institutions. As of June 30, 1946, inmates of mental institutions totalled 12,925 and inmates of correctional institutions, 10,414.

Communications.—Total mileage of state highways on June 30, 1946, was 10,389 out of a total of 76,700 mi. of roads in the state. Expenditure of the state highway commission on roads in the fiscal year 1945-46 amounted to \$17,576,170. There were 6,660 mi. of steam railroads (first main tracks) and 241 mi. of electric railroads. The estimated

number of telephones in the state at the end of 1946 was 788,000. There were 190 airports.

Banking and Finance.—On June 30, 1946, there were 370 state banks and trust companies with total resources of \$1,433,561,288 and total deposits of \$1,352,465,842. There were 126 national banks with total resources of \$1,581,279,000 and total deposits of \$1,499,126,000. State savings and loan companies numbered 175 as of Dec. 31, 1945, with resources of \$131,976,745. The assets of federal savings and loan associations as of the same date were \$178,392,000.

On June 30, 1945, the state had a balance of \$84,424,697. During the fiscal year the state treasurer received \$338,767,436, and expenditures amounted to \$315,253,955, leaving a balance on hand June 30, 1946, of \$107,938,177. The state constitution strictly limited borrowing; consequently there was no state debt in 1946.

Agriculture.—Corn production set a new all-time high record in 1946, although the yield per acre was 51 bu., whereas in 1945 the national record of 53 bu. had been established. Other grains ran slightly less than in 1945 because of a dry summer. The apple crop was much improved over the disappointing one in 1945. The Indiana State fair was resumed in September after a war lapse of six years.

Leading Agricultural Products of Indiana, 1946 and 1945

	1946	1945
Corn, bu.	231,489,000*	231,292,000
Wheat, bu.	29,692,000*	34,920,000
Oats, bu.	56,160,000	57,582,000
Soybeans, bu.	25,346,000*	28,587,000
Rye, bu.	540,000	875,000
White potatoes, bu.	3,120,000	3,645,000
Barley, bu.	648,000	1,056,000
All tame hay, tons	2,521,000*	2,545,000
Tobacco, lb.	12,440,000	13,540,000
Mint for oil, lb.	654,000	722,000
Apples, bu.	1,320,000*	828,000
Peaches, bu.	519,000*	589,000
Watermelons, melon	4,440,000*	2,168,000
Tomatoes for processing, tons	684.2	— 486.2

*Estimated.

Manufacturing.—During World War II Indiana received government contracts for war supplies amounting to \$9,000,000,000 and ranked 7th in the United States in war production. A year of reconversion to the production of automobiles and automotive bodies and parts, steel, electrical machinery, furniture, glass and farm implements was 1946. Much meat packing, flour milling, food canning and drug compounding was also done in the state.

Mineral Production.—In the fiscal year 1945-46, 9,860,855 tons of coal were taken from 44 shaft mines employing ten or more men. Strip mines and mines employing less than ten men were not included in these figures. There were 7,219,631 bbl. of oil pumped from 2,640 wells in the state during 1946. (H. H. P.)

Indiana University. Indiana university's enrolment in 1946 was approximately double the prewar peak. A housing building program started in the spring in anticipation of a record enrolment enabled the university to house more than 6,000 persons as compared with 1,025 before World War II.

Important academic events at the university during 1946 included the establishment of a school of health, physical education and recreation, the replacement of the extension division with a broader division of adult education and public service and the separation of the geology and geography department into two distinct departments.

One of Indiana university's faculty members, Dr. Hermann J. Muller, professor of zoology, was awarded the 1946 Nobel prize in medicine and physiology.

The Rockefeller foundation made a grant of \$95,500 to the university to finance a six-year research program in genetics, and another one of \$27,500 for the development of east European studies. The university also received from the Research Grants office of the National Institute of Health a grant of approximately \$15,000 a year for three years to further the study of organisms concerned in the cause of gas gangrene of man and certain animal diseases. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (H. B. Ws.)

Indians, American. The federal government took a forward step toward meeting the health and education needs of the natives of Alaska during 1946 by transferring the Sitka naval base to the department of the interior. The existing structures on Japonski Island near Sitka

were being converted to house a vocational boarding high school for 600 children, thus more than doubling the high school facilities for Alaska natives and making it possible to provide facilities for several hundred orphaned and dependent children of elementary age. Funds were also provided for the erection of a 300-bed tuberculosis sanatorium at the same location. Beautiful Mount Edgecumbe, just west of Sitka, gave its name to the new school and hospital.

The Navaho Indians, who constitute the largest Indian tribe in the U.S., were becoming concerned over the lack of educational facilities for their children. Despite the fact that the government signed a treaty with the Navaho in 1868, promising to provide a school room and teacher for every 30 Navaho children of school age, the school facilities of 1946 were adequate for only 5,000 of the 20,000 Navaho children who needed schooling. The entire tribal council visited Washington, D. C., during May and appeared before committees of congress, the budget bureau and the secretary of the interior, appealing for appropriations to provide additional schools.

The Fort Berthold Indians in North Dakota protested vehemently against plans of the army engineers to erect a flood control dam on the Missouri river at Garrison. The reservoir created by this dam would flood the entire agricultural areas of the Fort Berthold reservation. As a result of their protest against the dam, congress prohibited any construction on the proposed dam until an agreement had been reached between the secretary of the interior and the secretary of war providing satisfactory alternate lands for the Indians. This did not satisfy the Indian claim but the army showed no indication of abandoning the project.

On Aug. 13, 1946, the 79th congress passed a bill establishing an Indian Claims commission. This may be one of the most significant steps yet taken to right the chronic wrongs done the American Indians. Early white settlers in North America frequently claimed title to the lands of the new world by right of conquest or discovery. Later the colonists began to acquire additional land through negotiation and purchase from the Indians. This gradually became the basic policy of the colonial governments, and ultimately of the federal government. However, treaties signed with Indians were subject to confirmation by the senate and sometimes the senate failed to confirm a treaty negotiated by government representatives. When this occurred it was most unfortunate because the whites had usually moved in and taken possession of the land at the conclusion of the treaty-making and when the senate failed to confirm the treaty they would not give the land back, so the Indians were without their land and without any compensation for it. They could, of course, appeal to congress for justice and obtain a jurisdictional act permitting them to sue the government in the court of claims. In every session of congress many such claims bills are introduced and the Indian population is in a continual turmoil as to whether their claims will be recognized. The effect of the new claims bill is to provide an opportunity for the adjudication of all existing claims without any further enabling legislation.

The supreme court settled two land controversies during the year. The Quillehute Indians of Washington state had their title to tidelands and the bed of a river flowing through their reservation confirmed on Oct. 25. The decision restrains the state of Washington from interfering with their exclusive right to fish in this stream. The Alsea band of Tillamook Indians, also of Washington state, was on Nov. 25 declared entitled to compensation for lands arbitrarily taken from them without payment. The amount of compensation had not yet been fixed.

Returning Indian veterans were demanding further educational facilities, the right to vote, in a few states in which they

were still denied the ballot, and an amendment in the Indian Prohibition act which would permit the sale of liquor to Indians off the reservations. North Carolina permitted its Indians to vote in the November election for the first time in many years. Bills were before congress covering the modification of liquor control desired. Many Indian veterans were enrolled in advanced vocational schools and colleges and approximately a thousand had returned for specialized training to Indian vocational schools.

A complete regionalization of Indian service administration was put into effect during the year. A new congressional act permits the secretary of the interior to delegate many powers heretofore exercised by him to the commissioner of Indian affairs and certain of his subordinates. Under this new decentralization, district offices were established at Billings, Mont.; Minneapolis, Minn.; Phoenix, Ariz.; Portland, Ore.; and Oklahoma City, Okla. (W. W. B.)

Indo-China, French: *see* FRENCH COLONIAL EMPIRE.

Indonesia, The United States of: *see* NETHERLANDS INDIES.

Industrial Health. The developments in 1946 that seemed destined to modify in considerable degree the future course of industrial health were the use of atomic energy and the greatly increased emphasis on health and welfare in employment contracts.

The ways in which atomic energy could be successfully harnessed as a source of power in manufacturing and transportation were unsettled, although new facilities were built and personnel employed to explore the possibilities thoroughly. In other industries medical service was highly desirable—in the production of nuclear energy it was indispensable. The manufacture of atomic bombs appeared to demonstrate that this form of energy could be produced safely if suitable safeguards were employed. However, the techniques essential for safe manufacture were so exacting as to narrow seriously the field of practical application. It was thought that it might be easier to create "health physicists" rather than try to train physicians in the technical complexities of nuclear fission. The physical effects of atomic radiation were under intensive investigation. During the year several deaths occurred and claims in substantial amounts for damages attributed to harmful exposure to atomic radiation began to appear.

Industrial physicians, safety directors and management were impressed with the changing status of the health and welfare of workers as exemplified in the national bituminous coal mines wage agreement between the U.S. government as coal administrator and the United Mine Workers of America. Traditionally, management had always assumed the principal burden of support and direction of industrial health and safety programs. The coal mine employment contract provided for a considerable degree of direct participation by labour in these directions. A new safety code was drawn up providing for federal as well as state mine inspection. Mine safety committees elected by local unions were stipulated, having power of inspection of dangerous conditions. Recommendations of these committees were binding on mine owners unless these powers were conspicuously misused. Mine owners could no longer elect to come under state compensation laws. All, no matter how small, must provide this protection to the workers. Wage deductions for medical and hospital care formerly administered by the employers, were to be administered entirely by a board of trustees appointed by the president of the United Mine Workers. A welfare and retirement fund created by a five-cent royalty on each ton of coal produced was to be managed by three trustees—one appointed

by the coal mines administrator, one by the president of the United Mine Workers and the third chosen by the first two. This fund had definite medical care implications, mainly in the direction of compensation for sickness or disability not otherwise provided for under federal or state laws. Provision was also made for co-ordinating the use of these two funds. Finally, a comprehensive survey of medical and sanitary conditions was ordered with a view toward bringing medical care, housing and public health practices up to recognized U.S. standards. The terms of this agreement defined more clearly than ever before the basic issue of greater labour participation in plans for the health and welfare of workers and strongly implied that safety and health would be important factors in all future collective bargaining. Full implementation of these terms had necessarily to await the return of the mines to the owners who continued to resist some of the recommended changes. Likewise, impending labour legislation was thought likely to modify some of these relationships. The medical profession indicated a sympathetic view toward all bona fide efforts to improve working and living conditions. The American Medical association approved the general policy of co-operative industrial health planning by management, labour and medicine, provided scientific and ethical standards were preserved.

Public law 658 was enacted by the 79th congress. This was an act to provide certain health services to federal employees, to include emergency medical care, pre-employment and periodic physical examinations, control over working environment and health counselling. Under this legislation the U.S. public health service was instructed to draw up and administer general standards for this health program. However, actual administration was an independent function of the affected federal agencies. Several million civil service employees were affected by these provisions.

The division of industrial hygiene in the U.S. public health service completed its reconversion from a war to peacetime status. Improved efficiency was assured through reorganization of its field activities and states relations. Research facilities were re-established in the division of industrial hygiene itself and current appropriations for the U.S. public health service funds were for the first time specifically earmarked for industrial hygiene services.

The demand for qualified physicians and technicians in industry remained active and, in fact, exceeded the supply. An Institute of Occupational Medicine and Hygiene was established at Yale university specifically aimed to develop a training program in recognition of the specialized status of industrial medicine, to promote teaching at a graduate level for physicians, nurses, engineers and public health administrators, to provide opportunities for research and to develop a consultation service to industry. Similar teaching and research programs were being developed at Wayne, New York and Columbia universities. Medical educators took the view that the functions of the physician in industry were moving toward social medicine rather than remedial services, and that specialization would need to be governed by this trend. The American Foundation of Occupational Health was created to advance the cause of medical education, mainly through fellowships in universities and affiliated medical departments and through research. The American Academy of Occupational Medicine was formed to provide the means for interchange of experience, to promote standards of industrial medical service and to foster better industrial medical education.

The charter of the World Health organization as adopted in 1946 contained no specific reference to the health of industrial workers. It was expected that a mixed committee would be appointed consisting of public health experts and others to consider social insurance and industrial hygiene. Reciprocal rela-

tions set up between the World Health organization and the International Labor organization indicated that the latter agency would continue its former objectives and functions. Its division of industrial hygiene was re-established under competent medical direction after a lapse of several years. The safety division was returned to Geneva in preparation for the resettlement of the entire Industrial Labor organization in its old original quarters.

(C. M. Pn.)

Great Britain.—During 1946 the most significant development in British industrial medicine was its recognition as a specialized branch by the decision of the Society of Apothecaries and the Royal Colleges of Physicians and Surgeons to grant diplomas in industrial health. The granting of these diplomas together with the establishment of chairs and readerships in social medicine and industrial medicine proceeded *pari passu* with an increase in the number of doctors and nurses engaged in industrial medical practice and nursing. Industrial nursing was the foundation of good industrial medicine and both the University of Birmingham and the Royal College of Nursing continued to grant their certificates in industrial nursing and other universities might grant diplomas or certificates in the future.

Research both in clinical toxicology and in industrial health was carried out by the Medical Research council and the Industrial Health Research board. During the year reports on investigations were published in the *British Journal of Industrial Medicine* and in the special report series of the Industrial Health Research board. Important among these reports is that of Dr. L. Colebrook on "Artificial Sunlight Treatment in Industry" (*Industrial Health Research Board report No. 89*). This report cleared up a number of difficult points which had arisen as a result of the popular use of ultra-violet light. Among important clinical reports were "Chronic Mercury Poisoning" and "Bronchiolitis Resulting from the Handling of Bagasse" (*British Journal of Industrial Medicine*, Vol. 3, No. 2, April 1946). In research carried out in industry itself excellent work was done by Dr. T. A. Lloyd Davies on manganese pneumonitis (*British Journal of Industrial Medicine*, Vol. 3, No. 3, July 1946).

In addition to these reports attention must be paid to the *Annual Report* of the chief inspector of factories for 1945. In this the senior medical inspector of factories, Dr. E. R. A. Merewether, reviewed briefly the years of World War II, and for the first time after 1939 statistics relating to the incidence of scheduled diseases were given in detail.

Problems relating to the rehabilitation of the sick and injured developed on an extensive scale during World War II and received further impetus by the formation of the British Council for Rehabilitation and by the fuller application of that great humane act known as the Disabled Persons Employment act (1944). During 1946 the number of disabled persons to be employed in industry was increased from 2% to 3% and a start was made in the setting up of government-established factories designed purely for the employment of certain sections of disabled persons. In the resettlement of former servicemen many of the difficulties anticipated had not arisen and the wider picture showed that the former servicemen settled down satisfactorily into his industrial life. (See also ACCIDENTS; DERMATOLOGY; MEDICINE.)

(A. J. AR.)

Industrial Production: see BUSINESS REVIEW; CIVILIAN PRODUCTION ADMINISTRATION.

Infantile Paralysis. During 1946, more people in the United States experienced an attack of infantile paralysis (acute anterior poliomyelitis) than in any single year after the disastrous epidemic of 1916. This was the fourth consecutive year in which the incidence of infantile paralysis was well above the average for the United States. Infantile paralysis is geographically widespread, including North and South America, Europe, Africa, Australia, Philippine Islands, Japan and Asia.

The history of infantile paralysis indicates a transition from a disease of infrequent, sporadic and dispersed character to that of an epidemic disease. This transition occurred during the 1870s in Scandinavia, during the 1880s in Europe, during the 1890s in the northern United States, during the 1930s in the southern United States and during 1938 and 1940 in Japan. While infantile paralysis was sporadic and during the early years of its epidemic phase, the disease was essentially one of very young children; whereas, after some years as an epidemic disease, infantile paralysis more commonly attacked people during their later childhood, their adolescence, and even during their adult life. Up to 1947 an explanation was not offered which accounts fully for this change in the character of the disease.

Whereas reports were not complete, it would appear that in



SISTER ELIZABETH KENNY, noted for her hot pack method of treating infantile paralysis, working on a young victim of polio in 1946 at the Kenny Infantile Paralysis institute in Minneapolis, Minn.

the United States the epidemic of 1946 was characterized by an unusually large number of bulbar cases affecting the higher centres of the spinal cord and by the frequency with which pregnant women contracted this disease. One investigator drew attention to his observation that women contracting the disease during the first trimester of pregnancy usually were carrying a male foetus, whereas those contracting the disease during the third trimester of pregnancy were usually carrying a female foetus.

The epidemic of 1946 afforded an opportunity to study in one institution large numbers of patients with the bulbar form of infantile paralysis. After careful study it was concluded that the following were strongly contributory to the death of the patient, a consequence frequently associated with this form of the disease: (1) an accumulation of thick viscous mucus in the respiratory passages with subsequent blockade of the pathways for air, a result both of increased secretion of mucus and of the inability of the patient to swallow and cough; (2) an accumulation of fluid within the lungs, brought about in part at least by the high negative pressure within the lungs caused by breathing in a respirator against partial obstruction of the respiratory passages; and (3) incomplete oxidation of the blood, due partly to inadequate aeration because of an accumulation of fluids within the lungs. It was believed that once established any of these changes induce a self-perpetuating vicious cycle of progressive seriousness, resulting in further injury to already damaged nerve cells and not infrequently culminating in death of the patient.

The following regimen was instituted in order to combat positively the conditions so often a consequence of the bulbar form of the disease: (1) tracheotomy, an open tube placed into the windpipe, was performed early in the course of the disease, (2) respiration was carried on by means of a positive-

pressure mechanism attached to the tracheal tube, (3) the inspired air was changed to a mixture of oxygen and helium and (4) the percentage of oxygen in circulatory blood was determined continuously by means of a special photoelectric cell attached to the ear.

Intensive studies of numerous outbreaks of the disease yielded no information to indicate that, except for rare instances, the disease is spread in any other manner than by intimate contact between a susceptible person and some person harbouring the virus. The difficulties encountered in tracing the exact source of the infection for any single victim of the disease is illustrated by the probability that, for every diagnosed case of infantile paralysis, there may be up to 100 persons who have the infection in some unrecognized form, and from whom the virus could be recovered in laboratory tests.

It should not be unexpected that adherents of the theories that the disease is transmitted by food, water and/or insects would use for support of their favoured theory a report that as little as one-tenth of a gram of the faeces of a victim of the disease might contain enough of the virus to infect a monkey. Whereas it was conceivable that such quantities of infected faeces might, under certain circumstances, contaminate food, water and/or insects, this in itself offered no real evidence that the disease might be transmitted by these means. This problem, the means by which the disease is transmitted, could not finally be resolved until there had been developed a more sensitive test for the virus—preferably a test so sensitive that it would reveal the presence of a single virus particle.

Reports were published during 1946 on the value of curare in the treatment of infantile paralysis. These reports were contradictory in nature, and in no case was there performed a critical experiment which included an adequate number of cases and in which there was exercised proper precautions for controls.

Studies on the relationship of certain enzyme systems of nervous tissue to resistance of nerve cells to the virus of poliomyelitis continued. While none of these studies pointed toward a practical means of control for the disease, the results up to 1947 were of great potential value and were most provocative of further work. (See also EAR, NOSE AND THROAT, DISEASES OF; EPIDEMICS AND PUBLIC HEALTH CONTROL; NERVOUS SYSTEM.)

(H. M. Wr.)

Infant Mortality. There was a moderate decrease in infant mortality from 1945 to 1946 for the United States, bringing the rate to the lowest yet recorded for the country; provisional records for the first 11 months of both years indicate a reduction in the infant mortality rate of 3.2%. For the latest year of complete record, 1945, there was reported a total of 104,684 deaths under 1 yr. of age; since 2,735,456 births were registered, the infant mortality rate for the year was 38.3 per 1,000 live births. This is less than one-third of the infant mortality rate prevailing in the U.S. at the beginning of the century.

Quite a substantial decrease in infant mortality was indicated for England and Wales, according to provisional reports for the first 11 months of 1945 and 1946 from London and the large towns; these reports indicate that the improvement was 15%. Deaths under 1 yr. of age in England and Wales as a whole totalled 31,961 during the entire year 1945; the infant mortality rate was 46.7 per 1,000 live births. Canadian reports for 1945, the latest of record, show 14,741 deaths under 1 yr. of age and an infant mortality rate of 51.1 per 1,000 live births. For the same year, 1945, Chile reported an infant mortality rate of 185 per 1,000 live births, a rate practically the same as the year before, and Australia reported 29 infant deaths per 1,000

live births, somewhat less than the preceding year's record; data for 1945 from other countries were not yet available at the close of 1946. Comparable infant mortality rates for 1943 and 1944 for several countries are shown in Table I.

Table I.—Deaths Under One Year of Age Per 1,000 Live Births, 1944 and 1943

Country	1944	1943	Country	1944	1943
Argentina	80	78	Netherlands	—	41
Australia	31	36	New Zealand (white)	30	31
Belgium	77	67	Nicaragua	113	100
Bulgaria	121	130	Palestine	87	96
Canada	55	54	Jews	36	44
Chile	184	194	Moslems	103	113
Costa Rica	125	117	Puerto Rico	99	96
Denmark	48	45	Scotland	65	65
Ecuador	134	136	Switzerland	42	40
England and Wales	46	49	Union So. Africa (white)	42	48
France	77	75	United States	40	40
Ireland	79	80	Venezuela	117	109

Within the United States, 5 states had infant mortality rates of less than 30 per 1,000 live births during 1945; lowest of all was Rhode Island (28.2), followed in turn by Nebraska (28.5), Oregon (28.7), North Dakota (29.3) and Connecticut (29.9). On the other hand, 4 states had infant mortality rates of 50 or more; highest of all was New Mexico, where the rate was 100.8. The sequence in decreasing order from New Mexico downward was Arizona, West Virginia and Colorado. It will be noted that all but one of the states with the highest rates are in the southern tier of the country, while those with the lowest rates are in the northern tier.

Particulars regarding infant mortality rates for the United States according to sex, race, age and principal causes of death are shown in Table II; the data are shown for each year from 1940 to 1944. In the latter year, the infant mortality rate for

Table II.—Infant Mortality per 1,000 Live Births, According to Sex, Race, Age and Cause of Death; United States, 1940–44

Characteristic	1944	1943	1942	1941	1940
Total	39.8	40.4	40.4	45.3	47.5
Males	44.1	45.1	44.9	50.4	52.3
Females	35.2	35.4	35.7	40.0	41.2
White	36.9	37.5	37.3	41.2	43.8
Coloured	60.3	62.5	64.6	74.8	73.0
Total by age					
Under 1 day	11.5	11.6	12.3	13.2	13.9
1–2 days	5.4	5.2	5.4	5.7	5.7
3–6 days	3.1	3.1	3.1	3.4	3.6
1–3 weeks	4.8	4.7	4.8	5.4	5.4
1–2 months	5.2	5.3	5.2	6.1	6.4
3–5 months	5.0	5.0	4.7	5.7	5.9
6–8 months	3.1	3.2	2.9	3.5	3.6
9–11 months	1.9	1.9	1.9	2.3	2.4
Total by cause of death					
Premature birth	11.9	11.8	12.3	13.3	13.7
Pneumonia and influenza	5.6	6.2	5.7	6.6	7.4
Congenital malformations	5.1	4.9	4.9	4.7	4.7
Injury at birth	3.6	3.7	4.1	4.3	4.5
Diarrhoea and enteritis	3.3	3.0	2.8	3.7	3.5
Congenital debility . . . . .	.9	.9	1.0	1.1	1.2
Whooping cough . . . . .	.5	.8	.6	1.0	.9
Dysentery . . . . .	.4	.3	.3	.4	.4
Syphilis . . . . .	.3	.3	.3	.4	.5

males was 44.1 per 1,000 live births, considerably higher than the corresponding rate of 35.2 for females. The white population had an infant mortality rate of only 36.9 per 1,000 live births, in contrast to rates of 59.3 for Negroes and 80.8 for other coloured races, making an average of 60.3 for coloured races generally. However, the improvement in infant mortality after 1940 was at a relatively more rapid rate among the non-white population than among the white population.

Each age period within the first year of life shared in the general improvement in infant mortality after 1940. An interesting point to observe, in the table, is the steady decrease in the rates for the first day of life; the later periods within the first year of life, on the other hand, showed no improvement from 1942 to 1944. As in prior years, premature birth was by far the outstanding cause of death in infancy during 1944, the rate being 11.9 per 1,000 live births; pneumonia and influenza was second in rank with a joint rate of 5.6, followed in turn by congenital malformations with a rate of 5.1 and

injury at birth with 3.6. (See also DEATH STATISTICS.)

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Infantry: see MUNITIONS OF WAR.

Inflation: see BUSINESS REVIEW; CONSUMER CREDIT; PRICES. See also under various countries.

Ingram, Arthur Foley Winnington (1858–1946), British prelate, was born on Jan. 26 in Worcestershire. For his early career see *Encyclopædia Britannica*. He was Anglican bishop of London, 1901–39, and held the third highest rank in the church of England, superseded in authority only by the archbishops of Canterbury and York. He enjoyed wide popularity in London's East End, where he had engaged in social work for some 50 years. He wrote many works on religious subjects, among them *What a Layman Should Believe* (1938), which interpreted the church of England report on doctrine from the viewpoint of the "high" church; *The Secrets of Happiness* (1939) and *Fifty Years' Work in London* (1940), which described his activities in the East End. He died in Upton-on-Severn, Worcestershire, on May 26.

Inland Waterways: see CANALS AND INLAND WATERWAYS.

Inner Mongolia: see MONGOLIA.

Insects: see ENTOMOLOGY.

Instalment Buying and Selling: see CONSUMER CREDIT.

Institutum Divi Thomae. The Institutum Divi Thomae is the graduate school of science of the Athenaeum of Ohio, Cincinnati. During 1946 perhaps the most interesting research publications from the Institutum Divi Thomae were in the fields of cancer, of tissue extracts as anti-infectious agents and of the mode of action of organic mercurial antiseptics.

Based upon earlier experimental work in the Institutum laboratories, a collaborative research program was undertaken with the skin and cancer unit of the Post-Graduate Medical School and Hospital, New York, for the treatment of human basal cell epitheliomas (skin cancer) by the injection of tissue extracts derived from both human and animal sources. A considerable degree of success attended these treatments within the four-year observation period covered by the published reports. These studies are of particular interest because they represent the use of a nondestructive agent rather than the use of destructive methods such as radiations or surgery.

For several years the investigation of animal tissues as sources of antibiotic or anti-infectious agents had been in progress. It had been found that certain of these extracts are effective *in vitro* against a number of organisms, including *Streptococcus pyogenes*, *Mycobacterium tuberculosis* and *Staphylococcus aureus*. For the last-named organism, brain extracts in particular have a very high degree of effectiveness in animal infections, being active against strains of *Staphylococcus aureus* which are resistant to penicillin. Unlike the antibiotics derived from micro-organisms, the tissue extracts do not inhibit the growth of staphylococcus but convert it to an avirulent form.

Studies of the germicide, phenylmercuric nitrate, demonstrate that it inhibits the activity of a number of enzymes as well as the over-all respiration of living cells. Its toxicity for some enzymes and cells can be prevented by the addition of compounds like cysteine and glutathione containing sulfhydryl groups with which the mercurial can react. These findings

present an analogy to some of the wartime studies on BAL (British anti-Lewisite) carried on in laboratories in the United States and England.

In extending the Institutum's system of affiliated laboratories, a new unit was opened in 1946 at the College of Chestnut Hill, Chestnut Hill, Pennsylvania. (E. S. C.)

Insulin: see DIABETES.

Insurance. **Life.**—At the end of 1946 the total life insurance (excluding reinsurance) in force in the legal reserve life insurance companies of the United States and Canada was estimated at approximately \$182,500,000,000, about 11% more than 1945. New issue during 1946 totalled about \$25,000,000,000, nearly 50% more than 1945 and a new all-time record. Assets of the companies at the end of 1946 amounted to \$52,000,000,000, after paying or crediting to policyholders and beneficiaries about \$3,000,000,000 during the year.

Mortality in the U.S. during the first nine months indicated that 1946 would set another low record. Death rates from influenza and pneumonia were up early in the year but favourable experience in later months largely offset the increase. Motor accident fatalities unfortunately rose sharply after driving restrictions were lifted at the close of World War II. A final estimate of war claims for the four war years showed that \$200,000,000 was paid by the life insurance companies of the United States for deaths resulting from combat action. Claims on deaths of military personnel from disease and accidents totalled \$113,000,000. Altogether, war claims amounted to about 6.7% of all death benefits paid.

During World War II government securities provided the chief outlet for the investment of life insurance funds. From Pearl Harbor through the Victory Loan campaign in 1945 U.S. companies had added \$15,000,000,000 net to their holdings of federal and dominion government bonds.

Following World War II some federal debt was retired and some refunding accomplished with short-term securities. Corporate flotations increased, still largely refundings, but most of the new capital was stock rather than bonds. Revival of private building began to reopen the field for mortgage investment.

In contrast to the war period government securities held second place in life insurance companies' new investments in 1946. About \$1,000,000,000 was added to their holdings of federals and dominions—only one-fourth as much as in 1945. However, government securities still represented nearly half their assets. Corporate securities, taking first place, were up more than \$2,000,000,000, of which about four-fifths were industrials.

Holdings of urban mortgages increased \$300,000,000. In addition to direct investments in housing, companies began to acquire certain other urban income-producing real estate for investment. This was a departure for eastern companies, permitted by laws passed in New York, New Jersey and Connecticut.

Open market yields on high-grade, long-term investments reached all-time lows early in 1946, but then rose a bit. Reflecting continued low yields on new investments, the interest rate earned on life insurance companies' assets continued downward.

Following a decision of the U.S. supreme court in June 1944 which declared that the business of insurance was commerce, congress enacted a statute which declared that "the continued regulation and taxation by the several states of the business of insurance is in the public interest, and that silence on the part of the Congress shall not be construed to impose any barrier to the regulation or taxation of such business by the several states."

This statute further declared that no act of congress should be construed to invalidate, impair or supersede any law enacted by any state for the regulation of the business of insurance, or which imposed a fee or tax upon such business unless the law specifically related to the business of insurance.

The statute further provided that after Jan. 1, 1948, the Sherman act, the Clayton act and the Federal Trade Commission act should be applicable to the business of insurance only to the extent that such business was not regulated by state law. In the meantime such acts were not to apply to the business of insurance except as to agreements to boycott, coerce or intimidate.

The validity of the tax laws in force in certain states which imposed different premium taxes upon foreign and domestic companies, that is, discriminatory taxes, was subsequently challenged. In June 1946, the supreme court of the United States, under the statute referred to above, upheld the South Carolina statute which levied a premium tax on out-of-state companies but none at all on its own domestic companies. By another decision on the same day the court, without relying on the statute in question, sustained certain regulatory statutes of the state of California.

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Automobile.—Automobile accident frequency increased tremendously during 1946 and the cost of resultant claims also was up substantially, the result being that practically all companies had a very unprofitable year and, for the first time, rates were increased twice within a 12-mo. period. This increase, coupled with the fact that many states adopted financial responsibility laws, substantially increased the volume of automobile insurance written. (F. M. R.)

Blue Cross.—Membership in nonprofit Blue Cross plans for hospital care reached 24,390,763 on Oct. 1, 1946, an increase of 4,401,558 during the first 9 mo. of the year. Growth broke all previous records, exceeding the net gain for the entire year 1945 by Aug. 1. Indications were that membership in the 87 plans approved by the American Hospital association would approach 26,000,000 by the end of the year—more than 20% of the population of the United States. Rhode Island, 65% enrolled, led all states in percentage of population covered. A survey showed 1,637,533 rural residents were Blue Cross members on July 1.

One new plan, covering Idaho, was approved, bringing to 44 the number of states served by Blue Cross, in addition to 7 Canadian provinces and Puerto Rico. Negotiations were under way for establishment of plans in the four states not served—Arkansas, Mississippi, South Carolina and Wyoming. (A. G. S.)

Accident and Health.—The marked expansion of accident and health insurance continued in 1946 with a 15% gain in premiums, bringing the total to more than \$675,000,000. Claims, on individual policies, abnormally low during World War II, increased slightly. Group insurance continued to show gains while claim experience improved somewhat as employment continued high. Considerable controversy developed among various elements in the business over the need for close state rate regulation. Occupational hazard rating-classifications were being studied in view of the many changes after the last revision in 1937.

A U.S. chamber of commerce report on 1945 figures estimated that 5,928,333 employees were covered by private group accident and health insurance, about 12,000,000 by self-administered plans and 8,640,000 by individual policies. (See also SOCIAL SECURITY.) (C. D. Sp.)

Great Britain.—Motor insurance and employers' liability coverage provided the bulk of the increased volume of business transacted during 1946. Personal accident coverage was in demand on the growth of civil aviation; the upswing in burglary premiums reflected the pressure of inflation and the desire for protection because of the postwar crime wave. Motor underwriters bridged a gap in the law by voluntarily setting up a pool from which victims of uninsured motorists would be compensated. The cost of claims, especially motor vehicle, third-party and burglary, tended to rise. (P. Ss.)

Fire.—The most pressing problem before the business of fire insurance for 1947 was the development by each state of a series of laws for the control of the business, commencing Jan. 1, 1948, which would be satisfactory to the U.S. government. On the date mentioned a breathing spell, so to speak, granted after the Atlanta decision of 1943 was to expire and unless the states by that time had adopted satisfactory laws for the control of the business—and this meant satisfactory to the U.S. government—then the government would intervene and supply the missing laws to the extent that they seemed to lack what the U.S. government considered necessary for the proper operation of the business.

According to the *Insurance Year Book, 1946*, published by the Spectator Company, the premium receipts did not materially change from the previous year. The premiums from all the lines written by the fire insurance companies amounted to about \$1,252,000,000 plus. These, it should be known, were the receipts from all forms of insurance written by the fire companies. The receipts for fire insurance alone were \$671,000,000 plus. The losses paid for all lines of insurance were \$625,000,000 plus or just about 50% of the premium receipts for all lines. For fire insurance alone the losses were \$316,000,000 plus or 48%. The other sources of income—rent, interest, dividends, etc.—amounted to \$105,000,000

plus. (See also FIRES AND FIRE LOSSES.)

(E. R. H.)

War Damage.—In view of the substantial discontinuance of public demand for war risk insurance in the United States and its territories and possessions after the cessation of hostilities, issuance of new policies of insurance by War Damage corporation was discontinued on March 15, 1946. Existing policies, which had been extended without payment of additional premiums in 1944 and 1945, were not further extended. Insurance effected between March 1 and March 15, 1946, was limited to a term expiring not later than Jan. 22, 1947.

On April 30, 1946, congress terminated the authority of War Damage corporation regarding damage to property in the Philippine Islands. Pursuant to the provisions of the Philippine Rehabilitation act of 1946 the corporation had transmitted all its Philippine claim files to the newly-created Philippine War Damage commission.

On Aug. 9, 1946, War Damage corporation announced that all claims for free compensation for loss of, or damage to, property in the territories and possessions of the United States must be presented to the corporation before Oct. 16, 1946.

Because of the automatic extension of insurance in 1945 and termination of the insurance program in 1946, there were very few policies written during the calendar years 1945-46. The net income of the corporation from premiums during the year ended June 30, 1946, was \$119,076.84.

During the 11 mo. ended Nov. 30, 1946, War Damage corporation paid 1 claim, aggregating \$193.50 under its premium insurance program and 560 claims aggregating \$145,024.99 under its free program. Most of such claims for free compensation were presented by former civilian employees of contractors at naval air bases on Wake Island and Guam. These persons were captured by Japanese forces in Dec. 1941, interned in China and Japan and repatriated to the United States in 1945 and 1946.

The corporate life of War Damage corporation, if not extended was to expire on Jan. 22, 1947, except for purposes of liquidation. (G. E. A.)

Great Britain.—The cumulative effect of war damage on land was shown in financial statements issued by the government in regard to the various war damage schemes. Under the "business," "commodity" and "private chattels" schemes, the financial position on March 31, 1945, was: premiums £296,000,000; claims and expenses £302,000,000. About 17,500,000 policies were issued and 2,275,000 claims received. In addition, 20,000,000 persons received free cover under the private chattels scheme.

No final estimate of war damage to buildings was issued. About 3,000,000 properties were damaged and 200,000 properties totally destroyed. Contributions under this section of the War Damage act were estimated to yield £200,000,000, but considerably more than this amount had already been absorbed by war damage payments and the exchequer would be heavily drawn upon.

Receipts for the private chattels scheme for the year ended March 31, 1946, amounted to £11,241 and payments to £16,076,476. Outstanding claims were estimated at £4,000,000. Receipts for the business scheme amounted to £33,492 and payments to £3,863,250. Outstanding claims were estimated at £4,500,000. Deferred payment noted for the private chattels scheme was £29,500,000, and for the business scheme £60,291,000. (P. Ss.)

Marine and War Risks.—The premium income from marine risks continued up. This, however, was largely because of the surcharges, which were instituted during World War II, being carried on. If it were not for these surcharges unquestionably the whole marine underwriting picture would have been disastrous. The conditions of navigation were still far from normal. Port facilities were smashed in many parts of the world, and losses as a result of exposure after discharge were heavy. Especially were the losses very great as a result of a world-wide epidemic of thefts and pilferages which in many ports assumed the proportions of organized looting.

The year saw very little change in basic marine rates but the surcharges were subject to various reductions as conditions warranted, even in spite of the lack of improvement in overseas packing.

The wave of strikes, especially those in the U.S., had a paralyzing effect on overseas trade and the great merchant marine of that country was brought to a standstill for long periods several times.

As to the hull market, the year saw the return of a vast amount of government-owned or controlled tonnage to private operation—even some of the great passenger liners. This naturally provided a considerable amount of premium which theretofore had, as a result of government control, passed out of the hands of private underwriters. This transfer of ships back to owners continued. (See also VETERANS' ADMINISTRATION.) (H. C. Tn.)

Insurance, Old Age: see SOCIAL SECURITY.

Inter-Allied Debts: see WAR DEBTS.

Inter-American Affairs, The Institute of.

During 1946 the Institute of Inter-American Affairs carried on certain functions of the former Office of Inter-American Affairs, which in turn succeeded to the Office of the Coordinator of Inter-American Affairs. The office was the United States government agency for helping to develop and co-ordinate the western hemisphere's productive and economic power in support of the United Nations. The continuing peacetime mission of the two government corporations is the promotion of better conditions of health, sanitation, food supply and distribution, education and transportation in the other American republics.

An executive order of Aug. 16, 1940, created the Office of Inter-American Affairs, with Nelson A. Rockefeller at its head, as co-ordinator. During 1943 the Inter-American Educational foundation was organized by the office, for the purpose of developing a comprehensive co-operative educational program with the other American Republics. An executive order of President Truman, May 20, 1946, terminated the Office of Inter-American Affairs, a normal process in the government's reconversion program. The major continuing functions of the office were carried on by the two succeeding government corporations—the institute and the educational foundation. They are under the general jurisdiction of the department of state, and are directed by a common president.

The major projects of the institute in 1946 were in the fields of health and sanitation; food supply; a training division and transportation. The educational foundation continued to emphasize co-operative programs with the other American republics in vocational and health education; the training of teachers; the improvement of rural life and agriculture; the development of community schools and the teaching of the English language.

The transportation division, which did especially important war-winning work, in 1946 had virtually completed its program, as far as the parent body, the institute, was concerned. However, the railroad, highway and other transportation improvements which it started would be carried on, it was hoped, by the governments of the various other American countries concerned.

One of the most ambitious and effective transportation projects was among those closed during 1946. This was the United States Railway mission to Mexico, which was a prime factor in the rehabilitation of the Mexican national railroads. These railroads were unable to bear the strain of wartime traffic—because of complicated factors which had developed during many preceding years. And yet, the United States and its Allies had to have vital war materials from Mexico. The Railway Mission with all-out Mexican co-operation made possible the flow of vital supplies from and through Mexico—and, with Mexican technicians, paved the way for continuing future improvements of that country's rail lines.

Under the health and sanitation division, joint inter-American co-operative health programs were set up with both immediate and long-range objectives. The first was to speed and insure the ultimate military victory of the Allies by safeguarding the health of Latin-American workers producing vital war materials, and also protecting the health of troops stationed in strategic areas throughout the Americas. The long-time purpose, of course, is the continued elevation of health standards in the hemisphere. The process is obvious—better health resulting in greater productivity, higher levels of living and an expanding economy in all the Americas.

These health and sanitation programs, thoroughly co-operative and democratically organized, are known popularly in most Latin-American countries as "servicios." Their title is "Servicio Cooperativo Inter-americano de Salud Publica," or Inter-American Public Health Service—which is usually abbreviated to S.C.I.S.P.

Each "servicio" is organized within the framework of the government of the country where it functions, usually under the health ministry. In the beginning, the United States and the host government each contributed a share of the money, materials and trained men and women needed for the work. The direction of activities and expenditures of the pooled funds is decided jointly by the chief of party of the institute, and an appointee of the co-operating national government.

With the rephrasing of agreements as stages of the work were passed, the participating Latin-American countries increased

their proportion of the funds. By 1946 most of them put in more money than did the United States—one South American country ten times as much.

During 1946 there were about 10,900 health engineers, nurses, other technical personnel and unskilled workmen, engaged in the operations of the servicios, with some 130 of the co-operating technicians from the United States.

The training division is a potent factor in all the projects. It deals with the long-range program of providing staffs of national technicians to carry on the public health and sanitation activities in each country after expiration of the co-operative programs. Most of these programs were scheduled to terminate in 1948.

In the field of food supply, that division's direct concern with the winning of the war shifted to peacetime operations for basic improvements of conditions which, ultimately, would improve the level of living and increase the people's purchasing power.

Inter-American Educational Foundation.—The Inter-American Educational foundation had been active in all 20 of the other American republics. During its first two years, the foundation sent 21 specialists in vocational, health and rural education, and in teacher training and English teaching to the other American republics. About 30 more went during 1946. Altogether, between 500,000 and 600,000 books, pamphlets, charts and other teaching materials were made available to the field parties. About 60 distinguished educators were brought to the United States for lectures, study and other participation in the educational life of that country. (A. R. Hs.)

Inter-American Defense Board. During 1946 the Inter-American Defense board held 17 plenary sessions, at some of which reports were given on latest weapons and future developments. The previous recommendations of the board in reference to the standardization of the training, organization and matériel of the armed forces of the American republics served as one of the bases for the proposal for legislation—"The Inter-American Military Co-operation act"—submitted by the president to the congress of the United States with his message of May 6, 1946. Looking toward establishing on a permanent basis the military co-operative measures carried out by the American republics during World War II, and in conformity with Resolution IV of the Inter-American Conference on Problems of War and Peace, held at Mexico City in 1945, the board prepared and forwarded to the governments of the American republics a proposal for the creation of a permanent military agency to succeed the board and to be known as the Inter-American Military Defense council. It was expected that this proposal would be submitted to the next conference of American republics. Staff committees of the board were engaged in new studies of hemisphere defense problems.

The board is an autonomous international organization created in March 1942 in accordance with resolution XXXIX of the third meeting of the ministers of foreign affairs at Rio de Janeiro. It includes military, naval and air delegates from each of the American republics, and is charged with studying and recommending measures for the defense of the hemisphere. The board's offices and conference rooms are in the new War department building, Washington. Lt. General M. B. Ridgway, U.S.A., replaced Lt. General S. D. Embick, U.S.A., as chairman in March 1946. (F. A. I.)

Inter-American Highway: see ROADS AND HIGHWAYS.

Interior, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.



MODERN BEDROOM displayed at Marshall Field and company in Chicago, Ill., during 1946. Beige and yellow were the dominant colours

Interior Decoration.

The year 1946 was remarkable in the United States as elsewhere for highly urgent mass demand for materials that make and furnish homes. The impact of this pent-up demand upon extremely slender supplies was dramatic. In the United States the unavailability of materials was a continuing surprise in view of cited full employment and undamaged means of production. Those countries which had directly experienced World War II worked hard to try to supply minimal domestic needs and to earmark as much as possible for a renascent export trade. Great Britain, in particular, made a heroic start in this direction. However, 1946 saw little export from Europe and that little, because of general inflationary pressures, was not priced for favourable competition.

In the United States new developments emerged from the planning stage to widely-advertised token production, the marginal utility of which could be measured by increasingly intense desire. In those home-furnishings exhibits which were tied to architecture the trend toward contemporary forms was marked but the rehabilitation of old period units in the housing crisis made natural a mass demand for traditional furnishings as well.

Interior Surfaces.—The most prevalent and inexpensive wall treatment was paint in light matt tones but there was a tendency toward rather dark walls offset by bright slipcovers or upholstery. Paints improved through wartime experimentation became available. These included casein paints with gloss finish, luminous paints and paints with increased covering quality and purer stronger colours. Interest in wallpaper was stimulated by advertisements of new plastic-coated papers and by displays of machine-made paper, production of which increased slightly by midyear. Paper designs ranged from neoclassic to rococo but modern oversized floral patterns were stressed, many on dark backgrounds. Plain papers matching background tones were available and a number of papers were developed to match textile designs in glazed chintz. Some papers were highly lustrous. Design competitions and the employment in some instances of notable designers improved standards. Textiles with decorative value were used as wall hangings, and tile and brick were employed in contemporary informal interiors. Interior trim generally was painted to blend into adjoining wall tones or in light shades. Floors were laid in hardwood or tile.

Floor Coverings.—There was a marked increase in demand for shaggy woven cotton monotone rugs and for reversible open weaves of wool or felt and linen in informal patterns made in the United States. Oriental rugs maintained their prestige for conservative interiors but these were in short supply. The com-

pletely carpeted floor was infrequently seen. Linoleum in the better grades was unobtainable because of shortage of linseed oil. Fur scatter rugs were available in limited quantity. There was token production of rugs of paper twine coated with vinyl butyral which were thick, washable, reversible and cheap; and development of Koroseal floor covering, a resilient lifetime floor covering of polyvinyl chloride, was announced in midyear. There was little importation except for a limited number of fur rugs from South America. English and French carpet production averaged about 30% of 1939 and of this about one-quarter was allocated to export at high prices.

Window Treatment, Textiles.—Windows on the whole were treated simply, often with draw curtains forming decorative textile panels against plain walls when drawn. The valance and the ruffled cottage curtain also were in style. Owing to the acute shortage of cotton and linen, plastics, rayon and other synthetic threads were widely used, frequently in bold-textured weaves. Wide usage was foreseen for textiles of mineral fibres, developed during World War II as a Kapok substitute. A noteworthy stimulus to textile design was the fabric competition of the Museum of Modern Art sponsored by leading retail stores throughout the U.S., with guaranteed production for sale of winning designs. Toward the end of the year some very attractive chintzes and satins were available in a wide variety of colours (several with matching wallpapers). Many of these featured giant floral designs but there were also Victorian adaptations and abstract patterns. There was a trend toward dark, sometimes black, backgrounds.

Furniture.—The shortage of domestic and imported woods plus the rising manufacturing costs conspired to make furniture scarce and high-priced. There were no imports to speak of with the limited exception of French Provincial pieces from Canada. A promising development was the mass-production plan inaugurated during the year for the revolutionary contemporary plywood and metal furniture designed by Charles Eames in California. This furniture was completely weatherproof, light, comfortable, elegant and inexpensive. It was frequently impregnated with colour and consistently distinguished by sound design. The chairs had a degree of flexibility owing to the method by which their parts were joined. Less revolutionary but already well established was the functional furniture created by Artek-Pascoe, Inc., using simplified traditional structure and simple upholstery, including hides. Another interesting contemporary development was Module furniture, available in limited display in four New York stores during the latter part of the year. This mathematically-conceived furniture, each unit built in multiples of six inches, could be assembled vertically or horizontally and manipulated into different assemblies according to the plastic sense of the individual. The total line consisted of five bases, five cases, plus shelves, doors, drawers, spacers and legs, simple in form, very easily assembled and well made. Although revolutionary techniques to solve the furniture problem all were contemporary in design there remained a large demand for traditional furniture including Early American and Victorian. Antiques also found ready sale.

Lighting.—Cove and indirect lighting, a logical method for utilizing the slim line structure of the fluorescent tube, were used increasingly in contemporary interiors. There was a trend toward inconspicuous light sources, letting the light itself dramatize the decorative scheme.

Decorative Accents.—Pottery and glass, and silver to a lesser extent, were used widely as decorative accents. Pottery in particular was vigorously developed in the United States and good contemporary designers were designing for mass production. There was little importation although some porcelain and silver came from Denmark and Sweden.

Plants.—Plants continued to be a popular facet of interior planning. Large leaf plants were particularly important. Architects incorporated proper plant conditions in their plans and Frank Lloyd Wright created an indoor garden in a living room.

General.—As a direct result of crowded living conditions wall space was frequently utilized for built-in cupboards and closets, Shaker in their simplicity, which were not only useful but also invited interesting composition of panels. Large decorative screens performed the same function more casually. Blown-up photographs of natural forms or stylized compositions were sometimes used on screens, walls or stair wells.

(G. M. J.)

International Bank for Reconstruction and

Development. During 1946 there came into being two of the three principal specialized organs of world economic policy to be devised during and after World War II by the United Nations. These were the International Bank for Reconstruction and Development and the International Monetary fund. The third, the proposed International Trade organization, was still in process of discussion at the close of 1946.

The International bank was established pursuant to articles of agreement formulated in July 1944 at the Bretton Woods conference which also prepared the agreement for the International Monetary fund. These agreements on being accepted by

the requisite number of nations were declared operative on Dec. 27, 1945. The inaugural meetings of the boards of governors of the two institutions were held in Savannah, Ga. in March 1946 and the first regular annual meetings in Washington, D.C., in Sept. 1946. The bank's executive directors had been in continuous session from May 7, 1946, in Washington where the bank's principal office was located. During the year an international staff was gathered together under four principal divisions—a loan department, a legal department, a treasurer's department and a research department.

The purposes of the bank were to assist in the reconstruction and development of member nations by facilitating investment of capital for productive purposes, to promote private foreign investment by means of guarantees or participations in loans and other investments made by private investors and, when private capital was not available on reasonable terms, to supplement private investment by providing finance out of resources available to it and to promote the long-range balanced growth of international trade and the maintenance of equilibrium in balances of payments by encouraging international investment for the development of the productive resources of members. The authorized capital of the bank was \$10,000,000,000. The total of its outstanding loans and guarantees could not exceed its subscribed capital, reserves and surplus. The bank in 1946 had 40 member countries which subscribed for a total of \$7,790,500,000. The board of governors in September accepted as eligible for membership in the bank Turkey, Syria, Lebanon and Italy which had until April 15, 1947, to complete the requirements for membership.

JOINT SESSION of the boards of governors of the International Bank for Reconstruction and Development and the International Monetary fund meeting in the General Oglethorpe hotel on Wilmington Island (Savannah river), Ga., in March 1946



The subscribed capital of the bank consisted of two parts—20% to serve as the bank's working capital (half of which was called for payment during 1946 and the other half of which was called for payment in the first months of 1947) and 80% to be held and called only to make good on the bank's outstanding obligations or guarantees.

The bank could make or facilitate loans in the following ways: (1) by making direct loans out of its own funds corresponding to its unimpaired paid-up capital, surplus and reserves, (2) by making direct loans out of funds raised in the market of a member country or otherwise borrowed and (3) by guaranteeing in whole or in part loans made by private investors through the usual investment channels. Loans made or guaranteed by the bank in general had to be for specific projects or programs of reconstruction or development. In accordance with this principle the bank had to make arrangements to ensure that the proceeds of each loan were used only for the purposes for which the loan was granted. Competent technical committees appointed by the bank had to make a careful study of the merits of each proposed loan and the executive directors could not make the loan unless the committee had submitted a written report recommending it. On every loan made or guaranteed by the bank which was not a direct obligation of a member country—that is, where the loan was made to a political subdivision or a private enterprise within the country—the repayment of principal and the payment of interest and other charges had to be fully guaranteed by the member government or its central bank or some comparable agency which was acceptable to the international bank. The interest rate, other charges and schedule of principal repayment had to be "appropriate to the project," and the bank had to pay due regard to the prospects of the borrower's being in a position to meet its obligations under the loan.

The bank at the end of 1946 had received documented loan applications from France, Denmark and Chile and letters of intent not fully documented from the Netherlands, Luxembourg, Poland, Czechoslovakia and Iran. It was expected that first loan operations would be entered into in the early months of 1947.

Since by far the greater part of the loan operations of the International bank were to be made with funds raised by the sale to private investors of securities of the International bank, the bank during the latter part of 1946 gave special attention to broadening the market for its obligations and paving the way for eventual issues.

The authorities of the United States interested themselves in efforts to broaden potential U.S. markets for the obligations of the International bank and took a number of steps looking toward the legalization by the several state governments of such obligations for investment by insurance companies, commercial and savings banks, trusts and other fiduciaries. In many states this required the enactment of legislation, if possible, in the legislative sessions beginning in Jan. 1947. (*See also BANKING; TARIFFS.*) (E. G. COL.)

International Court of Justice. The charter of the United Nations provides that the International Court of Justice shall be one of the five principal organs of the United Nations; also that it shall be the "principal judicial organ," and shall function in accordance with the statute which is annexed to and "forms an integral part of" the charter. The statute of the court became operative Oct. 24, 1945, the date of the entry into force of the charter.

The 15 judges were elected by the Security council and the general assembly, at their London meeting in Jan.-Feb. 1946.

They were chosen from a list of 143 persons nominated by national groups within the respective states, members of the United Nations.

The statute provides that in electing the judges, the general assembly and the Security council shall proceed independently of each other; that they shall bear in mind not only that the persons to be elected should individually possess the qualifications required, but also that in the body as a whole the representation of the main forms of civilization and of the principal legal systems of the world should be assured.

In order to be elected, a candidate must obtain "an absolute majority of votes" in each body. Six votes were declared to constitute a majority in the Security council, and 26 in the general assembly. The statute provides that if, after the first "meeting" held for the purpose of electing judges, one or more seats remain to be filled, a second and, if necessary, a third "meeting" shall take place (article 11); and that if, after the third "meeting," one or more seats still remain unfilled, a joint conference consisting of six members, three appointed by each of the two bodies "may be formed at any time at the request of either the General Assembly or the Security Council, for the purpose of choosing by the vote of an absolute majority one name for each seat still vacant, to submit to the General Assembly and the Security Council for their respective acceptance" (article 12).

On Feb. 6, 1946, at 10.30 A.M., the Security council and the general assembly proceeded independently to elect the judges. The following 13 persons were elected on the first ballot in both bodies: Hsu Mo (China); Charles de Visscher (Belgium); Jules Basdevant (France); José Gustavo Guerrero (El Salvador); Sergei Borisovich Krylov (U.S.S.R.); Sir Arnold Duncan McNair (United Kingdom); Isidro Fabela (Mexico); Green H. Hackworth (United States); Alejandro Alvarez (Chile); José Philadelpho de Barros e Azevedo (Brazil); Abdel Hamid Badawi Pasha (Egypt); John E. Read (Canada); and Milovan Zoricic (Yugoslavia).

Thereupon the president of the Security council suggested that "the meeting . . . be suspended now until 3 o'clock this afternoon"; and the president of the assembly announced that the "session will be continued this afternoon for the election of the two remaining members of the Court." Later, on the same day, three additional ballots were taken in the council and in the assembly for the election of the two additional members of the court. The necessity for these several ballots probably resulted from the fact that each body proceeded independently of the other as required by the statute. The two additional persons who thus received the specified majority in each body, and who were therefore elected, were Helge Klaestad (Norway) and Bohdan Winiarski (Poland).

Article 13 of the statute provides that the members of the court shall be elected for nine years and may be re-elected; provided that of the judges elected at the first election, the terms of five shall expire at the end of three years and the terms of five more shall expire at the end of six years, the latter two categories to be "chosen by lot to be drawn by the Secretary-General immediately after the first election has been completed." This drawing of lots took place at the meeting of the general assembly on Feb. 11, 1946. Slips of paper containing the names of the 15 judges elected were placed in the ballot box. The president of the assembly announced that the first five names drawn would be regarded as chosen for a term of three years; that the second five names drawn would be regarded as chosen for a term of six years; and that the judges whose names were not drawn would be regarded as chosen for nine years. The first five names drawn by the secretary-general were those of Judges Zoricic, Read, Winiarski, Badawi Pasha



VIEW OF THE OPENING of the Permanent Court of International Justice at The Hague, Netherlands, in April 1946

and Hsu Mo. The second five names drawn were those of Judges Fabela, Klaestad, De Visscher, Hackworth and Krylov.

The court held its first meeting in the palace of peace at The Hague, April 3 to May 6, 1946. It elected Judge Guerrero as president; Judge Basdevant as vice-president; Edvard Hambro of Norway as registrar; and Jean Garnier-Coignet of France as deputy registrar. It prepared and adopted the rules of court (85 articles), and otherwise perfected its organization. It also prepared recommendations to the general assembly on privileges and immunities of the judges and officials of the registry, prepared a budget, established a chamber for summary procedure (five judges and two substitute judges), as provided in article 29 of the statute.

The formal opening of the court, attended by the diplomatic corps and other high dignitaries, took place on April 18, 1946. It was at this opening that each judge made the solemn declaration required by article 20 of the statute, to exercise his powers "impartially and conscientiously." (See also UNITED NATIONS.) (G. H. H.)

International Emergency Food Council: see FOOD SUPPLY OF THE WORLD.

International Information and Cultural Affairs, Office of.

On Jan. 1, 1946, the Office of International Information and Cultural Affairs was created in the department of state. This new office, often referred to as the OIC, inherited some of the overseas functions and personnel of the two wartime information agencies, the Office of War Information and the Office of the Coordinator of Inter-American Affairs, together with the state department's small cultural relations division created in 1937.

The establishment of the OIC represented the acceptance of

a new instrument of foreign policy. The first year's pattern of organization included five operating divisions and five area divisions.

The so-called "mass media" divisions: motion pictures, press, radio.

The "cultural relations" divisions: exchange of persons, libraries and institutes.

The area advisory divisions: Latin America, Europe, far east, near and middle east and occupied areas.

The Interdepartmental Committee on Scientific and Cultural Co-operation, a co-ordinating body for the international activities of 42 government bureaus, was closely related to the OIC program. Another unit maintained liaison with U.N.E.S.C.O., the United Nations Educational, Scientific and Cultural organization.

Through OIC activities in 1946, millions of the world's inhabitants came to know more about the United States—about U.S. views and trends of thought, the significance of current events and developments in the U.S., the national character of the American people, their faith in a free society and their desire to promote world collaboration and world peace.

Radio.—During the year 1946, 36 short-wave transmitters sent out international radio broadcasts from the United States in 24 languages. Daily programs included news bulletins and commentaries on the news taken from representative editorials carried in papers from Maine to California; round table discussions on topics of current interest; question and answer quizzes; interviews with prominent Americans; dramatic presentations taken from the best in American literature and similar programs combining information with listener interest. Most of the programs originated in OIC studios in New York, although some were prepared by CBS and NBC under contract with the state department. A number of programs well known to U.S. radio audiences were given to the government for use in foreign broadcasts, with the commercials eliminated. There were 50,000 letters received from overseas listeners during the year.

Press.—A daily news bulletin, sent by wireless to U.S. missions abroad, gave about 7,000 words on texts of official documents and speeches relating to foreign affairs. These bulletins were translated by OIC officers abroad and distributed to editors, writers, civic and government leaders at their request. Background stories on U.S. life, with pictures, were mailed weekly. Another service rendered to the foreign press was assistance to foreign correspondents stationed in the U.S. Aid was also given in securing reprint rights for foreign publications.

The only magazine published by the OIC for foreign readers was the Russian-language, illustrated *Amerika*. Circulation in the U.S.S.R. was increased from 10,000 to 50,000 copies during the year by permission of the soviet government. The magazine sold for 10 rubles, or approximately 83 cents a copy.

Motion Pictures.—Documentary and information motion pictures were made available to foreign audiences in 24 languages. It was estimated that OIC films reached approximately 10,000,000 people each month. These documentaries were shown at the request of schools, youth clubs, women's groups, trade union, farm, professional and civic groups and similar non-theatrical audiences. Films available for use abroad included some former OWI documentaries, a newsreel produced privately without cost to the government, selected productions of the U.S. army, public health service and other government agencies and a few documentaries from private industry. Among the most popular films were: *Cowboy, Electricity and the Land, Freedom to Learn, Library of Congress, Northwest U.S.A., TVA and Tuesday in November*. Twenty new films, acquired and translated during the year, were ready for release at the year's end; 21 additional films were in production.

Exchange of People.—In the "exchange of persons" program, the state department acted chiefly as a catalytic agent, stimulating and assisting private agencies in renewing their own international interchanges. A limited number of official exchanges was arranged with the western hemisphere countries.

Although basic legislation limited the official exchange of students, teachers, technicians and specialists to the countries of the western hemisphere, wartime emergency funds available to the OWI enabled the OIC during the first half of the year to bring a limited number of people from other parts of the world to the United States. Prominent among these were groups of foreign correspondents from the liberated countries.

Libraries and Institutes.—U.S. libraries in operation at the year's end totalled 67 in 41 countries. In addition, 27 cultural centres with 45 branches were in operation in the 20 other American republics. Cultural centres differ from libraries in that they have, in addition to books, classes in English and a wide variety of group activities. An estimated 3,500,000 readers came to the libraries for information during the year. In September the library in Yugoslavia was closed, but arrangements for its reopening were worked out in consultation with the Yugoslav government.

In connection with the libraries, photographic exhibits on such subjects as U.S. electoral procedures, prefabricated housing and soil conservation were arranged. Two special exhibits of American paintings were assembled, one showing new trends in American art, another a historical collection.

Personnel.—During the year U.S. information offices overseas were made part of U.S. diplomatic missions, and all U.S. citizens in the OIC overseas became part of the foreign service, serving either in the foreign service reserve or in the foreign service staff corps. Of the 1,800 in the OIC abroad, 370 were U.S. citizens; the others were aliens serving as translators and in other technical and office positions.

Legislation.—Legislation passed by the 79th congress in-

cluded an appropriation of \$19,284,775 for the OIC and \$5,375,000 for the Interdepartmental Committee on Scientific and Cultural Co-operation.

Authorization for a permanent peacetime cultural exchange program in the eastern as well as the western hemisphere was contained in a bill, H.R. 4982 introduced by Rep. Sol Bloom. This bill passed the house and received the approval of the senate foreign relations committee but failed to come up for a final vote in the senate in the closing days of the session. A greatly expanded program for the exchange of students, however, was approved by the passage of a resolution sponsored by Sen. James W. Fulbright. This would make available for scholarships and other cultural purposes a portion of the funds resulting from the sale of surplus war matériel abroad.

The 79th congress also authorized U.S. participation in U.N.E.S.C.O., often thought of as the international counterpart to national programs of information and cultural exchanges. (C. M. H.)

International Labour Conference: see INTERNATIONAL LABOUR ORGANIZATION.

International Labour Organization. The most noteworthy event of 1946 was the affiliation of the I.L.O. with the United Nations organization, effective Dec. 14 when finally approved by the general assembly of the United Nations. The agreement defining methods of co-operation, and making the I.L.O. a specialized agency under the charter of the U.N., "responsible for taking such action as may be appropriate under its basic instrument for the accomplishment of the purposes set forth therein," was negotiated in May 1946 by delegations of the governing body of the I.L.O., and of the Economic and Social Council of the U.N., approved by the latter in June, and by the International Labour conference in September. Thus was established a partnership of autonomous equals in the interests of world peace and world tasks of major import. The continuity of the I.L.O., its tripartite basis and its quarter-century of pioneering experience were preserved. In September Acting-Director E. J. Phelan was elected director, later confirmed as director-general of the I.L.O., effective retroactively from Feb. 1941.

Constitutional changes in the I.L.O., required to meet the new situation and the years ahead, were promptly and democratically made, not by any one man or group but only after full debate in open session at four general conferences (New York-Washington 1941, Philadelphia 1944, Paris 1945, Montreal 1946) and discussion at many meetings of the governing body and special committees. The proposed amendments severed I.L.O. ties with the League of Nations, provided that it perform its own chancery functions in the registration of its treaties, and manage its own finances and budget. They put into the constitution the enlarged economic and financial functions set forth in the Declaration of Philadelphia, and provided for the amendment of the constitution by the general conference and the constituent member states. The instrument of amendment, 1945, came into force Sept. 26, 1946, on receipt of the 39th ratification, being three-quarters of the 52 members of the I.L.O. at that time. The Montreal conference adopted a resolution in September making immediately applicable certain provisions of the instrument of amendment, 1946, still in process of ratification.

The 28th (Maritime) session of the International Labour conference met in Seattle, Wash., June 6-29, and the 29th session in Montreal, Sept. 19-Oct. 9. Some member states have no maritime interests but the Seattle conference was attended by delegations from 32 (23 delegations were complete—2 government representatives and 1 each of shipowners and seamen), and

a total of 295 delegates, advisers and official participants. Nine conventions,¹ four recommendations and nine resolutions were adopted. With 15 previously adopted conventions (12 still in force), the International Maritime code was about completed. The 29th session at Montreal was attended by delegations from 46 member states (35 complete—2 government, 1 employer and 1 worker representative), and a total of 429 delegates, advisers, official observers and other participants. Four conventions,² 2 recommendations and 14 resolutions, and an instrument of amendment (constitution) were adopted. This made 80 conventions and 80 recommendations adopted after 1919, and the ratifications numbered 922 with that of Ireland on Oct. 9 ratifying convention No. 63 (statistics of wages and hours of work, etc.). The conference adopted an operating budget of 16,000,000 Swiss francs (\$3,733,000) for 1947, to be allocated among 51 states.

The governing body held three sessions in Montreal in 1946, its 98th in May and the 99th and 100th in September, and adjourned to meet in Geneva for the 101st in March 1947. Numerous subcommittees—employment, standing orders, finance and others, and committees set up pursuant to conference resolution—women's work, permanent migration, accident prevention and the newer industrial committees, held many meetings and made valuable reports and suggestions summarized in issues of the *International Labour Review*.

The Third Conference of American States Members of the I.L.O. met in Mexico City, April 1–16, for the discussion of hemisphere policy. The 16th session of the Committee of Experts on the Application of Conventions met in Montreal, July 8–12. Many missions, the most important being that to China for technical assistance with labour problems and social insurance, and representation at numerous international gatherings (U.N.R.R.A., United Nations Food and Agriculture organization, Economic and Social Council, general assembly, etc.) taxed the resources of the I.L.O. to the utmost, but yielded worthwhile results.

More than 25 conference documents were issued, several large volumes, replete in encyclopaedic information. The three director's reports to the Mexico City, Seattle and Montreal conferences are of real historic importance. *Studies & Reports* (7 vols.) included *inter alia*: "The War and Women's Employment" and "Labour Conditions and Reconstruction Planning in India." The Serials—*International Labour Review*, *Legislative Series*, *Industrial Safety Survey* and *Official Bulletin*—were maintained at the same high level of usefulness as heretofore. (See also CHILD WELFARE; LEAGUE OF NATIONS.)

(S. McC. L.)

International Law.

There were many events in 1946 which had some relation to international law. How much that law was promoted was debatable. Although the United Nations paid lip service to the system, it was disregarded by most of the agreements made during the year.

Enemy Merchant Ships.—The navy department announced on Feb. 2 that the U.S. navy had sunk 1,944 Japanese vessels, taking 276,000 lives, during the war with Japan. It was admitted that this was in violation of the treaty of 1930 on submarine warfare. (*New York Times*, Feb. 3, p. 20.) The sinkings were not even qualified by war zones. They give ground for

thought as to the justification for the entry of the United States into World War I, April 6, 1917.

Civil Aviation.—Of the one treaty and four executive agreements concluded at Chicago, Ill., Dec. 7, 1944, the treaty was ratified on Aug. 6, 1946, pursuant to advice and consent of the senate July 25. (Dept. of State *Bulletin*, Aug. 18, 1946, p. 337.) A bilateral conference of the United States and the United Kingdom alone, because of Britain's failure to sign the Fifth Freedom at Chicago, was held at Bermuda, Jan. 15–Feb. 11. The text of the final act is printed in the *Bulletin*, April 7, pp. 594–596. There was much dispute concerning the power of the state department to enter into executive agreements concerning commercial aviation. The department insisted on the right pursuant to the Civil Aeronautics act and several statutes; the Commerce committee, 17 to 1, denied the right. The department regarded the executive agreements in force. Others did not. The ratification of the treaty might indicate that the senate had yielded. The American Federation of Labor and others protested against incorporating the aviation agreements as executive agreements, whereupon the attorney general was asked for an opinion. He wrote a somewhat equivocal opinion June 18, 1946, printed in the *Bulletin*, Dec. 8, pp. 1070–71. Another opinion of the attorney general, holding that a joint resolution of congress approved by the president was a law and had the same binding effect as a treaty in superseding inconsistent state laws, will be found in the *Bulletin*, Dec. 8, p. 1068.

The question of granting diplomatic immunity to U.N. delegates was discussed in the *New York Times*, Nov. 30, p. 1.

Yugoslavia.—For the protests against Yugoslavian obstruction to the Allied military government in Venezia Giulia, see the U.S. note May 20, 1946, published in the *Bulletin* Sept. 1, p. 409. Other protests are to be found in the same issue, p. 414 *et seq.* See also *Bulletin*, Sept. 29, p. 579; Oct. 13, p. 676.

U.S. aeroplanes flew over Yugoslav territory and were shot down by Yugoslav officials. This caused violent protest and the payment of an indemnity by Yugoslavia for five lives lost. See the *Bulletin*, Sept. 15, p. 501; Oct. 20, p. 725. Up to the end of 1946 no indemnity had been paid for the planes shot down.

The Potsdam Agreement—Reparations.—The Potsdam agreement provided a system by which the U.S.S.R. was to obtain industrial supplies from the U.S. and British zones in return for some food. This was so greatly in violation of international law that it was not surprising that the scheme had not worked. The Allied governments went so far even as to lay claim to German property in neutral countries, like Switzerland and Sweden, and agreements with these countries were worked out. Whether the threat of keeping their national property "frozen" was a factor was not known. The U.S.S.R. took the view that all property which came into possession of the German government was soviet property, particularly in the soviet zone, and thus Austria was stripped of much of its industry. This conflicted with the Austrian proposals to nationalize those industries, and the conflict was still under debate between the two governments in Jan. 1947.

On April 25 the United States received a soviet note rejecting the U.S. proposal that Manchurian industries and other Japanese external assets be used for inter-Allied reparations, contrary to the soviet view that these movable assets were considered as legitimate war booty. (*New York Times*, April 26, p. 5.) As to what was war booty, see an article by Alwyn B. Freeman in the *American Journal of International Law*, vol. 40, p. 795 (Oct. 1946). As to the earmarking by the U.S.S.R. of certain property in Vienna, see the *New York Times*, March 30, p. 6. For the withdrawal of the soviet demand to land in Austria, see the *New York Times*, April 6, p. 4. For a summary, June 17, of the soviet note of May 10 concerning German assets in

¹ Conventions: No. 68 Food and Catering for Crews on Board Ship; 69, Certification of Ships' Cooks; 70, Med. Exam. of Seafarers; 71, Vacation Holidays with Pay; 72, Crew Accommodation on Board Ship; 73, Social Security; 74, Certif. of Able Seamen; 75, Seafarers' Pensions; 76, Wages, Hours of Work, and Manning.

² Convention No. 77, Medical Examination Young Persons (Industry); 78, Med. Exam. Young Persons (non-ind. occ.); 79, Night Work Young Persons (non-ind. occ.); 80, Final Articles Revision.

Austria, see the Royal Institute of International Affairs *Chronology of International Events and Documents*, June 10–23, p. 342. Gen. Mark Clark's protest against soviet procedure is to be found *ibid.*, June 24, p. 574. As to Reparation Commissioner Edwin Pauley's definition of "German assets" at the Potsdam conference where the term was discussed, see the *New York Times*, July 18, p. 6. As to the soviet position, see the *New York Times*, Aug. 11, p. 37. As to soviet demands on Hungary and their relaxation in view of Hungary's disability, see the *New York Times*, Aug. 5, p. 6. The plan of the Allied Control council on German economy is to be found in the *Bulletin*, April 21, p. 636. As to plants which were available for reparations, see the *Bulletin*, Jan. 20, p. 69.

An agreement pertaining to reparation funds for non-repatriable victims of German action is to be found in the *Bulletin*, July 14, p. 71. The United States was prepared to renounce its share of reparations in Austria, Italy and in some other countries. For an executive order relating to the control of German and Japanese diplomatic property in the United States, see the *Bulletin* Aug. 4, p. 237. Ambassador Pauley's recommendations on Japanese reparations, which reduce that country to innocuousness if not starvation, are published in the *Bulletin*, Nov. 24, p. 957.

An agreement with Switzerland was concluded May 25 as to the division of German holdings between the Allied Reparation pool and Switzerland. See the *Bulletin* June 2, p. 955 and June 30, p. 1101, 1121. The agreement with Sweden had not been published at the end of 1946. That an agreement had been reached was announced in the *Bulletin*, July 28, p. 174.

Spain recognized the Allied Control council as the government of Germany, and on that theory concluded with it an agreement for the searching out of German hidden assets. (*New York Times*, Feb. 14, p. 15.)

In Jan. 1946 an agreement was worked out in Paris for the division of German reparations among the Allied countries. The agreement is printed in the *Bulletin*, Jan. 27, p. 114. A conference among certain Allied states as to how to divide the German-owned patents, convened in London, July 15–27. The agreement reached was in violation of the patent agreement of 1886. An article on the subject is to be found in the *Bulletin*, Aug. 18, p. 297.

Italy desequestered all Allied property in Italy April 9. See *Bulletin*, May 12, p. 817. Denmark released all controls of Allied property decreed by the German occupation according to an announcement in the *Bulletin* June 23, p. 1083. A law on vesting and marshalling German external assets is printed in the *Bulletin*, Feb. 24, p. 283. An executive order allowing the custodian to release certain property is to be found in the *New York Times*, May 17, p. 13. The Argentine government announced its intention to liquidate by auction German and Japanese assets according to an item in the *New York Times*, May 2, p. 11.

Nationalization.—Numerous governments of Europe undertook nationalization on a somewhat wide scale. The United States protested against the inclusion of American property in this expropriation. A newspaper report stated that Albania expropriated all foreign-owned companies (*New York Times*, Feb. 15, p. 8). The reply of the Polish government to the U.S. protest is found in the *Bulletin*, April 21, p. 670. The Polish Nationalization law is discussed in an article in the *Bulletin*, Oct. 13, p. 651, and the U.S. position is outlined in the *Bulletin*, Nov. 17, p. 912. A volume on the Polish nationalization and others in eastern Europe was published by Samuel Sharp, Foundation for Foreign Affairs, 1136 Eighteenth street, Washington 6, D.C.

At a meeting of the Economic Commission for Finland and the Balkans held in Paris, Sept. 23, Willard Thorp, representing the United States, protested against the soviet union's taking of United Nations property (*Bulletin*, Oct. 6, p. 620).

Czechoslovakia's provision for compensating foreign nationals victims of expropriation is to be found in the *Bulletin*, Dec. 1, p. 1003. See also the *Bulletin*, Dec. 8, p. 1027. A report of a decision declining to recognize in New York a soviet nationalization decree for Estonia is reported in the *New York Times*, Dec. 7, p. 12. The Yugoslav nationalization decree extending to all private economic enterprises is found in the *New*

York Times, Dec. 7, p. 6. An article on the British progress in nationalization is printed in the *Bulletin*, Oct. 6, p. 615.

War Criminals.—Justice Robert H. Jackson, prosecutor of the war criminals at Nuernberg, naturally defended the validity of the proceedings. His address of May 31 in Belgium is printed in the *Bulletin*, Aug. 25, p. 377, and his address July 26 at Nuernberg is printed in the *Bulletin*, Aug. 25, p. 364. His final report to the president is printed in the *Bulletin*, Oct. 27, p. 771, and Judge Francis Biddle's report with recommendations is printed in the *Bulletin*, Nov. 24, p. 954. As to the trial of far eastern war criminals, see the *Bulletin*, May 19, p. 846.

Miscellaneous.—The Allied occupation policy in Germany was subjected to grave criticism throughout the world. The restatement of U.S. policy on Germany, found in the address of the secretary of state in Stuttgart, Germany, Sept. 6, is set out in the *Bulletin*, Sept. 15, p. 496. Another address on U.S. policies in Europe, made by the secretary of state in Paris, Oct. 3, is printed in the *Bulletin*, Oct. 13, p. 665.

The participation of U.S. observers in the Greek elections, pursuant to an agreement reached at the Crimean conference of 1945, is printed in the *Bulletin*, Jan. 20, p. 56. The report of the mission is found in the *Bulletin*, Sept. 1, p. 424. A protest to the elections in Rumania is to be found in the *Bulletin*, June 9, p. 1007. See also the *Bulletin*, June 30, p. 1125.

A letter on U.S. policy in maintaining and developing international law, hardly supported by the facts, was addressed by the secretary of state to Frederic R. Coudert, president of the American Society of International Law (*Bulletin*, May 5, p. 758). A report by the secretary of state on the Paris conference of foreign ministers, June 15–July 12, is printed in the *Bulletin*, July 28, p. 167. See also the *Bulletin*, Aug. 25, p. 352.

As to U.S. policy in occupied areas, see articles published in the *Bulletin*, Aug. 18, p. 291.

The status of Turkey in the straits of the Dardanelles established by the Montreux convention, 1936, about to be revised, is discussed in various issues of the *Bulletin* after Sept. 1.

The agreement among the council of foreign ministers to discuss the German and Austrian peace treaties and on the limitation of occupying forces in Europe is published in the *Bulletin*, Dec. 15, p. 1082. (See also PRISONERS OF WAR; UNITED NATIONS.) (E. Bd.)

International Monetary Fund. During the year 1946 the final necessary steps were taken to bring the International Monetary fund into actual existence and operation. By the end of 1945, 35 of the original 44 signatories of the fund agreement had joined the fund, with quotas aggregating \$7,324,500,000, and the establishment of the fund was assured.

Under the fund agreement the government of the United States was responsible for calling the first meeting of the board of governors of the fund. Accordingly an invitation was sent by the United States in Jan. 1946 to member countries to participate in such a meeting at Savannah, Ga., beginning March 8, 1946. The following countries which had not taken the steps necessary for adherence to the fund were invited to send observers: Australia, Denmark, New Zealand, Venezuela, the U.S.S.R., El Salvador, Liberia, Panama, Nicaragua.

At this meeting of the board of governors the period in which original signatories of the fund agreement could join as original members was extended from Dec. 31, 1945 to Dec. 31, 1946. Under this resolution, Cuba, El Salvador, Nicaragua and Panama signed the Articles of Agreement in the course of the meeting. On March 30, 1946, Denmark, with a quota fixed at \$68,000,000 by the board of governors, likewise acquired membership under the authority of this resolution. The board of governors also received applications for membership from the governments of Lebanon, Italy, Syria and Turkey which were referred to the executive directors of the fund for consideration and recommendations.

At this inaugural meeting the governor of Paraguay requested that the quota of Paraguay in the fund should be increased. This request was also referred to the executive directors for consideration and recommendations.

At their first meeting on May 6, 1946, the executive directors selected as managing director Camille Gutt of Belgium who, upon accepting, resigned as executive director. The managing director was given the responsibility of organizing and directing the staff. In subsequent months much time was devoted by the fund to establishing the rules and regulations under which the fund would operate and in organizing the staff.

The first major task of the International Monetary fund was the determination of the initial par values of member countries,

since this determination was prerequisite to beginning of actual exchange transactions. By Sept. 1946 sufficient progress had been made in the organization of the fund to warrant undertaking this task. In undertaking to establish the initial par values at this time the executive directors of the fund were mindful of the many difficulties and risks involved in beginning exchange transactions before world reconstruction had taken place. It had long been foreseen, however, that the fund would begin its work in a period of disorder and disruption. Not only had sufficient flexibility been introduced into the fund agreement to allow for these conditions, but it had been thought that the fund could make a substantial contribution toward achieving world reconstruction and stability by coming into operation as soon as feasible.

The board of governors began its first annual meeting in Washington on Sept. 27, 1946. It met for six days and made a number of important decisions necessary to forward the work of the fund. The rules and regulations drafted by the executive directors were accepted without change. The recommendations made by the executive directors on the applications received from Lebanon, Turkey, Syria and Italy were acted on and it was agreed that these countries might accept membership in the fund until April 15, 1947. The quota of Lebanon was fixed at \$4,500,000; of Italy, \$180,000,000; of Syria \$6,500,000; and of Turkey, \$43,000,000.

At the request of Mexico, it was also agreed that the fund would gather material wherever available and obtainable on the monetary uses of silver. Such material would be gathered as could be useful in facilitating discussions on the subject in an international conference among interested member countries.

The question of quotas in the fund of various countries was also considered. The quota of Paraguay was adjusted to a figure of \$3,500,000 from its previous figure of \$2,000,000; and the quota for France was adjusted to a figure of \$525,000,000 from its previous figure of \$450,000,000. A request from Iran for an increase in its quota was referred to the executive directors for their recommendation to the board of governors.

After the meeting of the board of governors in the subsequent months of 1946, the executive directors devoted most of their time to the consideration of the initial par values. By Dec. 18, 1946, the International Monetary fund was able to announce that it was now prepared to begin exchange transactions on March 1, 1947, and that the transactions of the fund were to be at the initial par values which had been determined in the manner laid down in the fund agreement. (For a table of these initial par values, *see* the article EXCHANGE CONTROL AND EXCHANGE RATES.)

Certain countries, namely, Brazil, China, the Dominican Republic, Greece, Yugoslavia, France, in respect of French Indo-China, and the Netherlands, in respect of the Netherlands Indies, requested more time for the determination of their initial par values and the fund so agreed. Pending the completion of certain legislative proceedings in Uruguay, the initial par value of its currency was not definitely established.

The major significance of this action was not in the particular rates of exchange which were announced, but that now, in practice, countries were acting together in the international monetary field. The initial par values in all cases were those which were proposed by members and were based on existing rates of exchange. However, it was clearly stated in the fund announcement that the acceptance of these rates was not to be interpreted as a guarantee by the fund that all rates would remain unchanged; rather the acceptance of these rates was largely in recognition of the fact that the existing substantial disparities in price and wage levels among a number of countries did not have the same significance as in normal times, *e.g.*, in practi-

cally all countries exports were being limited mainly by difficulties of production or transport rather than exchange and price considerations.

As the year 1946 ended, work was being pursued in the fund to complete the specific steps necessary to begin the actual exchange transactions of the fund. It was hoped, and expected, that by the end of 1947 the fund would have made a substantial contribution toward the achievement of world reconstruction and stability. (*See also* BANKING; TARIFFS.) (H. D. W.)

International Stabilization Fund: *see* BANKING.

International Trade. During 1946 international trade was somewhat dislocated as a result of World War II. Heavy wartime shipments of munitions were supplanted by materials for relief and reconstruction. Exports from the western hemisphere to the devastated areas of Europe and Asia continued very large whereas European and Asiatic exports were necessarily small, but they increased as the year advanced and as transportation facilities were restored and industries were reconstructed or revitalized. There were also changes in the direction and volume of trade, compared with prewar years, as a result of the controlled economies and reduced trade levels of Germany and Japan in keeping with the Potsdam declaration. Before World War II Germany and Japan ranked third and fifth, respectively, in world trade.

The distribution of essential commodities in world short supply continued under international allocation, but the supply of a number of these products continued to ease, so that by the end of 1946 only coal, tin and some agricultural commodities remained on the international allocation lists.

Relief shipments figured large in the international movement of goods to liberated areas. United Nations Relief and Rehabilitation administration supplies shipped to Europe were heaviest to Czechoslovakia, Greece, Italy, Poland, Yugoslavia, Byelorussia and the Ukraine. In Asia the U.N.R.R.A. program was concentrated in China.

The speed of recovery of international trade in the postwar period was retarded in many areas by such problems as internal political disturbances, work stoppages, shortages of labour, food and basic raw materials, exchange difficulties, bilateral trade arrangements and the almost universal exercise of trade controls.

Because some countries did not resume the reporting of their imports and exports, a complete picture of world trade was not possible. Statistics which were available, being mostly based on values of goods imported and exported, were influenced by the sharp price rises and exchange fluctuations which had occurred.

Trade of War-torn Areas.—The pressing postwar need for food, raw materials and equipment in European countries resulted in heavy imports while at the same time exports were necessarily small, thus swelling European import balances to large proportions. This fact is reflected in the statistics of trade of Canada, the United States and the United Kingdom with the continent.

Table I.—Canadian, United States and United Kingdom Trade Balances with Continental Europe,* Prewar and 1946
(Monthly averages in millions of U.S. dollars)

Country	1936-38			1946 (Jan.-Sept.)		
	Exports	Imports	Balance	Exports	Imports	Balance
Canada	5.9	3.4	+2.5	24.9	2.7	+22.2
United States	56.5	42.8	+13.7	245.2	41.7	+203.5
United Kingdom	69.0	108.4	-39.4	98.1	48.7	+49.4

*Excluding the U.S.S.R.

Receipts from shipping services and tourists, which before World War II were significant offsetting items for adverse trade balances in many European countries, had not yet returned to prewar magnitude. The increased postwar excesses of imports, therefore, were more difficult to finance. Trade figures

of those European countries for which statistics were available reflected efforts to narrow the gap by stepping up exports as fast as transportation and production facilities permitted.

Table II.—Exports and Imports of Selected European Countries
(Monthly averages in millions of U.S. dollars)

Country	1945				1946			
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter
Belgium and Luxembourg:								
Exports	17.5	33.1	47.0	61.8				
Imports	50.2	64.0	83.7	104.8				
Bulgaria:								
Exports	3.2	1.9	2.4	11.0 (July)				
Imports	2.8	3.0	3.6	8.5 (July)				
Czechoslovakia:								
Exports	2.9	9.1	17.1	26.2 (July, Aug.)				
Imports	3.7	7.6	13.7	16.6 (July, Aug.)				
Denmark:								
Exports	21.8	19.5	23.4	30.4				
Imports	19.7	32.5	39.2	59.3				
Finland:								
Exports*	18.1	6.5	11.6	16.8 (July, Aug.)				
Imports	16.8	7.7	14.5	21.3 (July, Aug.)				
France:								
Exports	35.8	28.9†	65.3	73.0				
Imports	222.9	103.8†	193.7	173.8				
Netherlands:								
Exports	7.2	11.0	15.0	27.3				
Imports	†	†	51.8 (June)	77.4				
Norway:								
Exports	7.4	14.2	21.4	21.1 (July, Aug.)				
Imports	25.8	20.3	29.6	36.5 (July, Aug.)				
Portugal:								
Exports	13.3	11.0	14.4	16.2 (July, Aug.)				
Imports	16.3	11.4	18.5	24.3 (July, Aug.)				
Sweden:								
Exports	58.6	42.1	50.7§	52.7				
Imports	37.9	50.3	67.4§	70.3				
Switzerland:								
Exports	36.7	41.0	48.4	56.2				
Imports	49.7	62.3	64.6	62.8				

*Not including deliveries for reparations or restitution.

†The official exchange rate of the franc was changed on Dec. 26, 1945, from 49.625 to the dollar to 119.10669 to the dollar.

‡Not available.

§The official exchange rate of the Swedish crown was changed, effective July 13, 1946, from 4.20 to the dollar to 3.60 to the dollar.

The widespread use of bilateral trade and clearing arrangements by European countries as temporary expedients to restore some measure of trade in the face of exchange difficulties and the exercise of export and import controls to carry out the agreements tended to direct their trade into somewhat fixed channels.

In Asia, continuing local political disturbances and shortages of labour and food in many countries, in addition to war damages and transportation difficulties, resulted in a rather slow revival of exports. The recovery in rubber shipments from British Malaya was an exception.

Chinese imports during the first nine months of 1946 exceeded exports 6 to 1 in value. More than 60% of the imports came from the United States and included such items as rice, wheat, raw cotton, trucks, busses and all kinds of machinery.

Japanese foreign trade continued under the strict supervision of the supreme commander for the Allied powers. Most of the limited Japanese trade was with the United States. Exports consisted mainly of raw silk.

United Kingdom.—Progress made by the United Kingdom during 1946 in its export drive to 175% of the prewar volume was indicated in the export volume index (1938=100) which rose from 84 in the first quarter to 117 in October. The necessity for the export expansion program was brought about by Great Britain's reversed balance of payments position on current account as a result of the conduct of the war. Lines of credit amounting to \$1,250,000,000 from Canada and \$3,750,000,000 from the United States were made available to the United Kingdom to assist it in weathering the difficult transition period. The clauses in the Anglo-U.S. financial agreement relating to the freeing of receipts from current transactions of all sterling countries for current transactions in any currency area without discrimination and those relating to the future settlement of accumulated sterling balances had an important bearing on the multilateral trade objective advocated by the United States and supported by the United Kingdom.

Canada.—The end of World War II and the consequent decrease in shipments of military supplies and equipment brought about a decline in Canadian exports; however, the average monthly value of exports during the first nine months of 1946 was almost two and one-half times the 1936-38 average. For imports, also, the 1946 average (excluding Canadian military goods returned from abroad) was almost two and one-half times the prewar average value. Obviously price increases had a considerable effect on the figures and the 1946 volume of imports and

Table III.—Geographic Distribution of United Kingdom Foreign Trade*, 1936-Sept. 1946

(In millions of pounds sterling)

Destination or origin	1936-38 average	1939	1940	1941	1942	1943	1944	1945†	1946†
Exports‡ to									
Canada	26	23	33	39	32	31	26	27	22
United States	36	37	38	33	26	25	23	22	27
American republics	38	36	37	30	27	23	11	17	37
U.S.S.R.	17	8	1	29	75	59	56	27	5
Continental Europe§	168	144	69	11	8	14	23	134	219
Africa	77	69	70	72	68	69	71	86	119
Asia	81	72	81	77	43	39	40	61	130
Oceania	56	49	63	53	89	64	68	64	60
Other countries	44	48	45	34	34	26	27	40	61
Total	543	486	437	378	402	350	345	478	680
Imports|| from									
Canada	81	80	147	191	176	281	384	317	140
United States	108	117	275	409	536	1,104	1,391	608	163
American republics	88	84	113	95	85	115	132	105	113
U.S.S.R.	23	8	1	1	3	2	2	4	3
Continental Europe§	264	241	104	17	16	16	27	71	109
Africa	68	69	96	87	102	109	127	103	91
Asia	125	117	167	128	89	89	98	98	112
Oceania	115	104	153	103	100	83	111	115	109
Other countries	60	66	96	114	99	86	88	93	86
Total	932	886	1,152	1,145	1,206	1,885	2,360	1,514	926

*Excluding bullion and specie but including exports and imports by government departments of "munitions," i.e., aircraft and other vehicles (except tires and tubes for road vehicles) and arms, ammunition and naval and military stores. Shipments to United Kingdom armed forces abroad are excluded in all years.

†Provisional figures.

‡Including re-exports.

§Excluding U.S.S.R.

||General imports.

Table IV.—Canadian Foreign Trade: Index Numbers, 1945
(1935-39 = 100)

	Imports	Exports
Declared values	231.6	363.8
Average values	145.3	157.4
Physical volume	159.4	231.1

Table V.—Geographic Distribution of Canadian Foreign Trade*
1936-Sept. 1946

(In millions of Canadian dollars)

Destination or origin	1936-38 average	1939	1940	1941	1942	1943	1944	1945†	1946†
Exports‡ to									
United States	321	380	443	600	886	1,149	1,301	1,197	616
American republics	19	20	26	33	23	27	33	58	63
United Kingdom	379	328	508	658	742	1,033	1,235	963	433
U.S.S.R.	§	§	§	5	37	58	103	59	17
Continental Europe||	71	54	22	3	9	28	202	324	238
Africa	22	23	56	125	255	327	177	104	77
Asia	37	45	36	70	202	180	212	337	94
Oceania	44	44	44	47	109	75	55	51	38
Other countries	31	31	44	80	101	94	122	125	88
Total	924	925	1,179	1,621	2,364	2,971	3,440	3,218	1,664
Imports§ from									
United States	428	497	744	1,004	1,305	1,424	1,447	1,202	970
American republics	21	16	34	61	51	55	79	87	93
United Kingdom	130	114	161	219	161	135	111	141	159
U.S.S.R.	§	§	§	§	§	§	§	§	§
Continental Europe||	41	36	18	6	5	5	9	17	26
Africa	10	8	13	14	11	12	22	19	19
Asia	37	38	63	75	46	23	33	40	33
Oceania	16	16	22	33	33	36	21	26	22
Other countries	24	26	32	38	29	46	47	49	37
Total	707	751	1,082	1,449	1,644	1,735	1,759	1,586	1,361

*Excluding gold.

†Provisional figures.

‡Domestic exports.

§Less than \$500,000.

||Excluding U.S.S.R.

¶Imports for consumption. Figures include "Canadian goods returned," which apart from the returns from the United States, in 1945 and 1946 consisted mainly of Canadian military equipment returned from abroad. In the case of imports from the United Kingdom and Newfoundland, the value of returned equipment is large enough to introduce distortion, and no use should be made of aggregate figures of imports from these two countries without taking this item into account. The amounts involved are as follows:

(millions of Canadian dollars)

	Nine months ended September	
	1945	1946
United Kingdom	4	60
Newfoundland	8	2

exports was considerably lower than the value figures indicated. Value and volume indexes for 1946 not being available, those for 1945 are given.

The Canadian statistics showed continued heavy concentration of export and import trade during 1946 with the United States. Before the war the United States was Canada's chief supplier and the United Kingdom the chief purchaser of Canadian goods. Some signs of expansion were observed in Canadian trade with the Latin American republics and with India.

The Canadian dollar was revalued upward in July from \$0.90909 in United States currency to a par with the United States dollar.

United States.—During 1946 exports from the United States ran at about the same dollar rate as that during 1945 in spite of the great decrease in lend-lease exports as a result of the end of the war. Also, in

Table VI.—United States Foreign Trade*, 1936–Sept. 1946
(In millions of dollars)

	General imports	Total exports	Lend-lease shipments Military	Non-military	Relief shipments U.N.R.R.A. Private	Exports exclusive of lend-lease and relief
1936–38 (ave.)	2,489	2,967	...	...	...	2,967
1939	2,318	3,177	...	...	...	3,177
1940	2,625	4,021	...	...	...	4,014
1941	3,345	5,147	180	559	...	4,368
1942	2,745	8,080	2,218	2,715	...	3,120
1943	3,381	12,964	5,311	5,046	...	2,549
1944	3,919	14,259	5,425	5,880	1	2,833
1945	4,136	9,803	1,826	3,736	355	3,760
1946, Jan.–Sept.	3,521	7,120	1	630	896	5,504

*Does not include trade in gold and silver.

†Including re-exports but excluding overseas sales of surplus military equipment.

terms of value, 1946 exports were about three times the 1936–38 average, but were about twice the prewar volume. Imports averaged almost twice the prewar value but were actually only a little above the 1936–38 volume. Compared with 1945, goods were imported during 1946 at a slightly higher rate, in terms of volume as well as value, reflecting an increase in imports from formerly occupied areas of Europe and Asia.

Lend-lease exports in 1946 consisted principally of foodstuffs and reconstruction equipment and machinery the procurement of which had been arranged prior to V-J day. Although the lend-lease program came to an end with the end of World War II, these supplies, which were badly needed abroad, were exported under a special cash-reimbursable arrangement.

A marked increase occurred during 1946 in U.S. shipments for U.N.R.R.A.'s account. The close of the year brought to an end U.N.R.R.A.'s procurement program for Europe, but some items remained to be shipped to the continent during 1947. U.N.R.R.A. procurement for China was scheduled to continue until March 31, 1947.

The commodity composition of exports indicated the role of the United States in providing food and equipment for relief and reconstruction of a war-torn world. One-fourth of total United States exports during the year consisted of foods, crude and manufactured. In the immediate prewar years, foods accounted for slightly more than 10% of the total.

Table VII.—Geographic Distribution of United States Foreign Trade, 1936–Sept. 1946
(In millions of dollars)

Destination or origin	1936–38 ave.	1939	1940	1941	1942	1943	1944	1945	1946 (9 mo.)
Exports* to									
Canada	454	489	713	994	1,334	1,444	1,441	1,178	979
American republics†	485	549	683	902	718	813	1,055	1,263	1,420
United Kingdom	499	505	1,011	1,637	2,529	4,505	5,243	2,189	633
U.S.S.R.	49	57	87	108	1,425	2,995	3,473	1,838	317
Continental Europe‡	678	716	537	90	35	98	604	1,448	2,207
Africa	128	115	161	504	816	1,507	861	524	372
Asia	499	562	619	625	688	838	996	845	976
Oceania	91	80	94	123	361	569	410	354	87
Other countries	84	104	116	164	174	195	176	164	129
Total	2,967	3,177	4,021	5,147	8,080	12,964	14,259	9,803	7,120
Imports§ from									
Canada	345	340	424	554	717	1,024	1,260	1,128	622
American republics†	542	518	619	1,008	977	1,318	1,594	1,623	1,279
United Kingdom	174	149	155	136	134	105	84	88	114
U.S.S.R.	25	25	21	30	25	30	50	54	76
Continental Europe‡	507	438	207	106	56	96	149	253	375
Africa	66	77	131	161	204	203	221	296	230
Asia	748	700	981	1,088	338	235	322	407	611
Oceania	40	27	35	155	231	245	130	169	138
Other countries	42	44	52	103	63	125	109	118	76
Total	2,489	2,318	2,625	3,345	2,745	3,381	3,919	4,136	3,521

*Including re-exports.

†Canal Zone included in 1936–37.

‡Excluding U.S.S.R.

§General imports.

Increased United States exports to the Latin American republics reflected increasing availability of consumer goods and capital equipment to those countries in response to a demand unsatisfied during the war. The importance of the United States as a source of supply of essential equipment and relief supplies during the year was shown in the heavy exports to Europe and Asia. Exports to the United Kingdom and the U.S.S.R. continued the sharp decline from high wartime levels.

Although some increase was indicated in United States imports, the export balance remained substantial, but implications of the United States' creditor position were generally recognized as pointing up the necessity for a higher level of imports.

Latin American Republics.—The foreign trade of the Latin American republics continued to be concentrated among themselves and with the United States; however, there were signs of revival of trade with continental Europe.

Toward Freer Multilateral Trade.—Although the foreign trade of most countries continued during 1946 under controls almost as strict as those during the war, and although the direction of trade was thus fixed to a large degree in accordance with bilateral arrangements, the situation was regarded as a transitional phase and as the year closed the stage was set for relaxation of restrictions and lowering of barriers, looking toward a freer multilateral trade. The International Monetary fund and the International Bank for Reconstruction and Development had been established; the charter proposed by the United States for an International Trade organization had been considered by a preliminary commission in preparation for a full conference in 1947; the United States and the United Kingdom had agreed to move forward together and with other countries toward the common objective of expanded multilateral trade; and the United States had announced its intention to seek tariff-reducing

Table VIII.—Geographic Distribution of Foreign Trade of Selected Latin American Republics: Prewar and 1946

	All countries (Monthly ave.) in millions U.S. dollars	United States	United Kingdom	Continental Europe	American republics	Other countries
Exports from						
Argentina						
1936–38	48	11.6	32.1	43.3	8.9	4.1
1946 Jan.–July	85	15.5	23.3	37.5	14.0	9.7
Brazil						
1936–38	27	36.6	9.9	39.8	6.6	7.1
1946 Jan.–July	75	43.5	8.7	22.6	14.5	10.7
Chile						
1936–38	13	19.6	19.4	29.4	4.3	27.3
1946 Jan.–Sept.	18	39.2	10.6	4.9	22.7	22.6
Mexico						
1936–38	18	61.0	9.8	21.2	1.5	6.5
1946 Jan.–Sept.	29	78.7	.3	2.1	17.0	1.9
Imports into						
Argentina						
1936–38	36	16.0	21.3	40.0	9.7	13.0
1946 Jan.–July	41	27.0	14.1	17.1	27.5	14.3
Brazil						
1936–38	24	23.2	11.3	41.7	16.0	7.8
1946 Jan.–July	48	64.9	7.8	9.7	9.8	7.8
Chile						
1936–38	7	27.6	11.2	38.6	15.0	7.6
1946 Jan.–Sept.	15	43.3	5.4	5.8	40.7	4.8
Mexico						
1936–38	12	60.0	4.6	30.3	1.1	4.0
1946 Jan.–Sept.	39	83.4	1.5	3.5	9.3	2.3

agreements with 18 other nations in concert. (See also BUSINESS REVIEW; EXCHANGE CONTROL AND EXCHANGE RATES; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; LEND-LEASE; UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.) (S. L. D.)

U.S. Trade Agreements.—The most important event in 1946 relating to United States reciprocal trade agreements was announcement by the United States on Nov. 9 of intention to conduct simultaneous trade agreement negotiations with the following 18 countries: Australia, Belgium, Brazil, Canada, Chile, China, Cuba, Czechoslovakia, France, India, Lebanon, Luxembourg, Netherlands, New Zealand, Norway, South Africa, Union of Soviet Socialist Republics and the United Kingdom. Negotiations were to be conducted at Geneva, Switzerland, beginning April 8, 1947. This was the most extensive reciprocal trade agreement negotiation yet undertaken.

Under authority of the Trade Agreements act 33 reciprocal trade agreements were concluded with 29 countries. The latest trade agreement concluded was that with Paraguay on Sept. 12, 1946. Authority to negotiate reciprocal trade agreements was first granted by congress on June 12, 1934, for a three-year period and was continued in effect by four subsequent renewals: in 1937 and 1940 for three-year terms, in 1943 for a two-year term and in 1945 for three years. In accordance with provisions of the act as extended and amended in 1945 rates of duties may be modified by 50% of rates in effect Jan. 1, 1945. Previously, the authority to modify rates of duty was in general limited to 50% of the rates in effect at the time the act was first enacted.

As a co-ordinate step in the program to expand foreign trade and create a higher level of employment and prosperity in all countries the United States published in Sept. 1946 a *Suggested Charter for an International Trade Organization of the United Nations*. This represented an elaboration of the *Proposals for Expansion of World Trade and Employment*, published the previous year. The *Suggested Charter* served as the main basis for discussion when the Preparatory committee of the International Conference on Trade and Employment (created by the Economic and Social Council of the United Nations) met in London between Oct. 15 and Nov. 26, 1946. At the committee meeting a preliminary redraft charter was drawn up to be discussed further at a second meeting of the committee which was to be held at Geneva, Switzerland, concurrently with the negotiations for reduction of trade barriers. (W. L. C.)

Interstate Commerce Commission. The duties and powers of the Interstate Commerce commission are set forth in the Interstate Commerce act, originally passed in 1887 and later amended in many important particulars. The act is divided into four parts, and deals with the regulation of rail, motor and water carriers and freight forwarders. The regulatory powers of the commission extend, among other things, to the charges made by these carriers for transportation services; to questions involving the valuation and financial reorganization of railroads; to the issuance of securities; to the acquisition or control of these various carriers by other carriers or persons; to their accounting practices and the abandonment of lines of railway; and to matters involving the determination of whether public convenience and necessity require the institution of new services by motor and water carriers or by freight forwarders, or for the construction and operation of lines of railway.

The commission's statutory powers and duties did not change materially during the year 1946, but its membership was re-

duced by the death, on Aug. 17, of Commissioner Claude R. Porter, who had served as such from 1928. George M. Barnard of Indiana was selected as chairman for the year 1946, and Clyde B. Aitchison for the year 1947. The president reappointed Commissioners William E. Lee and William J. Patterson for additional terms of seven years beginning Jan. 1, 1946, and Commissioner Carroll Miller for a similar term beginning Jan. 1, 1947. Richard F. Mitchell was appointed to fill the unexpired remainder of the term of Commissioner Porter, or until Dec. 31, 1949. Commissioner J. Monroe Johnson continued to serve also as director of the Office of Defense Transportation.

The carriers subject to the jurisdiction of the commission experienced another difficult year. While passenger traffic had declined and there had been a reduction in government traffic because of a cessation of hostilities, the processes of reconversion and industrial labour shortages taxed all facilities of transport to the utmost. Transportation by railroad was conducted under most difficult circumstances, and because of increasing car shortages, and deferred replacements and maintenance work, was at the end of 1946 still short of normal. Increases in wages and other operating costs caused an emergency increase averaging 6.5% in freight rates effective July 1, 1946; and upon an exhaustive hearing of the carriers' application the commission on Dec. 5 approved a plan of increases averaging 17.6%, which became effective Jan. 1, 1947.

The commission's decision in the very important *Class Rate* case, 262 I.C.C. 447, was sustained by the district court, but its order was stayed pending determination of the supreme court, where the case was pending at the end of the year.

(C. B. A.; G. M. B.)

Intestinal Disorders: *see* ALIMENTARY SYSTEM, DISORDERS OF.

Intoxication, Alcoholic. A state-wide system of free care for alcoholic addicts was developed in Connecticut, the program being financed by a fund to which reverts 9% of all income from liquor licence permits. It established out-patient clinics in major population centres of the state and a commitment centre, to which intractable alcoholics may be sent. A similar modified program had been in existence for some time in Sweden, Norway, Denmark, Finland, the Netherlands and Switzerland.

The year witnessed a proposal that the United States government establish and operate federal clinics for the treatment of alcoholic addicts and also an increase in the organization of voluntary efforts for the dissemination of information on alcohol in relation to health and welfare.

The Rochester, N.Y., Committee for Education on Alcoholism, said to be the tenth of its kind in the United States, was organized with the object of disseminating information on the subject, and promoting more adequate hospital and out-patient accommodations for the treatment of alcoholics.

The fourth session of the Yale university (New Haven, Conn.) summer school on alcoholism was held and a similar course inaugurated at the University of California, Los Angeles, and at the University of Wisconsin, Madison.

During 1946 the value of chemical tests for the concentration of alcohol in the blood was more and more recognized as admissible evidence before courts of law in the United States with a growing trend of increased prestige for testimony of this nature.

In the case of blood alcohol concentration wherein a supplementary medical examination is necessary to determine intoxication, mention may be made of the phenomenon of positional nystagmus, observed both experimentally and clinically in acute intoxication from alcohol. The threshold of concentration of

alcohol in the blood at which positional nystagmus first appears has not been determined exactly.

Caffeine (15 gr.) with sodium benzoate was advocated for the treatment of violent or comatose alcoholic patients.

Nutritional factors play a fundamental role in the production of physical and mental disturbances seen among drunkards. The weight of evidence supports the view that cirrhosis of the liver is a multiple nutritional deficiency syndrome and that its prevention is concerned with an adequate caloric intake consisting of a high protein, low fat, diet. Hypochromic iron deficiency and other forms of anaemia associated with achlorhydria, as seen among chronic drinkers, are correlated to inadequate amounts of casein in the diet. Pancreatic disturbances are not uncommon in chronic alcoholism and the literature sounds a warning against surgical procedures for acute abdominal symptoms in chronic alcoholics with positive serum amylase findings.

Intraspinal injections of 10 to 15 mg. of Vitamin B₁ was reported as calming excited patients with delirium tremens. The use of morphine is dangerous, paraldehyde continuing to be the sedative drug of choice.

The effects of insulin and of insulin and glucose in the treatment of acute intoxication led some observers to recommend massive insulin therapy in chronic alcoholism, for it is asserted that insulin brings the patient to a "pliable" responsive mood and thus enhances the application of psychotherapy.

The successful application of contraconditioning measures used by "Alcoholics Anonymous" was considered by one author as a spiritual awakening similar to a conversion experience whereby a predominantly hostile attitude changes to a positive affirmative one.

This phenomenon of group activity in the treatment of chronic alcoholism attracted wide attention. The interaction of all members of the group had significant therapeutic values when under the direction of a group leader familiar with individual problems presented by its members.

Other psychological and psychiatric approaches embraced the application of hypnotism with or without the use of somnifacient drugs or the re-evaluation of psychogenic factors involving difficulties of the whole person. (*See also LIQUORS, ALCOHOLIC.*)

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Inventions: *see* PATENTS.

Inverchapel, Sir Archibald John Kerr Clark,

1ST BARON, OF LOCH ESK (1882—), British statesman and diplomat, was born March 17. A native of Lanarkshire, Scotland, he was educated by private tutors and entered the British foreign service in 1906. He enlisted in the Scots Guards in 1918 and returned to the foreign service after the close of World War I. In 1925, he became minister to Guatemala; he was minister to Chile (1928-31) and to Sweden (1931-35). He was appointed ambassador to Iraq in 1935 and ambassador to China in 1937. After spending five years in China, he was shifted in 1942 to the post of British ambassador at Moscow. His elevation to the peerage as Baron Inverchapel of Loch Esk was disclosed (Jan. 21, 1946) and four days later (Jan.

25) it was announced that he had been named British ambassador to the U.S. Before taking up his new duties, Lord Inverchapel was dispatched to Batavia, Java, to attempt mediation of the Dutch-Indonesian conflict. Following his return to London to report on his mission, he left for Washington, D.C., and presented his credentials to President Truman June 5, 1946.

Investment Banking: *see* BANKING.

Iodine. The only information available on the production of iodine in the United States was that during World War II the output was much higher than the 299,286 lb. reported in 1937. Large accumulated stocks led to a decrease in imports from 2,744,930 lb. in 1943 to 1,204,303 lb. in 1944 and 220,526 lb. in 1945. (G. A. Ro.)

Iowa. A north central state of the United States, popularly known as the "Hawkeye state." Area, 56,280 sq.mi., of which 294 sq.mi. are water. The population in 1940 was 2,538,268 with 1,084,231 listed as urban and 1,454,037 as rural. Only 16,694 were Negroes and 883 others were nonwhite. Of the white population 117,245 were foreign-born. In 1945 the population was estimated to be 2,259,526. The principal cities are: Des Moines, the capital (159,819); Sioux City (82,364); Davenport (66,039); Cedar Rapids (62,120); Waterloo (51,743); Dubuque (43,892) and Council Bluffs (41,439).

History.—The principal state officers elected in Nov. 1946 to take office in Jan. 1947 were: governor, Robert D. Blue; lieutenant governor, Kenneth A. Evans; secretary of state, Rollo H. Bergeson; auditor, Chet B. Akers; treasurer, J. M. Grimes; secretary of agriculture, Harry D. Linn; attorney general, John M. Rankin and superintendent of public instruction, Jessie M. Parker. All the elected state officers, the U.S. senators (George A. Wilson and Bourke B. Hickenlooper) and the eight representatives in congress were Republicans. The 52nd general assembly, consisting of 50 senators and 108 representatives, met in regular session on Jan. 13, 1947. The efficient administration of the state's penal and charitable institutions, tax revision and additional funds for education were among the problems confronting the legislators. The preceding assembly provided a retirement system for governmental employees.

Education.—During the school year 1944-45, out of the school population (ages 5-21) of 631,403, about 343,464 pupils were enrolled in the 9,499 public elementary schools; 116,277 in the 802 public high schools and 472 in the 15 junior colleges. This was about 4% less than the enrolment in 1942-43 and corresponded to the decrease in population during World War II. Teachers in the public schools numbered 22,951.

There are three state supported institutions of higher education—the State University of Iowa (1847) at Iowa City, the State College of Agriculture and Mechanic Arts (1858) at Ames and the State Teachers college (1876) at Cedar Falls. In Oct. 1946, these three institutions had a total enrolment of 21,468, of which some 12,000 were veterans attending under the G.I. Bill of Rights. There are also 22 colleges sponsored by churches and private agencies; enrolment was approximately double that in 1945 and included some 13,000 veterans.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the fiscal year ending June 29, 1946, Iowa paid out \$19,001,363.90 for old-age assistance, of which \$9,096,837.35 came from the federal government. The state appropriation for aid to the blind was \$150,000 annually, \$375,000 for aid to dependent children and \$120,000 per year for child welfare. During 1945-46 \$9,406,257.49 was collected for unemployment insurance and \$4,844,048.90 was expended, leaving a total balance, on July 1, 1946, of \$64,407,639.75.

On Dec. 1, 1946, there were 12,271 inmates in the state's charitable and correctional institutions. The principal groups were: 6,479 in the four hospitals for the insane; 1,862 in the school for the feeble-minded at Glenwood; 1,682 in the hospital for epileptics at Woodward; 1,636 in the state prisons for men at Fort Madison and Anamosa; 55 in the reformatory for women at Rockwell City; 244 in the training school for boys at Eldora and 113 in the training school for girls at Mitchellville.

Transportation and Communication.—There were in 1946 approximately 100,000 mi. of public highways in Iowa, of which more than 9,600 mi. were primary roads managed by the state and about 13,750 mi. were county trunk highways. By July 1, 1946, Iowa had 5,543 mi. of paving, 1,198 mi. of bituminous-surfaced roads and 51,228 mi. of gravelled roads. During 1945-46 the state spent \$1,777,825.78 on constructing primary roads and \$5,002,678.12 for road maintenance.

At the close of 1945 the track mileage of steam railroads in Iowa was 9,229.10 mi. During 1945 these roads carried 13,824,981 passengers and 106,667,458 tons of freight. There were at the same time 397.37 mi. of electric interurban track on which 1,189,060 passengers and 3,262,395 tons of freight were transported, while motor buses carried 21,669,303 passengers. The number of motor vehicles licensed in Iowa in 1945 was 800,430, of which 590,579 were passenger cars. There were 1,245 mi. of pipe lines for crude oil and gasoline and 2,690 mi. for natural gas. Telephones in Iowa in 1945 numbered 673,000, 80% of the farms and 94% of the urban dwellings having telephones.

Banking and Finance.—On June 29, 1946, there were 97 national banks in Iowa with deposits of \$729,261,000 and resources of \$766,949,000. The 552 state banks had deposits totalling \$1,365,802,141, an increase of \$169,459,128 over 1945 and assets of \$1,445,294,047, an increase of \$179,789,619.

In 1945 the principal sources of state revenue in Iowa were the retail sales tax \$25,140,370; gasoline tax \$19,511,368.03; motor vehicle tax \$11,807,754; income tax (one-half the levy only) \$8,291,538; cigarette tax \$2,670,868; inheritance tax \$2,034,015; insurance tax \$1,944,957 and profits from the state liquor stores, \$5,000,000. Expenditures for each year of the biennium 1945-47, as given in the state budget, totalled \$53,830,000 annually, an increase of 1.5% over 1943-45. The largest items were \$18,420,000 for schools, \$11,300,000 for highways, \$10,454,000 for hospitals and \$10,000,000 for old-age assistance. On March 31, 1946, the state treasury reported a net expendable balance of \$69,490,304.13.

Agriculture.—There were 205,399 farms in Iowa in 1946 (213,318 in 1940), with 34,671,736 ac. averaging 168.8 ac. per farm. The assessed value of farm land and buildings in 1946 was \$1,681,525,508, estimated to be about 60% of actual value. This was \$1,680,737 more than in 1945. For the first eight months of 1946 Iowa farmers received a cash income of \$1,074,087,000. Of the total cash income for 1945, \$1,246,095,000 came from livestock, \$255,604,000 from crops and \$37,915,000 from government payments. On Jan. 1, 1946, there were 11,869,000 hogs on Iowa farms, 5,086,000 cattle, 1,596,000 sheep, 512,000 horses and 24,000 mules, all less than in 1945 except in the case of hogs which numbered 879,000 more than in 1945. There were 23,748 auto trucks on farms, 177,431 tractors and 46,546 mechanical cornpickers.

Table I.—Leading Agricultural Products of Iowa, 1946 and 1945

Crop	1946 (est.)		1945	
Corn, bu.	661,620,000		508,106,000	
Oats, bu.	220,476,000		214,440,000	
Soybeans (grain), bu.	34,960,000		34,848,000	
Hay (tame), tons	4,859,000		5,644,000	
Potatoes, bu.	2,880,000		3,960,000	
Wheat, bu.	3,312,000		2,745,000	
Popcorn, lb.	81,900,000		105,000,000	
Rye, bu.	204,000		174,000	
Barley, bu.	360,000		84,000	

Manufacturing.—Iowa is not primarily a manufacturing state although the products of industrial establishments about equal the value of the agricultural products. In 1945 there were 2,670 manufacturing plants in Iowa, employing some 80,000 workers, with pay rolls aggregating \$160,000,000. These plants turned out products valued at \$1,500,000,000.

Table II.—Principal Mineral Products of Iowa, 1944 and 1943

Mineral	1944		1943	
	Production	Value	Production	Value
Bituminous coal	2,690,000 tons	\$9,496,000	2,770,610 tons	\$8,575,522
Cement	3,408,616 bbl.	5,677,787	3,912,307 bbl.	6,335,173
Stone	3,563,020 tons	4,175,005	3,544,560 tons	4,327,782
Sand and gravel	5,271,031 tons	2,084,149	5,070,927 tons	1,979,559
Gypsum	398,143 tons	655,392	418,092 tons	595,602

Mineral Production.—Iowa ranked 29th among the states in the total value of minerals produced in the U.S. from 1911 to 1944. (R. A. GA.)

Iowa, State University of. Located at Iowa City, Ia., this institution of higher education was established Feb. 25, 1847, and was the first state university to admit women on equal standing with men. Enrolment in the fall of 1946 reached 9,783 students, a record for one semester. It included more than 7,000 men, of whom about 5,500 were war veterans. Housing of students became a major problem and resulted in erection of barrack-type apartments, trailers and Quonset huts. Numerous staff members returned from war service and all colleges had record enrolments. Plans were formulated to observe the university's centennial in 1947 with a program of events beginning in Feb. and extending into June. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* also UNIVERSITIES AND COLLEGES.)

Iowa State College. This land-grant college, located at Ames, Ia., founded in 1858, had a record enrolment for the fall quarter of 1946 of 9,214 students, of whom 63% were veterans of the armed forces. To house this peak enrolment trailers, Quonset huts and prefabricated barracks were installed in a 100-ac. area adjoining the campus. A

complete schooling unit for freshman in science and engineering was set up at Camp Dodge, a state guard training camp near Des Moines.

The college had established an institute for atomic research which was to emphasize in its work the applications of atomic energy to agriculture, engineering, science and veterinary medicine. An agricultural outpost, intended as a research centre for the study of corn and other crops, had been established by the college at Antigua, Guatemala. College scientists found strains of corn which showed promise of being resistant to corn rootworm and certain types of rust and leaf spot diseases. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

Iran. Known before March 1935 as Persia, an independent kingdom of western Asia bounded on the east by India and Afghanistan, on the north by the U.S.S.R., on the west by Turkey and Iraq and on the south by the Persian gulf and Arabian sea. Area: 628,000 sq.mi.; pop. (1938 est.): c. 15,000,000, (1940 census): 17,000,000. Chief towns (pop. 1940 census): Tehran (cap. 540,087); Tabriz (213,542); Isfahan (204,598); Meshed (176,471); Shiraz (129,000). Language: mainly Persian, but some Turki and Armenian in the north, Kurd in the west, Arabic in the south and Pashtu in the east. Religion: mainly Mohammedan (*Ithna-'Ashariya*), but c. 10% of the Mohammedan belong to the Sunni sect; there are also c. 50,000 Gregorian Armenians and a few thousands of Catholic Armenians, 30,000 Nestorians and 50,000 Jews. Ruler: Shah Mohammed Riza Pahlavi; prime minister: Ahmad Ghavam-es-Saltaneh (Jan. 26, 1946).

History.—Throughout 1946 internal dissensions affected Iran's relations with foreign countries, especially Britain and the U.S.S.R. In January the government considered that a situation liable to lead to international friction had developed, and Ebrahim Hakimi, the prime minister, instructed the Iranian delegation to the United Nations assembly to refer to the security council a complaint that soviet officials were interfering in Iran's internal affairs. Two days later the Hakimi government, whose policy was considered in Moscow as unfriendly to the U.S.S.R., resigned. On Jan. 26 Ahmad Ghavam-es-Saltaneh, supported by the soviet-sponsored *Tudeh* (Masses) party, was elected prime minister by 53 votes to 51 in the *Majlis*. Although M. Ghavam maintained Hakimi's complaint to the security council, he proceeded to direct negotiations with the soviet government with a view to settling the outstanding differences.

The negotiations with Moscow ended in agreement. By this, soviet troops—which, according to the decision of the Tripartite conference of Berlin (Aug. 2, 1945), should have left before March 2, 1946—were to evacuate all Iranian territory within six weeks from March 24, and a proposal to form a joint soviet-Iranian company for prospecting and working the oil deposits in northern Iran was to be submitted to the *Majlis*. Regarding the internal question of Azerbaijan the Iranian government, taking into consideration the necessity for reforms under existing laws, would make the necessary arrangements for the solution of the difficulties, which had arisen with the provincial government. A new governor general, Dr. Salamollah Javid, was appointed by the central government in agreement with the provincial government. Jaafar Pishevari, the pro-soviet premier of Azerbaijan, was asked to remain in office until the elections.

In June a mission under Prince Mozaffar Firouz, minister of labour, negotiated an agreement with the provincial government of Azerbaijan on a threefold basis: (1) Azerbaijan would abandon its autonomy and become part of Iran; (2) relinquish its ministries and premiership and (3) establish administration for the time being by provincial and city councillors. After the soviet army had been withdrawn from Azerbaijan Ghavam announced on May 24 that the complete evacuation of Iranian soil had been "certified."

In May the council of ministers approved an up-to-date labour bill which was brought into force on an experimental basis pending its approval by the *Majlis*, when elected. Wages and working conditions were regulated, the formation of trade unions was authorized, and machinery created for the settlement of industrial disputes. Two unions secured recognition, one covering the Bank Mellié and the other the Anglo-Iranian Oil co. On July 14 a general strike of all the Anglo-Iranian Oil company's employees (c. 50,000) in the Khuzistan province took place. After negotiations with Prince Firouz the workers resumed work. The strike had lasted four days. The day after the strike ended a

British cruiser and a sloop anchored at the mouth of the Shatt-al-Arab in Iraqi waters, and on Aug. 12 British troops from India disembarked at Basra. It had been announced that the troops were being sent to Basra "in order that they may be at hand for the protection, should circumstances demand it, of Indian, British and Arab lives and in order to safeguard Indian and British interests in south Iran."

On July 31 Ghavam reconstituted his cabinet, including in it three *Tudeh* members. He protested against the presence of troops at Basra and requested their immediate withdrawal. In September a revolt against the central government took place in southern Iran. Fighting in the south ceased on Oct. 6, and ten days later agreement was reached with the southern leaders providing that the constitution should be respected, provincial and city councils should be formed for the Fars province, the number of Fars deputies should be increased and government officials for Fars should be elected from local candidates.

Ghavam tendered the resignation of his cabinet on Oct. 17 and formed a new government without any of the three *Tudeh* ministers.

A decree ordered the *Majlis* elections to be held on Dec. 7 under the supervision of government forces to ensure freedom of voting and to suppress possible disturbances. In accordance with this decree government troops would be sent into Azerbaijan to supervise the elections. *Pravda* attacked the Iranian prime minister's policy, saying that he intended to frustrate a peaceful settlement of the Azerbaijan problem. The government notified the security council of the U.N. of its intention to send troops into Azerbaijan, as into other provinces, to see that the elections were carried out without disturbance, in spite of the "friendly admonition" of the soviet ambassador that the movement of troops into Azerbaijan might lead to disturbances near the soviet border.

(R. F. O. B.)

The Azerbaijan authorities refused to permit the extension to that province of the arrangements designed to secure throughout Iran a free and impartial verdict at the polls. Ghavam postponed the elections to give Pishevari and his friends time for reflection. As the dissident faction in Tabriz maintained its negative standpoint, orders were given to the Iranian army to advance into Azerbaijan. Although Pishevari tried to incite the local population to "die in defense of their liberties," the troops were welcomed everywhere, especially in Tabriz where they entered on Dec. 11. In Tehran the opinion prevailed that Dec. 11 was one of the great days in the history of Iran, now finally united under the shah, whose own part in the events had not been insignificant.

The elections began on Dec. 21. The popularity of Ghavam and his Democratic party left little doubt as to their results.

Education.—(1938) 8,381 schools; 457,236 pupils; 13,078 teachers; one university at Tehran.

Banking and Finance.—Revenue, ordinary (1944-45) \$137,900,000; expenditure, ordinary (1944-45) \$137,900,000; foreign loan (nil); public debt (1944) \$76,925,000; note, circulation (June 1946) \$206,360,000; gold reserve (June 1946) \$123,000,000; bank deposits (June 1946) \$277,446,000; exchange rate (1946) 1 rial=3.08 cents U.S.=0.0274 gr. fine gold.

Trade and Communications.—Foreign trade (merchandise) (1945): imports \$125,820,000; exports \$196,707,000; communications (1938) roads fit for wheeled traffic c. 8,770 mi.; railways open to traffic (1945) c. 1,270 mi.

Agriculture and Minerals.—Production (in short tons): petroleum, crude (1945) 18,886,000; wheat (1941) 1,870,000; barley, 210,000; rice (est. 1937-38) 420,300; cotton (1943) 22,000; wool (1943) 13,200; beet sugar (1941-42) 26,400; tobacco (1940-41) 13,970.

Iraq. An Arab state of the near east, between Iran, Syria and Saudi Arabia, watered by the Tigris and Euphrates; an independent kingdom after 1932, when the British mandate was terminated. Area: 143,250 sq.mi.; pop. (est. 1944): 3,561,000. Chief towns (pop. census 1934): Baghdad (cap., 400,000), Mosul (260,000), Basra (180,000), Language: Arabic; religion: mainly Mohammedan, but also Christian, Jewish and other communities. Ruler: King Feisal II; regent: Crown Prince Abdul-Ilah; premier (1946): Sayid Ahshad Al-Umari.

History.—In January Gen. Nuri es Said, former premier, led an official delegation to Turkey. Agreements were concluded providing for collaboration in cultural, economic and security questions. In June workers and students in Baghdad demanded the immediate withdrawal of British troops from Iraq and the submission of the Palestine question to the Security council. The Iraq government protested to Britain and the U.S.A. against the Palestine report. The soviet journal *Red Fleet*, discussing the British position in Iraq, stated that the British were backing negotiations for a middle east power bloc to act as a buffer between the U.S.S.R. and Britain and accused Britain of blocking the independence and sovereignty of any nation that fell within its sphere of strategical interest. On Aug. 2 it was announced that Britain was sending troops from India to Basra "in order that they might be at hand for the protection, should circumstances demand it, of Indian, British and Arab lives and in order to safeguard Indian and British interests in south Persia." The ban on political parties imposed before 1937 was lifted.

(R. F. O. B.)

Education.—1944-45: nursery schools 56, scholars 7,891; elementary schools 822, scholars 89,124; elementary evening schools 24, scholars 3,962; old people's elementary schools 99, scholars 3,788; secondary schools 71, scholars 11,309; teachers' training colleges, male 4 (students 899), female 2 (students 416); colleges 13, students 2,788.

Finance.—Revenue, ordinary (est. 1945-46) 22,158,540 Iraq dinars; expenditure, ordinary (est. 1945-46) 22,777,386 dinars; notes in circulation (Nov. 1945) 43,242,670 dinars; foreign assets reserves (Aug. 1946) 45,000,000 dinars; exchange rate (1946): 1 dinar = £1 sterling = 403.4 U.S. cents.

Trade and Communication.—Foreign trade, 1945 (merchandise): imports (excluding British army stores) 15,010,000 dinars; exports, domestic (excluding crude petroleum) 8,029,500; 1939 (short tons): grain, pulses and flour 314,000; dates 162,000; wood (raw) 9,900; cotton (raw) 2,680; livestock 352,000; 1938: hides, skins, 2 casings, 2,045,000 pieces. Communications: roads open to traffic (1940) c. 4,000 mi.; railways open to traffic (1944) 1,250 mi.; passengers carried (1943-44) 4,418,590.

Agriculture and Minerals.—Production 1938-39 (in short tons): wheat 860,000; rice 393,000; barley 1,251,400; tobacco 4,400; wool (1938) 9,100; cotton (1940-41) 3,960; cotton seed (1940-41) 9,350; petroleum, crude (1940) 3,781,000. (See also ARAB LEAGUE.)

Ireland: see EIRE.

Ireland, Northern. Northern Ireland comprises the six counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone; it forms part of the United Kingdom of Great Britain and Northern Ireland, but (after 1920) has its own parliament and executive (with limited powers for local purposes) although it is represented in the imperial parliament by 13 members. Area: 5,238 sq.mi.; pop. (census 1937) 1,279,745, (est. June 1939) 1,295,000. Chief cities (pop. census 1937): Belfast (cap., 438,086), Londonderry (47,813). Language: English; religion: Roman Catholic 33.75%, Presbyterian 31.4%, Episcopalian 27% (approx.). Governor in 1946: the earl of Granville; premier Sir Basil Brooke.

History.—In 1946 Princess Elizabeth visited Belfast and launched the aircraft-carrier "Eagle" on March 19. She was given an enthusiastic welcome.

The finance minister announced in his budget speech in May that agreement had been reached with the British treasury that Northern Ireland should be regarded as a development area and be given financial assistance on the same scale as other development areas in Britain.

The outstanding event of the year was the Ulster bank strike. Banking activity was paralyzed from July 12 until Aug. 17. Demanding higher salaries and speedier methods of negotiation, 1,450 bank officials struck on July 12; a national arbitration tribunal heard their case on Aug. 1 and made an award by which about 85% of the male officials would receive a net increase of from 3s. 3d. to 4s. 6d. a week, an award which the strike committee considered "totally unacceptable." The government then decided to test the legality of the continued strike by taking proceedings against certain officials but dropped the case when it was discovered that one member of the national arbitration tribunal had been a shareholder in a banking company. The strike was finally settled at a conference in Belfast, but the terms of settlement were not published.

On Feb. 6 the government was defeated in the senate by nine votes to seven on a housing bill amendment designed to allow subsidized houses to be sold. Bread rationing was introduced in July, but the British ministry of food scheme was boycotted by the roundsmen on July 22; they remained on strike until an amended scheme was introduced on Aug. 5. (J. RA.)

Education.—In 1944-45: elementary schools 1,667, scholars 185,621; secondary schools 76, scholars 18,854; university students 2,663; technical schools 61, students 24,890.

Trade and Communications.—External trade (1943): imports £102,125,000; exports £100,250,000. Communications (1943): roads used by motor traffic 13,192 mi.; railways, broad gauge 619.15 mi., narrow gauge 52.76 mi.; canals 88.5 mi.;

shipbuilding, tonnage launched (1943) (merchant ships more than 100 tons) 119,439; value of linen goods exported (1943) £3,680,000.

Finance.—Revenue (est. 1945-46) £22,000,000; expenditure (est. 1945-46) £21,785,000; public debt (March 1945) £3,113,000. Exchange rate (1946) £1 = 403.4 U.S. cents.

Agriculture.—Total area under crops and grass, June 1, 1945, 2,264,787 ac., including 947,456 ac. permanent grass, 531,606 ac. rotation grass, 447,848 ac. oats, 189,733 ac. potatoes and 80,295 ac. flax. Cattle 919,280; sheep 654,311; pigs 249,004; poultry 17,471,353. In 1944-45 cattle and sheep to the value of £2,983,000, eggs (£3,496,000), ware potatoes (£898,000), seed potatoes (£600,000) and fruit (£1,246,000) were shipped to Great Britain, and 3,900,000 U.S. gal. of milk were shipped to Great Britain in the winter months.

Irish Free State: see EIRE.

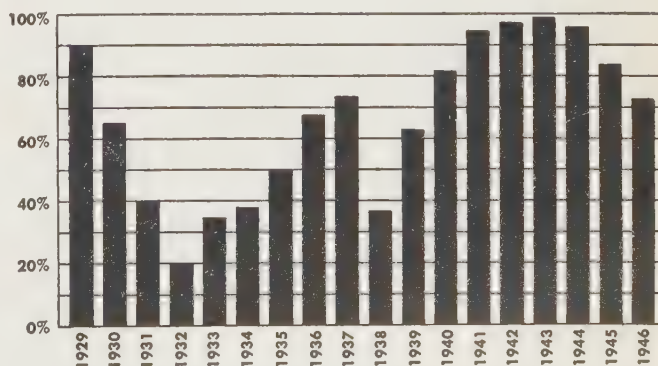
Iron and Steel. For convenience in coverage this subject is subdivided and handled under the three major heads—iron ore, pig iron and steel. Many new data became available for the production tables during 1946, but there were still gaps, especially from the enemy-occupied areas.

Iron Ore.—Table I presents the available data on the production of iron ore in countries having an output greater than 1,000,000 short tons.

Table I.—World Production of Iron Ore, 1939-45
(In millions of short tons)

	1939	1940	1941	1942	1943	1944	1945
United States . . .	57.94	82.54	103.50	118.19	113.39	105.41	98.88
Newfoundland . . .	1.85	1.69	1.08	1.34	0.61	0.52	1.10
Chile	1.80	1.93	1.88	0.45	0.33	0.74	1.04
Czechoslovakia . . .	0.85	0.95	?	?	?	?	?
France	?	14.03	11.65	14.07	18.61	10.21	8.62
Germany	16.52	21.33	19.84	17.53	?	?	?
Great Britain . . .	16.23	20.03	21.08	21.58	20.57	16.69	15.40
Italy	1.05	1.30	1.48	?	?	?	?
Luxembourg	2.60	?	?	?	?	?	?
Spain	2.82	2.22	1.90	1.77	1.75	1.66	1.27
Sweden	15.20	12.45	11.60	10.72	11.93	8.00	?
U.S.S.R.	?	30.31	25.07	?	?	?	?
India	3.49	3.47	3.58	3.60	2.98	?	?
Malaya	2.19	2.06	?	?	?	?	?
Philippines	1.27	1.31	0.94	?	?	?	?
Algeria	3.03	?	0.36	0.34	0.20	0.87	?
Morocco (Span.) . .	1.14	0.68	0.61	0.60	0.60	0.76	0.83
Australia	2.86	2.59	2.50	2.38	2.44	?	?
Total	219	234	257	270	?	?	?

International shipments of iron ore were resumed shortly after the close of the war in Europe, and there was a marked revival of activity in the ore exporting countries. Sweden was again exporting ore to England, and Chile and Cuba to the United States. Algerian exports were increased sharply in 1945, but Spanish Morocco was slower in recovery and Tunisia showed little change. Canada had developed an extensive export trade to the United States, even while still importing the bulk of the ore used in its own furnaces.



STEEL PRODUCTION in the United States, 1929-46: monthly average percentage of capacity (figures compiled by American Iron and Steel institute)



SCENE at the pouring of a "heat" from an open hearth furnace of a steel mill at Dearborn, Mich., in 1946

United States.—Supplementing the data in Table I, iron ore production in the United States decreased from 98,881,560 short tons in 1945 to 70,356,950 tons in the first ten months of 1946, with the year's total expected to run about 75,000,000 tons.

Canada.—After the opening of the Steep Rock deposit in western Ontario, Canada more than doubled in output. This new production is exported to the United States.

Pig Iron.—Table II presents production data from countries with outputs in excess of 1,000,000 short tons, so far as the figures were available.

Table II.—World Production of Pig Iron, 1939–45

(In millions of short tons)

	1939	1940	1941	1942	1943	1944	1945
United States . . .	35.63	47.43	56.72	60.98	62.80	62.90	54.96
Canada	0.93	1.46	1.74	2.19	1.98	2.04	1.96
Belgium	3.37	1.98	1.57	1.39	1.80	0.79	0.79
Czechoslovakia . .	1.10	1.33	1.25	1.26	1.32	1.70	0.49
France	8.22	4.96	1.66	1.75	2.35	1.21	1.31
Germany	19.27	15.38	17.01	16.90	17.60	15.08	?
Great Britain . . .	8.94	9.19	8.28	8.52	8.05	7.54	7.96
Italy	1.21	1.24	1.22	0.98	0.71	0.25	0.07
Luxembourg	1.99	1.10	?	?	2.50	1.48	0.36
U.S.S.R.	16.8	16.8	14.4	7.80	?	?	?
India	1.97	2.23	2.25	2.05	1.96	1.59	1.50
Japan	3.3	3.3	?	?	?	?	?
Australia	1.24	1.36	1.65	1.74	1.56	1.46	?
Total	113	118	?	?	?	?	?

United States.—Blast furnace production declined 13% in 1945 as compared with the peak year of 1944. Normal production in 1946 was interrupted by steel and coal strikes, cutting the output for the first ten months to 36,909,344 short tons, equivalent to an annual rate of 44,500,000 tons. This figure was expected to be improved somewhat by the end of the year, possibly to as much as 46,000,000 tons.

Canada.—Blast furnace output declined 10% from the peak year 1942 to 1945, but dropped more sharply in 1946. Output during the first ten months was 1,202,884 short tons, 28% less than in the same period of 1945.

Great Britain.—When output in most other countries was declining in 1946, British output improved. The total for the first seven months was 5,025,400 short tons, an 8% increase over the average rate of 1945.

Belgium.—Production increased from 155,500 short tons in Jan. 1946 to 189,600 tons in June, with a total of 1,026,250 tons for the half year.

Czechoslovakia.—Production increased from 61,700 short tons in Jan. 1946 to 87,000 tons in June, with a total of 469,000 tons

for the half year.

France.—Production increased from 213,000 short tons in Jan. 1946 to 335,000 tons in July, with a total of 1,804,000 tons for the seven months.

Italy.—Conditions were still badly disorganized during 1946, with production even lower than in 1945.

Luxembourg.—Production increased from 84,000 short tons in Jan. 1946 to 137,000 tons in July, with a total of 754,000 tons for the seven months.

Poland.—Production in the first five months of 1946 was 315,000 short tons, one-quarter below the average rate for 1939.

Sweden.—Production in the first half of 1946 dropped 5% below the average rate for 1945.

Steel.—So far as data were received, Table III presents steel production in countries having an output greater than 1,000,000 short tons. Data for this table were culled from a variety of sources, and numerous estimates were included where official figures were lacking; the table can be considered only an approximation, to serve until more reliable data can be secured.

United States.—There was a decline of 11% in steel production in 1945, and it was anticipated that about this same level of operations would be needed in 1946, but production was cut in January and February by a steel strike, and again in May and November by coal strikes. As a result, output through Nov. 1946 was 60,631,782 short tons, and the year's total was expected to be something near 67,500,000 tons, a decline of 15% below 1945. Steel supplies were consequently short throughout the year, and the return to normal industrial operation was greatly hampered.

Canada.—Steel production dropped 7% from the peak of 1942 to 1945, and the decline became more pronounced in 1946. Output in the first ten months was 874,687 short tons, 24% less than in the same period of 1945.

Table III.—World Production of Steel, 1939–45

(In millions of short tons)

	1939	1940	1941	1942	1943	1944	1945
United States	52.80	66.98	82.84	86.03	88.84	89.64	79.70
Canada	1.55	2.25	2.71	3.11	3.00	3.02	2.88
Belgium	3.43	2.09	1.79	1.53	1.84	0.70	0.81
Czechoslovakia . . .	1.8	1.8	1.8	1.8	1.9	2.75	1.05
France	9.40	6.1	1.6	2.5	2.57	?	1.77
Germany	28.3	28.1	25.8	31.7	33.7	28.5	5.5
Great Britain	15.12	14.5	13.7	14.3	14.59	13.60	13.22
Italy	3.01	2.80	2.9	2.8	1.1	1.19	0.45
Luxembourg	2.02	1.45	1.6	1.7	2.37	1.39	0.29
Poland	1.35	?	?	?	?	?	0.60
Sweden	1.27	1.26	1.27	1.35	1.34	1.32	1.34
U.S.S.R.	20.7	21.8	23.1	12.3	13.4	?	?
Japan	7.1	7.0	7.0	8.7	13.	15.	5.
Total	152	159	172	184	177	173	134

Great Britain.—There was a marked postwar improvement in production, with a total of 8,306,000 short tons in the first seven months of 1946, 8% over the average rate of 1945.

Belgium.—Production increased from 60,000 short tons a month at midyear of 1945 to 170,000 tons in Jan. 1946 and 200,000 tons in June, with a total of 1,110,000 tons for the half year.

Czechoslovakia.—Production increased from 35,000 short tons in June 1945 to 162,000 tons in May 1946, with a total of 870,000 tons for the first five months of 1946.

France.—Production increased from 60,000 short tons in Jan. 1945 to 255,000 tons in Jan. 1946 and 415,000 tons in July, with a total of 2,373,000 tons for the first seven months of 1946.

Luxembourg.—Production increased from 4,000 short tons in Jan. 1945 to 77,000 tons in Jan. 1946 and 130,000 tons in July, with a total of 920,000 tons in the first seven months of 1946.

Poland.—Production was revived early in 1945, and by the end of the year had reached 81,500 tons monthly. In 1946 output rose to 110,000 tons, with a total of 638,000 tons in the first five months.

Sweden.—Production in the first half of 1946 was 694,000 short tons.

Germany.—Production in the British zone of Germany was 1,100,000 short tons in the first half of 1946. (See also BUSINESS REVIEW; METALLURGY.) (G. A. Ro.)

Iron and Steel Institute, American: see SOCIETIES AND ASSOCIATIONS.

Irrigation. *United States.*—For the year 1946, the irrigation water supply of the 11 western states was generally good. In the Arizona-New Mexico area there was fear of drought because of a near critical shortage in the early irrigation season, but good rains in the late summer alleviated this condition. In parts of California the supply was below normal but not serious enough to become critical. There were no cases of crop damage or loss caused by water shortage reported from any of the irrigated areas.

At the close of the year 1946, prospects of an adequate irrigation water supply for 1947 were good. Areas of excessive runoff covered more than half of the western states. The flow of three representative streams set new high records for the month of November. In the northwest, including Montana, Idaho, Oregon and Washington, the outlook was for a normal or better supply. In Utah and Nevada the indications were for an above normal supply and in California and Arizona the fall season continued favourable. In Colorado and Wyoming the outlook was for a better water supply than any time in the past few years.

Both volume and value of crops produced in 1946, throughout the irrigated regions of the U.S. were higher than in 1945. Farm labour was adequate in most agricultural areas, although there were isolated cases of labour trouble resulting from strikes.

The two largest irrigation institutions for which crop statistics were available for 1946 returns were the U.S. bureau of reclamation and the Imperial Irrigation district, the former serving 4,125,000 ac. of irrigated lands and the latter 882,788 ac. The last crop report issued by the bureau of reclamation showed a yield for the year of 57,122,000 bu. of potatoes; 1,941,000 tons of sugar beets; 6,495,000 bu. of onions; 3,674,000 bu. of beans; 36,672,000 bu. of grain; and 49,000,000 bu. of truck crops; 4,360,000 tons of forage crops were also produced and 729,000 tons of fruits. During the year 1946, the Imperial Irrigation district had under cultivation 5,563,000 ac. of permanent crops such as citrus, dates, apricots and other

mixed fruits, 64,098 ac. of garden crops, of which 22,482 ac. were in cantaloup, 22,720 ac. in lettuce and the balance in various garden crops. There were 304,000 ac. of field crops cultivated of which 160,434 ac. were in alfalfa; 26,044 ac. in milo; 19,127 ac. in sugar beets; 54,179 in flax; and 66,677 in barley. The balance of the 304,000 was planted to various field crops.

During the fiscal year ending June 30, 1946, the bureau of reclamation awarded construction contracts totalling more than \$109,000,000 and most of the awards were made during the period Jan. 1 to June 30. Of the total of \$109,000,000 awarded during the fiscal year, 200 contracts involving more than \$55,000,000 were awarded during June 1946. The largest single unit covered in these contracts was the Granby dam and dikes to cost \$5,989,969. This dam was to be located on the Colorado river about 50 mi. northwest of Denver on the western slope of the Rocky mountains and was a unit of the Colorado-Big Thompson project. The dam was to be an earth fill structure 885 ft. long at the top and its crest would be 232 ft. above river bed. It would create a reservoir providing 482,000 ac. ft. storage for irrigation and for the production of 152,000 kw. of electric energy. The largest construction feature placed under construction during June 1946 was the Horsetooth reservoir, another unit of the Colorado-Big Thompson project. The \$9,431,000 contract for this feature includes construction of Horsetooth dam and Satanka dike, Soldier Canyon dam, Dixon Canyon dam and Spring Canyon dam. During Jan. 1946, the bureau awarded the contract for the construction of the Davis dam on the Colorado river near Kingman, Ariz.

Work was underway during 1946 on contracts preparatory to actual construction of the Hungry Horse dam on the Flathead river in Montana. This dam was to be a key unit in the broad program of full utilization of the waters of the Columbia river and its tributaries. Approximately 85,000 ac. of potentially irrigable land in the Kalispel area might be served through the project.

Contracts on most federal construction were held up by presidential order shortly after the beginning of the fiscal year but in a number of cases after a review of the entire construction program the letting of contracts was authorized. Something more than \$16,000,000 of the total award was to go toward construction of features of the Columbia Basin project. There was to be \$9,360,000 spent in the construction of features of the Potholes dam, which when completed would create a reservoir of more than 600,000 ac. ft. capacity. It was estimated that it would take about four years to complete the dam. About \$4,000,000 had been authorized for the construction of 13.5 mi. of the East Low canal and its appurtenant structures on the Columbia basin project. The canal was to be about 130 mi. long when completed. Also on the Columbia basin project commencement of construction on the Long Lake dam near Stratford, Wash., was undertaken.

On the Central valley project, California, work was started on the Delta-Mendota canal which was to carry Sacramento river water from the Delta to Mendota deep in the San Joaquin valley. The canal was to be 120 mi. long and was to be concrete lined. Water diverted from the pool created at the end of the canal would feed the irrigated lands formerly fed from the San Joaquin river, which would in turn be carried by the Friant-Kern canal to lands in Tulare and Kern counties. Work was also continuing on construction of the Friant-Kern canal.

Argentina.—In central Mendoza province of Argentina a dam to cost \$800,000 was projected for immediate construction. The dam was to be 80 ft. high and approximately 1,000 ft. long constructed of concrete about 50 mi. from the town of San Rafael on the Atuel river. In order to gain greater head the dam was to be located just above the falls at El Nihuel, thus permitting the development of 55,000 h.p. of electrical energy. An artificial lake with a surface of 20 sq.mi. was to be created impounding sufficient water to irrigate approximately 173,000 ac. of

alfalfa, fruit and vegetables.

Australia.—The government of western Australia was planning an extensive water supply program to increase available reserve for its agricultural area on condition that the commonwealth government aid the program financially by appropriating about \$2,000,000 annually for a period of ten years. The program would provide permanent water supply to the lands in the southwestern section of the state comprising about 12,000,000 ac. most of which was wheat land. The plan was to raise Wellington dam to increase the capacity of its reservoir from 23,000 to 116,000 ac.ft. and to raise Mundering Weir dam and increase its reservoir capacity from 14,000 to 46,000 ac.ft.

In Victoria state plans for what would be one of the largest single engineering projects ever undertaken in the country were underway. They provided for the expenditure of \$27,132,000 on enlargement of the Eildon weir. The plans were formulated by the Rivers and Water Supply commission and presented to the state government. The Eildon weir reservoir is located on the Goulburn river and when the weir is enlarged, the capacity of the reservoir would be increased from 306,000 ac.ft. to 2,235,000 ac.ft. The addition of an earth embankment 250 ft. high, 2,300 ft. long and consisting of about 13,000,000 cu.yd. of earth was planned. This would be one of the outstanding dams of the world if completed according to plans.

Iran.—From 1941 to and including 1946, considerable attention had been given to the problem of improving the Kanat system of Iran. There are probably 100,000 villages in Iran around which the principal agriculture of the country is concentrated in small farm tracts, and the principal source of water supply comes from underground through a network of Kanats that extend over the entire country with the exception of certain extensive desert areas. There were in 1946 no statistics revealing the number of villages or the number of Kanats that had been developed and there was no indication of the total length of these underground channels, but there must be about 300,000 of these Kanats since each village has from one to ten separate Kanat systems. Because of the importance of this feature of irrigation development, much attention had been and was being spent in working out and putting into operation plans for improving this network of underground channels.

Mexico.—The federal government of Mexico appropriated to the National Irrigation commission, 189,000,000 pesos for construction of irrigation works during 1946. This appropriation was a 15% increase over the appropriation for the same purpose during 1945. The commission was continuing work in the La Guna Irrigation district in the states of Coahuila and Durango where it expected to complete construction of the El Palmito dam on the Nazas river. The dam when completed would provide sufficient storage to irrigate 110,000 ha. In the state of Chihuahua in the Delicias Irrigation district work was continued in the Las Virgenes dam on the San Pedro river. This dam was to be 55 m. high when completed and would supply irrigation water to increase the irrigated area of the district from 20,000 ha. to 60,000. Also in the state of Chihuahua, construction was started on the El Tintero dam on the Santa Maria river to provide storage for 10,000 ha.

In the state of Colima plans were underway to build a diversion dam and a conveying canal to deliver water from the Coahuayana river to 10,000 ha. of irrigable land.

In the state of Guanajuato, the Alta Lerma Irrigation district was constructing the Solis dam to store flow from the Lerma river and by means of a network of canals, to irrigate 115,000 ha. The Salamanca canal of this network was completed during 1946 and would add 16,000 ha. to the area already cultivated by the district.

The Endo dam in the state of Hidalgo was started during 1946, designed to increase the irrigated area of the Tula and Ximiquilpan districts to 40,000 ha.

In the Lower Lerma Irrigation district in the state of Jalisco improvements were continued on irrigation and drainage works benefiting 50,000 ha. reclaimed from the Chapala lake. About 16,000 ha. additional were to be irrigated in Octolan by pumps. The foregoing are only some of the outstanding projects which were built or are being built by the National Irrigation commission. The commission put under cultivation by irrigation from 1926-40 more than 271,000 ha. From 1941-45 it added 359,822 ha. and during 1946 it would have added 324,000 ha., making a total of 954,822 ha. of irrigated lands. The value of crops produced by the irrigation districts created by the commission amounted to 371,000,000 pesos in 1945 which was about 40% of the agricultural production of the nation. It was estimated that crops produced on the areas included in the works completed by the commission up to the close of 1946 would raise the crops of 1947 to 50% of the total national agricultural production.

Union of Soviet Socialist Republics.—Construction of more irrigation canals in the Caucasus, Uzbekistan, Kazakstan, and Tajikistan was intended to produce home grown cotton, various foods and particularly subtropical culture in considerably increased quantities. A great reservoir was created at the site of the Mingeaur hydropower station located in Azerbaijan where the River Kura emerges from the foothills of the Caucasian mountain chain. The waters of the Kura and Arax were to be utilized to promote the development of irrigation agriculture by increasing the irrigated area by more than 300% or eventually to a total of 1,500,000 ha. This project was to be completed in 1948. The soviet government also reported starting work during 1946 on the river Amur-Darya (Uzbekistan) where irrigation development would be on an even greater scale. The irrigated acreage in Tajikistan was to be increased by nearly 100,000 ha. during 1946 and in Georgia a canal had been built on the right bank of the Kura. In 1945 the people of Stalingrad had completed works for the irrigation of 30,000 ha. of land recently liberated. In 1946 they were completing distributing systems to every collective farm.

Extensive irrigation work underway in the Uzbek S.S.R., was expected to open an additional 110,000 ha. to cotton cultivation during the following two years. An appropriation of 500,000,000 rubles was made by the U.S.S.R. government for this project. Almost all Uzbek cotton or, in fact, two-thirds of the soviet union's total crop is grown on irrigated land, opened to cultivation mainly during the last 25 years. During the prewar five-year plan periods about 60 new major irrigation installations and about 500 pumping stations were built in Uzbekistan to convey

waters of the glacial streams rising in the mountains for the irrigation of cotton fields. In 1939 the Great Ferghana canal, 349 km. in length, was built to divert irrigation water from the Syr Darya river. Because of the war, however, civil construction in the union was discontinued. During the year 1946 irrigation development was resumed everywhere and was being constantly expanded.

The Katta-Kurgan reservoir was among the first of the features which was to be completed and this project would bring into cultivation 65,000 ha. of formerly uncultivated land for the production of cotton. In addition it would provide sufficient water for the irrigation of 390,000 ha. of plantations suffering from water shortage. At the same time construction of the 100,000,000 cu.m. Urta-Tokai reservoir was to be rushed to completion.

Construction of the first section of the North Tashkent canal was to be resumed which when completed would supply water for the irrigation of large agricultural areas in the vicinity of Tashkent, the capital of Uzbekistan.

At the same time construction was being rushed on the Urta-Tokai reservoir in the Kirghiz republic of the U.S.S.R. This was a unit of the Central Asia five-year plan and when completed would store waters of the Chu river. The dam designed to create this reservoir would require placement of more than 3,000,000 cu.yd. of earth in the body of the dam and about 4,000,000 cu.yd. of other excavation. The dam was to be 187 ft. high, 1,600 ft. through the base and 1,000 ft. long on its centre line. Because of its location in a region of earth faults extra precautions were taken to guard against earthquakes. The reservoir would feed water to two canals which would convey water sufficient to irrigate 80,000 ha. of fertile lands.

Venezuela.—The government of Venezuela had under construction during 1946 a system of irrigation works near Cumana, making use of waters of Rio Manzanares in order to irrigate 2,500 ha. in the vicinity of the city of Cumana situated in the eastern part of Venezuela. Work had also been started on the construction of an irrigation system near Valencia. The system was to include storage of the waters of Rio Guataparo by means of an earth dam 28 m. high. The resulting reservoir would supply water for the irrigation of 2,800 ha. of land.

On Rio Motatan work was begun in 1946 on a storage system to irrigate 10,000 ha. situated in the region of Lake Maracaibo. (See also DAMS; METEOROLOGY; SOIL EROSION AND SOIL CONSERVATION.)

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Islam. Another link was forged in the building up of a world organization for peace when in June 1945 at San Francisco Saudi Arabia signed the United Nations charter. As Arabia occupies a central place in the Islamic world, this marked a more than material step towards the world organization of peace. How far this action of Arabia would be followed by a strengthening of the peace movement in other parts of the Islamic world it was difficult to foresee, as every country of the Islamic world had its own immediate internal problems.

The Moslem situation in India was complicated in 1946 by the arguments for and against Pakistan. Originally "Pakistan" meant a federation of Moslem states in northwest India: Sind, Baluchistan, the Frontier province, the Punjab and Kashmir. But Kashmir was not in British India and although its population was predominantly Moslem, the ruling dynasty was not. In some quarters, Pakistan was understood to include Bengal in northeast India, with its large though submerged Moslem population. The Moslem league under Mohammed Ali Jinnah's leadership held a strong position in respect of Pakistan, but the new Indian government under Jawaharlal Nehru was endeavouring to work out a suitable compromise. (A. Y. A.)

Isle of Man: see BRITISH EMPIRE.

Isotopes: see ATOMIC ENERGY; CHEMISTRY.

Istria: see TRIESTE.

Italian Colonial Empire. The future of the Italian colonies remained *sub judice* in 1946, pending a final settlement by the Council of Foreign Ministers. The problem came under discussion at the peace conference in Paris, but decision was postponed. On July 3 the foreign ministers adopted a draft article submitted by the British foreign secretary, Ernest Bevin, for inclusion in the peace treaty for Italy together with a draft declaration by the Four Powers. The draft article provided: (a) the renunciation by Italy of all rights to its former African colonies; (b) that those territories should continue under the existing administration pending final

Italian Colonial Empire

Country and Area square miles (approx.)	Population (000's omitted) (est. Jan. 1940)	Capital, Status, Governors, Pre- miers, etc.	Principal Prod- ucts (in short tons)	Imports and Exports 1938 (in \$)	Road, Rail and Shipping 1938	Revenue and Expenditure (in \$)
AFRICA						
Italian provinces of LIBYA* 213,821	911 (including Libyan Sahara)	Tripoli; included (1939) in the national territory of Italy; under British military occu- pation	barley (1939) 24,860 wheat 22,770	imp. 46,500,000 exp. 5,730,000	rds. 3,250 mi. ry. 271 mi. shpg.: passengers arrived 127,458, departed 122,521	(est. 1939-40) rev. and exp. 31,600,000
LIBYAN SAHARA 465,362	(see above)	Homs; colony; under British military authority				
ERITREA 86,166	688	Asmara; colony; under British military occupa- tion	salt (1937) 171,600 barley (1937) 20,900	No separate figures	ry. 215 mi.	No separate figures
SOMALILAND, ITAL- IAN 270,972	1,079	Mogadiscio; colony; under British military occu- pation	maize (all 1939) 7,700 bananas 55,000 cotton 495 sugar 66,000 ground nuts 880 castor oil 440	No separate figures	ry. 70 mi. rds. 9,032 mi. (1940)	No separate figures
ASIA						
Italian islands of the Aegean sea 1,035	122 (1939)	Rhodes; colony; under Greek-British occupation	barley (1939) 2,420 olive oil (1940) 440 wine (1939) 871,200 U.S. gal.	imp. 8,250,000 exp. 1,149,000	rds. 382 mi.	(1934-35) rev. and exp. 2,520,000

*Libyan population census 1936, Italians excepted, the latter (approx. 150,000) being included in Italy.

decision; (c) that the final disposal of the territories should be decided by the Four Powers within one year of the signing of the treaty. The declaration laid down that the final disposal "shall be made in accordance with one or any combination of the following solutions. . . . (1) independence, (2) incorporation in neighbouring territories, (3) trusteeship, exercised either by the United Nations as a whole, by any one of them, or by Italy." Should the Four Powers fail to agree to any or all of these solutions the matter would be referred to the general assembly, whose recommendations the Four Powers would undertake themselves to accept "bearing in mind the pledges given to the Senussi by the United Kingdom."

The Italian government was allowed to submit its observations on this as on other problems. The main Italian argument was that the existing position implied that Italy must renounce its sovereignty before any decision was taken although, both *de jure* and *de facto*, the territories were still under Italian sovereignty; and that Italy must accept for one more year British military administration (and French for a small part). The Italian government contended that this surrender of sovereignty had no juridical justification, for, if Italy's sovereignty were cancelled by the treaty before decision, these territories (Libya, Eritrea, Somaliland) would become *res nullius*. In other words, the draft article implied a decision already taken against Italian interest, so that no continuity would take place between Italian sovereignty and the new juridical situation under the United Nations. The amendment proposed by Italy was to the effect that "the final disposal of Italy's territorial possessions in Africa . . . shall be determined jointly by the governments of the Four Powers according to the principles laid down in the San Francisco charter . . . pending such disposal the said possession shall continue under their present provisional administration and a fair share of this administration shall be entrusted to Italian officials according to international law."

The Italian argument was, however, set aside, and the draft article and declaration were carried as stated above. The decision thus meant that the existing British administration of Eritrea, Somaliland and Libya would continue for at least another year pending final disposal of the Italian colonies. This decision came as a painful surprise to the Italian people and roused national feeling. (See also ALBANIA; ETHIOPIA; PARIS PEACE CONFERENCE; YUGOSLAVIA.) (C. M. F.)

Italian Literature.

Among the cogent problems debated by Italian writers during 1945 and 1946, such questions as orthodox liberalism versus liberal socialism, spiritual freedom versus social freedom, art for art's

sake versus art for society, reached a boiling point and were clarified to some degree in 1946, during and after the referendum and the elections for the constituent assembly. One current was led by Benedetto Croce—*Pensiero politico e politica attuale* (Laterza)—and those of his followers who remained in his camp after the fall of fascism. The other was made up of two groups: the first, left of centre, which can be called "actionist"—C. Ruggero, *Difesa del liberalsocialismo* (Atlantica)—consisting in the main of Croce's former disciples, and the second, the extremist, led by the Marxists. In the political field the orthodox liberals and the "actionists," both lacking mass support, were defeated by the Marxists. However, while the influence of the liberals also suffered a general set-back along the philosophical and literary fronts, the "actionists" made headway, thus affecting other groups and blunting the impetus of the Marxist current. By the end of the year, the general impression was that the intellectuals had, in their vast majority, become fully aware that their isolation and aloofness from the political life of the nation was tantamount to a crime which they would be the first to expiate once freedom was lost; that liberty is not an abstract idea—a goddess to be kept on an unattainable pedestal—it must be within every man's reach, in other words, although they did not put it exactly this way, it consists of the four freedoms as enunciated by Franklin Roosevelt and which can be ensured for all through a socialist democracy; that art should not be solely by and for the few but should, insofar as it is possible, become popular and express the feelings of society. Be this as it may, the author should be inspired by and remain faithful to his inner voice; in no event should inspiration be imposed upon him from the outside or dictated from above.

This new awareness was especially manifest in the periodical press in which philosophers, historians, scientists, novelists and artists examined and discussed the moral, political and economic problems which beleaguered the new Italian republic. Though still somewhat early for a conclusive judgment, evidences of this new awareness appeared in the creative field and particularly in the novels of a number of new writers. Silvio Micheli in *Pane duro* (Einaudi) detailed in a fevered style the frustrations of the white-collar worker and his desperate urge for life, freedom and happiness. The spiritual struggle of modern man, his dramatic protest against a society impotent to solve the present world crisis, and his unavailing efforts to survive in order to live a full life, were powerfully expressed by Carlo Coccioli in *Il migliore e l'ultimo* (Vallecchi), B. Joppolo in *La giostra di Michele Civa* (Bompiani) and G. Piovene in *Pietà contro pietà* (Bompiani). Conversely, there

was as yet no trace of this new trend in the prose works published during the year by such well-established writers as M. Moretti, *I coniugi Allori* (Mondadori); F. Palazzi, *La città* (Ultra); G. Stuparich, *Ginestre* (Garzanti); O. Vergani, *Un giorno della vita* (Garzanti); F. Pea, *Lisetta* (Mondadori); G. Anguissola, *Farai un viaggio* (Rizzoli); L. Bigiaretti, *Il villino* (Garzanti) and T. Landolfi, *Le due zitelle* (Bompiani). Considerable interest was aroused by R. di San Secondo's *Incontro di uomini e di angeli* (Garzanti) which is interpreted as the author's departure from the *grottesco* which had made him famous.

The output of autobiographical material dealing with life in nazi-fascist prisons, the resistance movement and partisan brigades continued unabated. Nor is this a strange phenomenon since the Italian intellectuals who participated in the fight for Italy's freedom numbered in the hundreds. It is impossible to list the many noteworthy books in this field, remarkable especially for the loftiness, serenity and objectivity with which even the most inhuman episodes were handled. Most typical of the genre is L. Bolis' *Il mio granello di sabbia* (Einaudi). In their turn, diplomats, generals and journalists (L. Simoni, Galeazzo Ciano, U. Spigo, Pietro Badoglio, Mario Roatta, Q. Armellini, D. M. Tuminetti, etc.) described and analyzed the political and military events in which they had played a part and which had led Italy to disaster.

A striving for clarity characterized the field of poetry, especially on the part of the more obscure among the "hermetic" poets. Vincenzo Cardarelli and Salvatore Quasimodo each published a collection of new poems (Mondadori, Costume); Mondadori also published a small volume of Ada Negri's posthumous verse. However, the poet who gathered most of the critics' laurels was Umberto Saba whose *Canzoniere* (Einaudi) appeared in final edition. The growing interest in poetry was evidenced by the frequent publication of *opera omnia* such as Giuseppe Ungaretti's *Vita d'un uomo* (Mondadori), anthologies such as G. Spagnoletti's *Antologia della poesia italiana contemporanea* (Vallecchi) and international reviews such as E. Falqui's *Poesia* (Mondadori).

Literary critics displayed great activity. Especially distinguished were the original or collected essays on classic and modern Italian literature by Croce, Giuseppe Toffanin, Luigi Russo, Francesco Flora and Pietro Pancrazi. Much discussion centred on the first volume (*Inferno*, Sansoni, 1945) of F. Momigliano's excellent aesthetic commentary on the *Divina Commedia*.

The literary prizes of the year went mostly to new and young writers. The "Viareggio" was split between S. Micheli for *Pane duro* and Saba for *Il canzoniere*; the "Darsena Nuova" was awarded to R. Modigliani for his novel *Uccidere il re* (Tatra) and the "Costume" to G. Manzini for her novel *Lettera all'editore* (Mondadori, 1945).

(M. F. C.)

Italian Possessions in Africa: see ITALIAN COLONIAL EMPIRE.

Italy.

A republic in Europe, consisting of: the Po valley, ringed by the Alps where it borders on France, Switzerland, Austria and Yugoslavia; the Italian peninsula; Sicily, Sardinia and minor islands in the central Mediterranean. Flag, three equal vertical stripes of green, white and red. Area (according to pre-World War II treaties) 119,733 sq.mi.; pop. (est. July 1, 1943) 45,681,000. Chief cities (census of 1936): Rome (capital), 1,150,589; Milan, 1,115,848; Naples, 865,913; Genoa, 634,646; Turin, 629,115. Religion of the state, Roman Catholic. Rulers: Provisional head of the state (after July 1, 1946), Enrico de Nicola. Victor Emmanuel III was king,



ITALIANS READING newspaper reports of the plebiscite of June 2, 1946, which terminated the monarchy and led to the establishment of a new republic

July 29, 1900, until his abdication May 9, 1946; Humbert II, king, May 9 to June 13.

History.—The year 1946 was a period of transition for Italy: of preparation of a treaty of peace by the Allies which would remove Italy from the status of co-belligerent into that of a member of the international community; of conversion from the institutional forms of monarchy to the permanent basis of a republican constitution.

On Jan. 7 the government (the council of ministers and the lieutenant general of the realm) issued the new provisional law on local government, based essentially on the pre-fascist law of 1915. At the insistence of the Allied commission provision was made for preliminary nomination of candidates, and for the prohibition of electioneering within 650 ft. of the polling places. The local elections, in which women voted for the first time, were staggered; March 10, March 24 and April 7; and took place in 5,638 communes out of a prewar total of 7,339. Socialists and Communists gained majorities in 40% of the communal elections; Christian Democrats in 35.4%; the remaining 24.6% was shared by all other parties.

There was much debate in the consultative assembly and in the council of ministers regarding the laws on the national election which would resolve the institutional question. The decree-law No. 151 of June 25, 1944, on the basis of which the council of ministers and the lieutenant general exercised sovereign power, had provided for a constituent assembly to determine the new form of the state. The amplifying law of March 10, 1946 (*Decreto-Legge Luogotenenziale* No. 74), provided for an assembly of 573 members, elected by universal suffrage, and by proportional representation. The whole country was divided into 31 electoral districts, with a minimum of 7 seats (Potenza—Matera), and a maximum of 36 (Milan—Pavia). The Val d'Aosta, which had been granted a special statute of autonomy, constituted a separate district with one seat for its 83,455 inhabitants.

The leftist parties had insisted that the constituent assembly be "sovereign," i.e., that it alone decide the issue of monarchy or republic, and that when convened it have all power for all purposes. Rightist elements demanded a plebiscite whose outcome would determine the fate of the monarchy. They suggested also a compulsory vote with severe penalties for non-

voters, a proposal even more obnoxious to the parties of the left than the referendum. The result was a compromise: a plebiscite to be held simultaneously with the election of the constituent, but without penalties for nonvoters. The assembly was to determine either a republican or monarchic constitution in accordance with the majority in the referendum. Ultimate political authority was vested in the constituent assembly to which the council of ministers was to be responsible; but the cabinet was to continue as the governing authority during the eight-month period of the assembly's sessions, and to have power to issue decrees with the force of law on all subjects save international treaties, elections and constitutional matters (*Decreto-Legge Luogotenenziale* No. 98, March 16, 1946).

On May 9 Victor Emmanuel III formally abdicated, hoping thus to aid the monarchical cause, and the move was denounced by republicans as a violation of the institutional truce. The old king left for Egypt; Humbert II as the new king exercised no more actual power than he had enjoyed (from June 5, 1944) as lieutenant general of the realm. As the date for the national election approached, there was something of a trend in favour of monarchy on the part of many who feared that a republic would merely pave the way for communism. Monarchist elements attempted in vain to gain the intervention of the Allied commission in favour of postponement of the referendum.

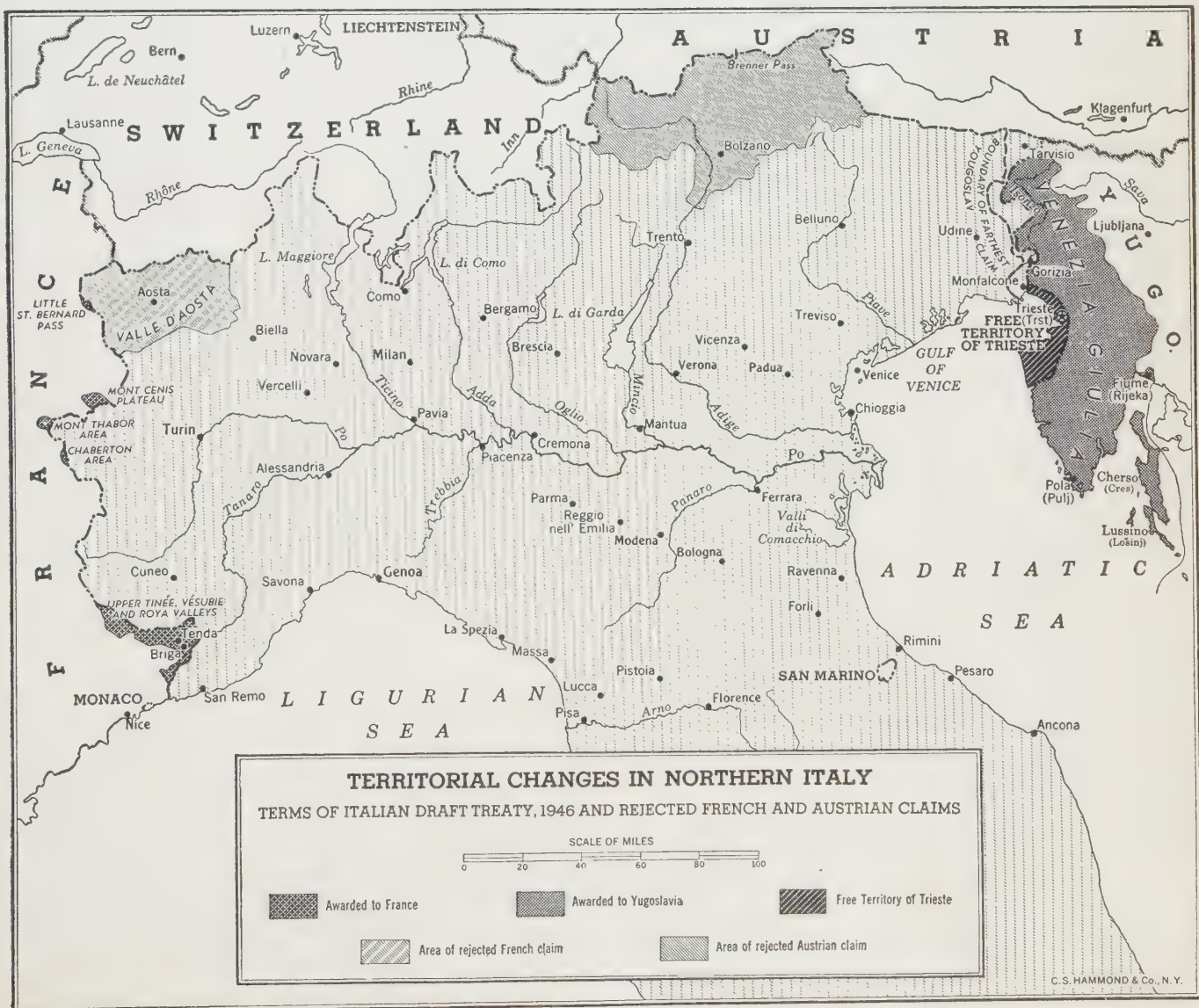
The election, held on Sunday, June 2, was conducted with

surprising good order, considering the feeling aroused by the issue and the unfamiliarity of most Italians with electoral processes. The Italian people gave a clear, but not overwhelming, verdict in favour of a republic. Final returns, as announced by the court of cassation (June 18) were as follows:

For a republic	12,717,923
For monarchy	10,719,284
Voided ballots	1,498,139
Total of votes	24,935,343

Lazio and all the southern regions (Puglie, Campania, Lucania, Calabria, Sicily and Sardinia) favoured the monarchy; all the northern regions (Piedmont, Lombardy, Liguria, Veneto, Emilia, Marche, Tuscany, Venezia Tridentina) favoured a republic.

The clear majority in favour of a republic was apparent within a couple of days after the election. Monarchist elements, however, promptly raised charges of irregularities. The court of cassation insisted on examining these charges before formally proclaiming the electoral results; in default of such formal proclamation King Humbert remained, unwilling, so he said, to desert his followers who were thereby encouraged to violence. Twelve persons were reported killed and scores injured as a result of monarchist demonstrations in Naples. The council of ministers determined, on June 13, that its president, Alcide de Gasperi, had legally succeeded to the position of temporary head of the state and invited Humbert to respect



his promise and leave. The next day (June 14) Humbert flew to Portugal to join his family.

The constituent assembly, which convened in Rome on June 25 under the chairmanship of Vittorio Emanuele Orlando, had no representatives for Udine province and Venezia Giulia, so that its total membership was 556 with the following party affiliations:

Christian Democrats	207	35.2%
Socialists	115	20.7%
Communists	104	18.9%
Rightists and Liberals	121	21.4%
Other parties	9	3.8%

Giuseppe Saragat was elected president of the constituent assembly, and at the third session (June 28) Enrico de Nicola, a southerner, was elected provisional head of the state (*Capo provvisorio dello Stato*). After his formal inauguration on July 1, Premier de Gasperi presented the resignation of the ministry and was commissioned to form a new one which, completed on July 13, was given a vote of confidence, 388 to 53, on July 25.

At its eighth session (July 19) the assembly constituted two committees for its principal problems: a committee on international treaties; and a committee to prepare a draft of the new constitution. The constitutional committee of 75 members in turn established three subcommittees: (1) on citizens' rights and duties; (2) on the structural form of the state; (3) on economic and social provisions. The preliminary drafts and discussions of the subcommissions indicated a general agreement of the parties to decentralize the state on a regional basis, and agreement that each region should have representation in the senate and a legislative body of its own. Andrea Finocchiaro-Aprile, leader of Sicilian separatism, failed to secure assent to his plan for complete federalism. Great differences were revealed between those of Marxian persuasion who considered the chief purpose of the new constitution to be an instrument of social and economic justice, and the more conservative elements who wished to emphasize traditional guarantees of individual liberties. The draft of the second subcommittee foreshadowed a bicameral legislature: a chamber of deputies popularly elected for four years with one deputy per 150,000 inhabitants; and a senate, half of whose members, elected for six-year terms, would be renewed every three years. Senators would represent the regions, and also the academic councils, the universities and national syndicates. Chamber and senate together would constitute the National assembly with power to elect the president of the republic, to declare war and conclude treaties. The executive power would be exercised in the name of the president by ministers politically responsible to the chamber. The independent judicial power would be headed by a supreme council of magistrates elected by judges of all grades.

The continued economic distress and disappointment with the peace negotiations was reflected in the supplementary local elections held in the autumn in which gains were scored by the Socialist and Communist parties which on Oct. 24 agreed on a unity of action pact.

On Oct. 19, Pietro Nenni, Socialist leader and advocate of the pact, took over the ministry of foreign affairs from De Gasperi who remained premier.

The Italian peace treaty was the subject of protracted negotiations: by the council of foreign ministers who resumed their discussions at Paris, April 25; by the Paris plenary conference (July 29-Oct. 25) which prepared a comprehensive draft; and again by the foreign ministers at New York (Nov. 4-Dec. 12) who completed the draft for signature at the Moscow meeting scheduled for March, 1947. Italian armed forces were to be limited to: an army of 250,000 (including 65,000 carabinieri);

a navy of two battleships, four cruisers, 40 auxiliary craft and maximum personnel of 22,500; and an air force of 350 planes of all types.

In New York reparations were scaled down to: \$125,000,000 to Yugoslavia; \$105,000,000 to Greece; \$25,000,000 to Ethiopia; and \$5,000,000 to Albania.

Italy was to be required to renounce all claims in Ethiopia and Albania, to cede the Dodecanese to Greece and four small Alpine areas to France. Libya, Eritrea and Italian Somaliland were to be transferred to the U.S.S.R., U.K., U.S.A. and France, which powers would be obliged to determine within one year the ultimate fate of Italy's colonies. The plenary conference accepted the recommendation of the Council of Foreign Ministers on the crucial problem of Istria: the "French Line" as the western frontier of Yugoslavia thus depriving Italy of the major part of the peninsula; the Free Territory of Trieste to be carved out of the area west of the French line; its integrity and independence to be guaranteed by the Security council of the United Nations.

A statute for the Free Territory of Trieste, carefully defining the powers of its governor, was finally agreed on by the Big Four in December.

(See also ALBANIA; ANTI-SEMITISM; COUNCIL OF FOREIGN MINISTERS; FASCISM; ITALIAN COLONIAL EMPIRE; NAVIES OF THE WORLD.)

Education.—There were 139,571 elementary schools; 5,110,328 pupils (1941-42); 5,136 secondary schools; 556,260 students (1940-42); 35 universities and institutes (29 royal and 6 private) with 164,863 students (1942-43).

Defense.—The treaty would limit Italy to: an army of 185,000 and 65,000 carabinieri with no more than 200 medium and heavy tanks; a navy of 2 battleships, 4 cruisers, 4 destroyers, 16 torpedo boats, 20 corvettes and a total personnel of 22,500; an air force of 200 fighter and reconnaissance planes, 150 transport and training planes and a total personnel of 25,000. Budgets for July 1946 to June 1947: army, \$562,668,320; navy, \$236,255,196; ministry of aviation, \$99,805,500.

Finance.—The monetary unit is the lira, official rate (1946) 100 to the U.S. dollar. Revenue (1944-45) \$948,860,000 (July 1945-Jan. 1946) \$1,399,930,000; expenditure (1944-45) \$3,681,420,000 (July 1945-Jan. 1946) \$1,717,760,000. Public internal debt (Jan. 31, 1946) \$9,561,990,000. Bank notes in circulation (April 30, 1946) \$2,916,396,000 and A.M. lire \$914,510,000. The reserve of the *Banca d'Italia* (April 1946) was \$5,258,000, and there were 365 banks with deposits of \$4,840,140,000.

Trade and Communication.—For the period Jan. 1 to May 27, 1946, exports were \$148,801,590; imports were \$300,028,380. Chief articles of export: fruits, wines, textiles (silk, artificial silk, cotton, rayon), essential oils and perfumes, vegetable materials. Chief articles of import: coal, grain and foodstuffs, cotton, wool, oil. Chief nations exported to (in sequence): U.S., Switzerland, U.K., Sweden, France. Imports from (in sequence): U.S., Switzerland, Spain, Brazil, U.K.

State railways in operation (April, 1946) 9,284 mi. Tonnage (1939-40) 55,931,062, (Nov. 1945-April 1946) 13,881,635. Passengers carried (1939-40) numbered 122,475,448, (Nov. 1945-April 1946) 53,074,075. Private railways in 1944 totalled 3,096 mi., carried 236,539,000 passengers and 8,149,900 tons. Automobiles, motorcycles, and trucks licensed in 1942 numbered 549,307; telephones (1942) 835,700; telegraph lines (1942) 42,936 mi. There were 16 maritime coastal radio stations in 1942 and 1,764,409 radio sets; in 1945, 1,596,431 radio sets.

Agriculture.—Chief crops: wheat, other cereals (corn [maize], oats, barley, rye, rice) beans, potatoes, tomatoes, sugar beets, hemp, flax, grapes, olives, oranges, lemons.

Agricultural Production in Italy, 1946-1945

(in short tons)

Crop	Est. 1946	1945
Wheat	6,625,098	4,617,996
Oats	509,011	277,280
Barley	256,727	139,428
Rye	121,966	85,781

Other production figures, with 1936-39 average and 1945 actual: grapes, 6,840,900 and 5,634,310 short tons; olives, 1,575,860 and 730,070 short tons; oranges, 358,050 and 292,600 tons; lemons, 359,590 and 241,670 tons.

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Ivory Coast: see FRENCH COLONIAL EMPIRE.

Jackson, Robert Houghwout

(1892—), U.S. jurist, was born Feb. 13 at Spring Creek, Pa. Following his graduation from Albany Law school, he was admitted to the New York bar in 1913 and practised law in Jamestown, N.Y. He served as U.S. assistant attorney-general (1936-38) and as solicitor-general of the U.S. (1938-39). In Jan. 1940, President Roosevelt named him U.S. attorney general, and on June 12, 1941, he was made an associate justice of the U.S. supreme court. On May 2, 1945, President Truman named Justice Jackson as chief U.S. counsel on the international military tribunal to try axis war criminals. The trials got under way Nov. 20, 1945, at Nuernberg, Germany, and, acting as chief prosecutor for the U.S., Jackson made the initial statement for the prosecution, charging that the nazi defendants on trial were responsible for World War II.

Jackson made a brief foray into U.S. domestic politics by issuing a statement at a Nuernberg press conference, June 10, attacking Associate Justice Hugo Black for having participated in decisions that affected a former law partner; Jackson warned that continuation of such practice would bring the supreme court into "disrepute."

Commenting on the tribunal's verdict in the Nuernberg trials, Jackson disagreed, Oct. 1, 1946, with the acquittals of Franz von Papen and Hjalmar Schacht and the court's verdict absolving the German general staff. His formal resignation as chief U.S. prosecutor was made public Oct. 16.

Jamaica.

A British crown colony, the largest and most populous of British possessions in Middle America. The island is situated about 150 mi. south of the eastern end of Cuba. Jamaica has two political dependencies, the Cayman Islands, situated about 300 mi. northwest of Jamaica, and the Turks and Caicos Islands, situated about 600 mi. northeast of Jamaica. Area, 4,470 sq.mi.; pop. (1943 census), 1,237,063. The area of the Cayman Islands is 93 sq.mi. and their population 6,670; Turks and Caicos have an area of 202 sq.mi. and a pop. (1943 census) of 6,138. The population is estimated to include 77% Negroes and 18% mulattoes. The capital and principal city is Kingston (pop., 1943 census, 109,056); other towns include Spanish Town (12,007), Montego Bay (11,547), and Port Antonio (5,482). Governor in 1946: Sir John Huggins.

History.—Strikes at Kingston in Feb. 1946 resulted in several days of a "reign of terror" during which three persons were killed. Fire broke out on Feb. 17 in an insane asylum affected by the strike, with a resulting loss of life of 15. Gov. Huggins declared a state of emergency on Feb. 18. The general strike ended March 10, but further violence flared early in July. The fire in the insane asylum led to the arrest of W. A. Bustamante, leader of the majority party in the house of representatives and minister of communications, and F. Pixley, minister of social services; the two were charged with having incited the demonstration which resulted in the fire, but were acquitted June 30 after a 13-day trial. A midsummer strike against the Jamaica Shipping association was settled July 28. Considerable numbers of Jamaicans who had gone to the United States for wartime employment were repatriated during the early months of 1946, thus adding to the chronic labour difficulties.

Education.—Jamaica at the beginning of 1944 had 668 elementary schools with 164,000 pupils; the cost of elementary education in 1943-44 was £505,720. The ten-year development plan approved for Jamaica in 1946 assigned £3,681,852 for educational expenditures. The government in 1946 studied the possibility of establishing a medical school in the island. Plans also progressed for the setting up of a West Indian university in Jamaica.

Finance.—The monetary unit is the pound sterling, tied to

the pound in London. The much-publicized ten-year development plan, approved in 1946, contemplated expenditures of £19,583,750, an unallocated sum of £500,000, and debt charges of £1,574,000, a total of £21,657,750; Jamaica's share was set at £15,000,000, with the British government contributing about £6,500,000. Among the items of expenditure were £5,992,723 for public health and £2,018,114 for social welfare.

Trade and Communication.—The imperial government in the first nine months of 1946 bought 4,432,948 stems of Jamaican bananas and shipped 4,142,804 stems, about 70% going to Great Britain and most of the rest to Canada. Total banana exports for 1946 were expected to reach 12,000,000 stems. Sugar exports in 1945 were 117,830 long tons (1944: 131,947 tons).

Railway and highway mileage were approximately 300 and 2,525, respectively. The ten-year plan included an item of £1,500,000 for road construction and a total of £2,074,993 for improving all forms of communication. Both Pan American Airways and K.L.M. (Royal Dutch Airlines) expanded their services to Jamaica in 1946. The tourist trade had almost reached prewar levels by March 1946.

Agriculture.—Estimates of banana production for 1946 and 1947, respectively, were 6,000,000 and 7,000,000 stems. The banana industry was seriously affected in 1946 by the Sigatoka disease. The government consequently planned to send agricultural investigators to Burma, Siam and Indo-China to attempt to find wild, disease-resistant strains for breeding. Sugar production in 1945-46 was 161,620 long tons (1944-45: 152,226 tons); the estimate for 1946-47 was 176,000 tons. The 4-H club program was introduced into Jamaica from the United States in 1946.

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Japan.

An island nation in the western Pacific, under inter-Allied military occupation following its defeat and unconditional surrender on Aug. 14, 1945. In accordance with the terms of the Cairo and Potsdam declarations of 1943 and 1945, Japan was stripped of its former overseas possessions and reduced to the four main islands of Honshu, Hokkaido, Shikoku and Kyushu (total area 146,690 sq.mi.) and certain minor adjacent islands. The population of Japan was officially estimated at approximately 74,000,000 in April 1946. By the end of 1946 it exceeded 76,000,000 as a result of natural increase and the repatriation of civilians and members of the armed forces from Korea, China, southeast Asia and the Pacific islands. On Oct. 23 Allied authorities announced that 4,932,584 Japanese nationals had been returned to the home islands, repatriation being virtually completed except from soviet-controlled territories. Repatriation from the latter areas, where Japanese nationals were estimated to number not less than 700,000, began on a limited scale in November.

The chief cities of Japan with 1940 populations are as follows: Tokyo (capital) (6,778,804); Osaka (3,252,340); Nagoya (1,328,084); Kyoto (1,089,726); Yokohama (968,091); Kobe (967,234). As a result of air raids in 1945, city populations were greatly reduced by evacuation to the countryside, Tokyo's population dropping to 2,780,000. As much as 40% of the built-up area of 66 cities was destroyed, including 30% of all urban housing in Japan. Following the surrender, a return movement to the cities set in, and total urban population increased from 19,500,000 in Nov. 1945 to 22,200,000 in April 1946.

The Japanese sovereign is Emperor Hirohito. Baron Kijuro Shidehara was prime minister from Oct. 1945 to April 1946. In May he was succeeded by Shigeru Yoshida. In 1945 there were 17,613,000 adherents of Shinto sects in Japan and probably

well in excess of 40,000,000 Buddhists.

History.—Throughout 1946 Japan continued under Allied military occupation. Governmental administration remained in Japanese hands, but policies were required to conform to the principles and objectives of the occupation as determined by inter-Allied agreement and implemented by the supreme commander for the Allied powers in Tokyo, Gen. Douglas MacArthur. The year witnessed the introduction of sweeping reforms in Japanese government and politics designed to eliminate militaristic and ultranationalistic influences and to foster democratic institutions. These political reforms were paralleled by comprehensive measures aimed at curbing the power of the great financial combines and improving the position of the Japanese worker and peasant. First steps were taken toward a program of reparations and disarmament which would strip Japan of a large part of its war-expanded heavy industries. Economic recovery was hampered by uncertainty as to the extent of such industrial removals, as well as by food shortages, mounting inflation and other obstacles to the revival of industry and trade. The history of 1946 is therefore the history of occupation policy and of the efforts of the Japanese people to readjust their institutions and attitudes to the new circumstances of defeat and Allied control. As the year ended it was apparent that extensive progress had been made toward the fulfillment of occupation objectives, but the depth and permanence of such changes and the ultimate orientation of Japan in the postwar world were yet to become evident.

Occupation Machinery and Controls.—The basic declarations and agreements governing the Allied occupation of Japan during 1946 were as follows: (a) the Potsdam declaration of July 26, 1945, defining the Allied terms of surrender; (b) the instrument of surrender of Sept. 2, 1945, by which Japan accepted the Potsdam terms; (c) the Moscow agreement of Dec. 27, 1945, establishing the Far Eastern commission (in place of the Far Eastern Advisory commission) and the Allied Council for Japan and (d) the U.S. Post-Surrender Policy for Japan, dated Aug. 29, 1945, which erected on the foundation of Potsdam a basic charter of occupation policies pursued by the United States in ensuing months and tacitly accepted by the Far Eastern commission following its organization.

On the creation of the Far Eastern commission and the Allied Council for Japan, the United States ceased to exercise sole responsibility for occupation affairs in Japan. The commission was empowered under the Moscow agreement to determine occupation policies; the U.S. government transmitted its decisions to the supreme commander in Tokyo and the latter, under directives from the U.S. joint chiefs of staff, was responsible for execution. The commission was composed of representatives of China, the United Kingdom, the U.S.S.R., the U.S., France, the Netherlands, Canada, Australia, New Zealand, India and the Philippines. The first four enjoyed the right of veto. The commission met weekly in Washington under the chairmanship of the U.S. member, Maj. Gen. Frank R. McCoy (ret.). Simultaneously in Tokyo sat the Allied Council for Japan, composed of representatives from China, the U.S.S.R. and the United States and a British commonwealth member representing the United Kingdom, Australia, New Zealand and India. It was charged with responsibility for consulting with and advising the supreme commander in the carrying out of occupation policies.

The military forces of the occupation remained predominantly U.S., supplemented by a small force of troops from the United Kingdom, Australia, New Zealand and India. A division of Chinese troops was reported to be expected in 1946 but failed to arrive. The supreme commander's functions were exercised through a general headquarters in Tokyo, which trans-

mitted directives and memoranda to the Japanese government embodying orders or suggestions from the supreme commander.

Political and Constitutional Reform.—On the initiative of the occupation authorities, extensive changes were undertaken in Japanese political life in 1946. The supreme commander's directive of Jan. 4 led to a series of political purges banning from public office and active political life many thousands of persons classified as militarists and ultranationalists. On April 10 the first postsurrender diet election brought 26,600,000 voters, or 72.1% of the registered electorate, to the polls. Noteworthy were the participation of women as voters for the first time in Japanese history and the election of 38 women to the diet. The two conservative parties, the Liberals and Progressives, though crippled by the political purge, managed to secure the largest representation in the new diet, the former with 140 members and the latter with 93 members. Next came the Social Democrats with 92 members. The remainder of the 464 elected members represented the smaller parties, among them the Communist party with 5 seats. Following the election Baron Shidehara struggled to reform his cabinet to remain in power, but strong public dissatisfaction with his policies forced his resignation. Succession by the leader of the Liberal party, Ichiro Hatoyama, was forestalled by his belated purge at the insistence of the supreme commander. On May 22 the premiership was assumed by Shigeru Yoshida, foreign minister in the outgoing cabinet, who simultaneously took over the presidency of the Liberal party. The Yoshida cabinet was dominated by conservative influences and drew its membership largely from the Liberal and Progressive parties. In ensuing months, under continual prodding from Allied headquarters, it proceeded to widen the scope of political and economic reforms, preparing and carrying through the diet a number of new measures, including the new constitution. However, its conservative policies with respect to price and wage control, inflation and unemployment relief failed to attract strong public support, especially in the cities. As the year drew to a close, mounting opposition



"THE NEW ORDER IN EAST ASIA" drawn by Cecil Jensen of the *Chicago Daily News* in 1946

to the government by labour groups was reflected in strikes, public demonstrations and attacks in the diet by Social Democrat and Communist members.

Early in the occupation the supreme commander made it known that revision of the constitution of 1889 was required under the terms of the Potsdam declaration. A new and more democratic constitution was accordingly drafted by the Japanese government and approved by Gen. Douglas MacArthur in March 1946. After passage by the diet with certain amendments, it was promulgated on Nov. 3 to take effect six months later. Under the new charter, war is renounced as well as the maintenance of all armed forces. The emperor, who on Jan. 1 publicly denied his divinity, is retained as a national symbol but virtually stripped of political power. Sovereignty is vested in the people, with a popularly elected house of representatives as the supreme law-making body, able if necessary to over-ride the upper house of councillors. Full cabinet responsibility to the diet is provided. An extensive bill of rights is enumerated.

The trial of Japanese war criminals by Allied courts continued throughout 1946. Numerous lesser cases were disposed of by military courts in Japan and elsewhere. In Tokyo the International Military Tribunal for the Far East began in April the trial of 28 top-ranking military and civil leaders for "crimes against peace and Humanity." (See WAR CRIMES.)

Education.—In 1944-45 Japan had 34,610 primary (elementary and youth) schools with 15,530,272 students; 4,175 secondary, middle and vocational schools with 2,276,227 students; 493 normal and "higher" schools and colleges with 327,363 students and 49 universities with 64,478 students. By the time of Japan's surrender, education was so disrupted as to be virtually at a standstill and about 4,077 schools had been totally or partially destroyed by bombing. Prompt action was taken by the occupation authorities to rehabilitate the educational system under directives designed to purge the curriculum and teaching staff of militaristic and chauvinistic influences. The directive of Dec. 15, 1945, separating Shinto from state support, barred Shinto doctrine from the schools. Objectionable textbooks were banned, to be replaced during 1946 by new ones which omitted mythological accounts of the "divine origin" of Japan and gave a straightforward narrative of World War II. Screening of teachers proceeded slowly, only 1,284 out of about 213,666 examined having been purged as of October. Other educational reforms fostered by Allied headquarters included language simplification, decentralization of educational controls and improvement of teaching methods.

Economic Disarmament and Reform.—Following complete demobilization and disarmament of the Japanese armed forces by the supreme commander, the Far Eastern commission took a second major step toward disarmament of Japan in May and June 1946 by approving an interim program for removals of heavy industrial equipment from Japan. This program made available as reparations to Allied countries all but 3,500,000 tons of Japan's 12,000,000-ton capacity in steel ingot production, half of its thermal electric power plants, all of its arsenals, aircraft and light metal factories and a large portion of its productive capacity in heavy chemicals, shipbuilding, machine tools, etc. Actual removals of equipment were delayed through 1946, however, by the failure of the commission to reach agreement on the allocation of reparations shares among claimant countries. The long-term demilitarization of Japan was proposed by the United States government early in 1946 in a draft treaty offered for consideration to the governments of the United Kingdom, China and the U.S.S.R.

Within Japan a number of notable economic reforms were instituted under Allied direction. The new Trade Union act,

effective March 1, legalized the status of trade unions and led to the mushrooming of membership to a figure of 3,745,642 workers in 12,324 unions on July 1. By Sept. 1, 452,000 workers were covered by collective bargaining agreements. Other new bills, advancing through various stages of completion, provided for peaceful adjustment of labour disputes, new factory standards and unemployment insurance. Progress was also made toward break-up of the *Zaibatsu*, Japan's great financial and industrial combines which played a major part in the war. Dissolution of five leading holding companies—Mitsu, Mitsubishi, Yasuda, Sumitomo and Fuji—was completed in October when their security holdings were turned over to the Holding Company Liquidation commission for sale to employees and the public. Other *Zaibatsu* assets were frozen, pending their transfer. In the field of agrarian reform, a new act approved in response to Allied directives provided for government purchase of extensive lands from noncultivator owners and their resale at controlled prices to working farmers.

Finance.—World War II left Japan with a staggering public debt, mounting inflation and a financial system requiring drastic reorganization to meet the needs of postwar reconstruction. The 1945-46 budget provided for revenue of 27,200,000,000 yen and expenditures of 103,800,000,000 yen, 16 and 45 times the corresponding figures of 1936-37. The 1946-47 budget presented to the diet in August totalled 56,000,000,000 yen, of which occupation costs amounted to 19,000,000,000. About 30,500,000,000 yen was to be raised by ordinary taxes and revenues, and 25,600,000,000 yen by a special capital levy. The national debt totalled 220,900,000,000 yen on Aug. 31, 1946. Domestic national bonds outstanding were 144,600,000,000 and bank loans 67,200,000,000 yen. In October the diet approved cancellation (by an equivalent tax) of the government's wartime obligations to individuals and corporations on account of war damage insurance, war contract cancellation, etc., thus saving 66,000,000,000 yen. The urgency of drastic financial reorganization was reflected in the 1946 spiral of inflation. On Dec. 31, 1945, the note issue of the Bank of Japan stood at 55,400,000,000 yen. As a result of a currency conversion and blocking of bank deposits in February, it dropped to 15,000,000,000 yen in new currency on March 9. However, continuing government deficits and the failure of new money to return to the banks forced an immediate resumption of the upward trend. By Dec. 17 it had reached an all-time high of 80,400,000,000 yen.

Trade and Communications.—Foreign trade was resumed on a small scale under strict Allied control in 1946. Imports were largely food, cotton and oil; exports consisted of small stocks of silk, other raw materials and a few manufactures. Rehabilitation of the textile industry began under an arrangement by which 890,000 bales of U.S. cotton were to be shipped to Japan in 1946, 60% to be re-exported in manufactured form to finance raw cotton and other necessary imports.

Japanese railways totalled 16,993.2 route mi. at the end of 1945. In Aug. 1946 train operations reached 15,500,000 train km., and freight carried was 8,200,000 metric tons. Motor vehicles numbered 107,315, of which 58% were in service. Production and operation of aircraft were forbidden to Japan under the occupation. In August there were nearly 900,000 telephones in service, and 5,168,374 paying radio-listening licences.

Agriculture.—Early estimates of 1946-47 crop yields in metric tons were as follows: rice 8,900,000; wheat 599,000; barley 404,000; naked barley 339,000; sweet potatoes 4,512,000; Irish potatoes 1,522,000; fruit 838,584; silk cocoons 30,000. The 1946 fish catch was expected to reach 2,400,000 tons, nearly double the 1945 figure. Crop acreages were as follows: rice 7,350,000 (1945); wheat 1,527,000 (1946); barley and naked barley approximately 2,100,000 (1945); Irish potatoes 520,000 (1946); mulberries 441,000 (May 1, 1946); fruit 367,000 (1945). Grazing land amounted to about 7,350,000 ac. in 1946; dairy cattle numbered 246,000. Wartime fertilizer shortages and bad weather reduced the 1945 crop of rice, which normally furnishes half the Japanese caloric intake, to only 6,445,000 metric tons, 27% less than in 1944. During 1945 Japan was also unable to secure food imports, which normally provide 15%-20% of food supplies. Difficulties in collecting food from country districts and controlling distribution in urban areas led to a food crisis in the cities in the spring and summer of 1946. The average daily food intake in Tokyo dropped to 1,352 calories in May. By comparison, the previous December average had been 2,000 calories and the urban average for Japan in 1926 roughly 2,200. City shortages were somewhat relieved by the supreme commander's release of 635,000 tons of imported staple foods, mostly from the United States, between April and September. Food prospects in 1946-47 were much improved over 1945-46, and on Nov. 1 the daily staple food ration was increased from .34 to .40 dry qt.

Manufacturing and Mining.—Industrial recovery remained at very low levels throughout 1946. The food crisis, labour troubles and deterioration in equipment combined to hold monthly coal production below 1,800,000 metric tons through August, producing an acute fuel shortage in transport and industry. August output of steel ingots and castings was only about 54,000 tons and pig iron 14,000 tons, as against average monthly production in 1943 of 675,000 and 333,000 tons, respectively. Most of Japan's light as well as heavy industries were operating well below basic requirements because of wartime destruction, lack of imported materials and fuel and financial and labour difficulties. Installed cotton spindlage in Feb. 1946, was only 2,150,000 spindles, as compared with 11,434,000 in 1940. Rayon capacity was 306,800,000 lb. Textile

production in August was as follows: cotton yarn 13,587,000 lb.; cotton cloth 17,482,000 square yards; rayon yarn and staple 24,858,000 lb. and rayon cloth 6,634,000 square yards. Real wage rates throughout industry were below prewar levels as a result of inflation and the scarcity of goods. The housing shortage was estimated at 4,500,000 dwellings. Actual unemployment far exceeded the official count of 5,600,000 in April and threatened to remain a critical problem pending the revival of industry and foreign trade. (See also FASCISM; NAVIES OF THE WORLD; REPARATIONS; UNITED STATES; WORLD WAR II.)

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Japanese Relocation, U.S.: see WAR RELOCATION AUTHORITY.

Jarvis Island: see PACIFIC ISLANDS, U.S.

Java: see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

Javelin Throw: see TRACK AND FIELD SPORTS.

Jeans, Sir James Hopwood (1877-1946), British mathematician, was born on Sept. 11 in London. For his early career, see *Encyclopædia Britannica*. Sir James, renowned for his philosophic interpretation of modern science, believed that the laws of nature were not precise, like the motions of a machine, but showed "evidence of a designing or controlling power that had something in common with our individual minds." He also contended that determinism and "cause and effect" did not operate in the physical universe. A popular interpreter of difficult scientific concepts, he was one of the first to reduce the concept of atomic energy for the lay reading public. He also popularized the theory of relativity, the quantum theory, radioactivity and the transmutation of the elements. Among his later works are *Science and Music* (1937), *Introduction to the Kinetic Theory of Gases* (1940) and *Physics and Philosophy* (1942). He died at his home in Surrey, on Sept. 17.

Jet Propulsion. Turbojets.—After the end of World War II progress in the development of aircraft gas turbines for jet propulsion (turbojets) and for propeller drive (propjets) was rapid. Great Britain's royal air force and the United States army air forces were converting to all jet fighter forces, and by 1946 the naval air services of both countries had taken long steps in this direction. Jet bombers were also under development, and at least one, the Douglas XB-43, was test flown early in 1946. Except for very long range operations (5,000 mi. or more nonstop) turbojets and propjets were expected to supersede the reciprocating engine for all military aircraft, including transports, within the next five or ten years. Air Commodore Frank Whittle, who received high honours in both England and the United States for his pioneering work in jet propulsion, expressed the opinion in 1946 that within five years 10% of commercial transport aircraft would be powered by gas turbines, and that in ten years a great majority would be. On account of its efficiency and exceptional fuel economy, an attractive interim power plant is the turbine compounded piston engine, or compound engine.

Although these developments were most pronounced in Great Britain and the United States in 1946, a similar trend was evident in other countries. British jet engines were being manufactured in Canada and Australia to be fitted to their own or British aircraft. Sweden and Switzerland had ordered British jet fighters (the De Havilland Vampire), and Sweden was also building a high-speed jet fighter to take the powerful De Havilland Ghost turbojet. The U.S.S.R., with the aid of highly-skilled German technicians, was reported to have made rapid progress, bringing to fruition several developments well under way at the

close of the war in Europe, with one or two jet fighters in the 600 m.p.h. class. England had also sent 20 Rolls-Royce turbojets to the U.S.S.R. (Derwent V's and Nene I's). At the 17th International Exposition of Aeronautics held in Paris in Nov. 1946 the French exhibited their first turbojet, the Rateau GT S 65 "turbo-reacteur." This was to power a high-speed research aircraft, the S.O. 6000, with provision for a German Jumo 004; a second prototype was powered by a Rolls-Royce Derwent V, and a Nene was expected to be fitted. Another French jet-propelled research aircraft was the Arsenal VG 70-01, powered by a Jumo 004.

Aircraft gas turbines were of two main types, those with centrifugal compressor, following the original Whittle design, and those with axial compressor, following Griffith of the Royal Aircraft establishment, the German designs, Westinghouse and others in the United States. The centrifugal (or radial) flow type has a larger frontal area than the torpedo-shaped axial flow type, but is simpler, easier to develop and lighter per pound of delivered thrust.

In the turbojet field England had concentrated on the centrifugal flow type with four in production in 1946: (1) The Rolls-Royce Derwent V (normal output, 3,500 lb. static thrust), power plant of the Gloster Meteor IV. Model EE 549, one of two Star Meteors, with Derwent V's delivering 4,200 lb. thrust at 15,200 r.p.m., piloted by Group Captain E. M. Donaldson, achieved on Sept. 7, 1946, a new world's speed record of 616 m.p.h. (average of four flights). (2) The Rolls-Royce Nene (5,000 lb. static thrust), which powers the Vickers Supermarine E.10/44 jet fighter, the Gloster Ace (successor to the Meteor), the De Havilland Nene-Vampire, a new fighter design by Hawker, and the Armstrong Whitworth A.W. 52 "arrowhead" twin-jet experimental flying wing aircraft. Two Nene I's also form the outboard power plants of the Avro Nene-Lancastrian, with two Merlin piston engines as the inboard power plants. This aircraft flew from London to Paris in 50 min. on Nov. 18, 1946, 30 min. better than the normal flight time. Cruising mostly on the turbojets, the flight was not only fast but quiet and vibrationless. Taylor Turbine corporation (N.Y.) made arrangements to manufacture a U.S. version of the Nene and eventually other Rolls-Royce turbojets in the United States, and one model of the Nene I, imported as part of this project, passed the standard army-navy 150-hr. type test run at the Naval Air Matériel centre (Philadelphia) during Dec. 1946.



"THUNDERJET," rear view of the U.S. army's XP-84 fighter plane, showing the jet propulsion nozzle. Unveiled in early 1946, this plane later attained an unofficial speed of 619 m.p.h.

(3) The De Havilland Goblin II (3,500 lb. static thrust), power plant of the De Havilland Vampire and Sea Vampire. (4) The De Havilland Ghost I (5,000 lb. static thrust), which was to power the second prototype of the D. H. 108 Swallow, experimental tailless aircraft. The first prototype (Goblin-powered) was destroyed in Sept. 1946 during a test flight by Geoffrey de Havilland, who lost his life in the accident. The Rolls-Royce units, designed by Dr. Stanley Hooker, have a double-sided impeller (following Whittle), and the De Havilland units, designed by Major Frank Halford, have a single-sided impeller.

During World War II, under an agreement with the British air ministry, General Electric developed for the U.S.A.A.F. the Whittle-type I-16 (1,600 lb. static thrust) and the I-40 (4,000 lb. static thrust). The Allison-built I-40-4 (AAF, J-33-GE), develops 4,200 lb. static thrust and powers the Lockheed P-80 Shooting Star. It is also tail booster unit for Convair XP-81 and is used on the Martin XP4M.

Except for the war-developed I-16 and I-40, U.S. designers tended to favour the through-flow turbojet with multistage axial compressor, with three in production during 1946. First of these was the General Electric TG-180 (AAF, J-35-GE) which has a static thrust of 4,000 lb. During 1946 this jet engine was flight-tested in the Republic XP-84 Thunderjet, the Douglas XB-43 twin-jet bomber, and the North American XFJ-1 carrier-based fighter. At the end of 1946 additional flight tests of this unit were imminent in the North American XP-86, counterpart of the XFJ-1, but with sharply swept-back wings, the Curtiss XP-87 and the North American XB-45 jet bomber with four TG-180's in double nacelles. It also was to power several other AAF multijet bombers by Boeing, Consolidated and Martin.

Westinghouse axial-flow turbojets (developed under navy sponsorship) include the 19XB-2B Yankee (1,400 lb. static thrust), in production at Pratt and Whitney and power plant of the McDonnell FD-1 Phantom twin-jet carrier fighter. Also the 24C (2,700 lb. static thrust), which was to go into production at Wright Aeronautical corp. This unit was to be the power plant of advanced navy fighters, the Chance Vought XF6U-1, McDonnell XF2D and others. For the AAF it was to power the McDonnell XP-85 lightweight "parasite" fighter to be carried by the B-36 long-range bomber, one version of the Curtiss XP-87, the McDonnell XP-88, the Lockheed XP-90 and other experimental fighters.

Ryan's carrier-based FR-1 Fireball was composite powered for flexibility and all-altitude performance, with a Cyclone piston engine and propeller in the nose and General Electric I-16 turbojet as tail booster. Two other composite-powered aircraft for the navy were the Martin XP4M patrol bomber, with two 3,200-h.p. P. and W. Wasp Major engines and two Allison-built I-40-4 turbojets, and the Grumman XTB3F torpedo bomber, with a P. and W. 2,100-h.p. Double Wasp in the nose and a Westinghouse 19XB-2B turbojet in the tail.

British turbojets with multistage axial compressors include the Metropolitan-Vickers F.2/4 of 3,500 lb. static thrust (the F.3 with ducted fan thrust augmentor, a device highly favoured by Whittle, delivers 4,000 lb.). Two of these units power the Saunders-Roe flying boat fighter. Other more powerful units of this type were under development in England during 1946.

(Note on published ratings: For takeoff, fast climb and bursts of speed, including world record attempts in some cases, a booster mixture of water and ethyl adds from 10 to 20% thrust to all of these turbojet units.)

Turboprops.—The first turbine-propeller or turboprop to be flight-tested was the Rolls-Royce Trent (Derwent I turbojet geared for propeller). This was superseded by the intricate and much more powerful Rolls-Royce Clyde (3,000 h.p. plus 1,200 lb. static thrust), and a smaller, simpler version, the Dart, first

bench run in Aug. 1946. The Bristol Theseus was developed for long-range operation and delivers 1,950 h.p. plus 500 lb. static thrust. The Armstrong Siddeley Python was in 1946 the most powerful British propjet under flight test, with 3,670 h.p. plus 1,150 lb. static thrust. This company was also developing a smaller unit known as the Mamba (1,120 h.p. plus 320 lb. static thrust). During 1946 this unit was bench-tested, and the Python and Theseus flight-tested in Avro Lincoln heavy bombers in similar fashion to the Nene-Lancastrian.

U.S. turboprops (of which there were several under development during 1946) include the General Electric axial-flow TG-100 (AAF, T-31) which had a rated power of 2,200 h.p. plus 600 lb. static thrust. This unit was flight-tested late in 1945 in the Consolidated Vultee XP-81 long-range tandem jet fighter, with the J-33-GE turbojet as tail booster. The Ryan XF2R carrier-based fighter, powered by the TG-100 turboprop and I-16 turbojet in the tail, was announced by the navy in late 1946. The TG-100 was also scheduled to power the Martin 304 medium-weight high-speed transport which was to be built for United Air Lines.

Another axial-flow turboprop, the Northrop-Hendy Turbodyne (in the same power bracket as the TG-100) was announced in the autumn of 1946. Wright Aeronautical's more powerful turboprop, the Menasco L-4000 turbojet (developed from the original Lockheed L-1000) and the Packard turbojet (based on the De Havilland H-1, or Goblin) had also been bench-tested but had not been test-flown at the end of 1946. Powerful turboprops by Allison and Pratt and Whitney were also under development at the close of the year.

Ramjets and Resojets.—Two other types of jet propulsion underwent considerable development during 1946. The ramjet (or athodyd, from Aero THERMO DYnamic Duct) is a suitably shaped duct equipped with fuel burners. Instead of using a compressor (as in the gas turbine) it relies on ram compression and must be launched by auxiliary means (such as a rocket) to give it initial forward speed to provide ram pressure. There are no moving parts. As a part of its comprehensive Project Bumblebee the U.S. navy developed a five-inch ramjet ("flying stovepipe") called the Cobra. Air Matériel command (Wright field) and the National Advisory Committee for Aeronautics' Propulsion laboratory (Cleveland) had larger ramjets (up to 20-in. diameter) under development at the end of 1946. All were capable of speeds of 1,500 m.p.h. and over. Allison, General Electric, Curtiss-Wright and Ryan Aeronautical were among the companies actively engaged in the development of ramjets. A modified Mustang (P-51) fighter with ramjet assist had been test-flown. The British had similar developments, including a very high-speed prone-pilot fighter with thick wings powered by an athodyd, and the Germans had several experimental models well under way by the end of the war in Europe, in May 1945.

The intermittent duct or resonant jet engine (resojet or pulsejet), like the ramjet, required no compressor. Equipped with light flap-type check valves, the successive explosions propelled the exhaust gases to the rear, producing continuous thrust without ram. This type of engine powered the German V-1 buzzbomb, and was used in several experimental guided missiles developed by the AAF and the navy, built by Northrop, McDonnell, Republic and others. The biggest problem with ramjets and resojets was the very high fuel consumption. Intensive development work on these types, which might eventually supersede the turbojet, was going forward, as was also work on rocket engines. Initial use would be for guided missiles and pilotless aircraft, but ultimately some application to piloted military and commercial aircraft was regarded as almost certain. (See also AVIATION, MILITARY; MUNITIONS OF WAR.)

(N. F. S.)

Jewish Religious Life.

The year 1946 showed some surprising contrasts. Thus, from England where religious liberty is a strongly entrenched tradition, came reports that Anglo-Jewry was rapidly drifting toward extinction because of the tremendous progress of indifference. On the other hand, from the U.S.S.R. where previously there had been the most concentrated antireligious propaganda and atheistic indoctrination, there was the reconstitution of the Jewish religious community in such towns as Moscow and Rostov. Similarly, in Juan Perón's Argentina, a Yeshiva was opened for the training of rabbis and Jewish religious teachers.

The main Jewish religious activity in continental Europe was the attempted reconstruction of what remained of Jewish life. This was difficult because few rabbis had survived, and many of the remaining laity were spared because they were only half-Jews. Thus, in Mannheim, Germany, of the 20 remaining out of the pre-Hitler community of 4,000, half the "Jews" were baptized or were children of mixed marriages. Only one rabbi was left in all Germany; in the Netherlands only three, and in Czechoslovakia of 150 only 15 were alive, of whom seven were really active. Many ruined synagogues were rebuilt, usually through the generosity of United States Jewry organized in the Joint Distribution committee. Tens of thousands of religious articles, prayer books and educational supplies were sent by that committee from the U.S. to war ravaged countries, and large sums were given as subventions for rehabilitating European Jewish religious institutions. United States Jewish chaplains and other religious representatives also played a notable part in caring for the religious needs of Jewish displaced persons. The Vaad Hatzala (Rescue committee) organized by U.S. orthodox rabbis, also provided religious supplies and found homes for many war orphaned children, supported religious schools and subventioned European rabbis stranded in Siberia and the far east. But despite all this generous help, Jewish religious life in the lands where the German armies went was generally very far from normal functioning even on a reduced scale.

In the United States, the greatest centre of free Jewish life, considerable religious vigour could be recorded, such as in the field of religious education. The military draft brought about a shortage of religious school teachers. But nevertheless, there was a slight increase in Sunday school enrolment, greater activity in the more intensive schools meeting two, three, four or five times a week, as well as a very marked growth in the number of Jewish parochial schools. The Jewish community as a whole remained opposed to the public schools giving release time for religious education, regarding this as an unsatisfactory substitute for a more serious and better-organized system of religious education, and as in conflict with the U.S. principle of the separation of church and state in the public school system. During 1946, New York state gave recognition to the Rabbi Isaac Elchanan Theological seminary and Yeshiva college as a university, and the Jewish Theological seminary announced far-reaching plans for expansion of its work.

In the face of resurgence of anti-Semitic organizations, there were many enheartening instances of interfaith goodwill. The first international conference of Christians and Jews was held at Oxford, England.

The most notable of the religious leaders claimed by death during the year was Dr. Joseph H. Hertz, chief rabbi of the British empire. (See also ANTI-SEMITISM.)

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(D. DE S. P.)

Jewish Welfare Board, National.

The National Jewish Welfare board (J.W.B.), organized in 1917 as an instrumentality for

religious, welfare and morale service to Jewish men and women in the U.S. armed forces, was awarded a joint citation in 1946 by the U.S. war and navy departments for its "unique and outstanding service" to U.S. servicemen and women stationed throughout the world during World War II. The award was made in May at the 29th annual conference of J.W.B., the first yearly meeting to be held by the organization after the beginning of World War II.

A member agency of U.S.O., J.W.B. operated 80 U.S.O.-J.W.B. installations in 1946. In the United States, 626 local army and navy committees served thousands of men and women in the armed forces, and 58 such committees in Germany, Austria, France and China provided services to the J.W.B. hospitality centres maintained for servicemen in the armies of occupation.

The third and final issue of *Fighting for America*, a book which tells the story of Jewish participation in World War II, was prepared by J.W.B. in 1946 for publication early in 1947.

Thirty-eight national Jewish organizations were affiliated with J.W.B. in 1946, and, in addition, J.W.B. was the national association of 288 Jewish community centres and Y.M.H.A.'s and Y.W.H.A.'s in the United States and Canada, with a total membership of 437,000 adults and young people. In 1946, J.W.B. provided these Jewish communities with 950 bookings of lecturers, artists and musicians. In order to guide the organization's peacetime program of expanded service to the U.S. Jewish community, J.W.B. caused an independent survey of its own program and activities to be conducted.

In 1946, J.W.B. joined with representatives of Australia, Canada, France and England in creating the World Federation of Y.M.H.A.'s and Jewish community centres.

Officers in 1946 were: Frank L. Weil, president; Mrs. Felix M. Warburg, honorary vice-president; Mrs. Alfred R. Bachrach, Lloyd W. Dinkelspiel, Irving Edison, Mrs. Samuel R. Glogower, Mrs. Walter E. Heller, Carl M. Loeb, Jr., Donald Oberdorfer, Walter Rothschild, vice-presidents; Joseph H. Cohen, treasurer; Robert K. Raisler, assistant-treasurer; Joseph Rosenzweig, secretary; Ralph K. Guinzburg, assistant secretary; Louis Kraft, executive director. Offices in 1946 were at 145 East 32nd street, New York city.
(F. L. W.)

Jinnah, Mahomed Ali (1876-), Indian statesman and politician was born on Dec. 25 in Karachi. He studied law in England, and in 1906 he became an advocate of the Bombay high court. In 1910, Bombay Moslems elected him to the imperial legislative council. He joined the Moslem league in 1913 and was instrumental in getting Hindus and Moslems to hold joint sessions at the Lucknow conference in 1916.

Jinnah's zealous advocacy of an independent India cooled considerably in the aftermath of World War I. His disagreement with Mohandas Gandhi over methods of obtaining the desired independence grew sharper, and he no longer was the leading Moslem proponent of concord with the Hindus. At the London round table parleys (1930-31), Jinnah, although not a delegate, demanded separate electorates for Hindus and Moslem communities as well as equality for Moslems in the sharing of offices in the central and provisional governments. In the succeeding years, "Pakistan" (a wholly independent Moslem state) became the keystone of Jinnah's political philosophy, and the Moslem views were officially recognized by the British government during the negotiations conducted in India by the Cripps mission in 1942. At the unsuccessful London parleys on India in Dec. 1946 Jinnah reiterated that only the division of the country into separate Hindu and Moslem states could provide a satisfactory solution of the Indian problem.

Jodl, Alfred (1892?-1946), German army officer, served in the Bavarian army during World War I. After the Armistice he was attached to the ministry of war staff and later with the German intelligence service. Rising in the wehrmacht to the rank of major general in 1939, Jodl became eventually the fuhrer's personal commander in chief. He was liaison man between the wehrmacht and Hitler's cabinet, one of the chief designers of Hitler's war strategy and was said to have been closer to Hitler than any other high officer. He took an active part in the campaigns against the U.S.S.R., Yugoslavia and Greece and devised the strategy following the wehrmacht's setback at Moscow. In Oct. 1942 he was made Hitler's chief military adviser. He was promoted to colonel general in Jan. 1944, and was wounded during the attempted assassination of Hitler the following June. Jodl, who was made chief of the joint staff in early 1945, headed the German delegation that signed the Allied surrender terms in Reims, France, May 7, 1945. He was later arrested and held for trial as a war criminal. During the sessions at Nuernberg Jodl asserted that the British and French declaration of war in Sept. 1939 came as a surprise to the nazi leaders and that Germany was unprepared to fight a large-scale war when it attacked Poland. He also disclosed that Hitler had delayed the attack on the western front 17 times because of bad weather and because he had been unnerved by Allied inaction. At the trial the prosecution produced evidence that Jodl signed an order to execute commandos and prisoners of war. On Oct. 1, 1946, the court found him guilty and sentenced him to death for crimes against the peace, war crimes, crimes against humanity and for conspiracy to commit these crimes. He was hanged in Nuernberg, Oct. 16.

Johns Hopkins University.

An institution of higher learning in Baltimore, Md. President, Isaiah Bowman. It consists of: three undergraduate schools—the college of arts and sciences, the school of engineering, and the school of business; the graduate school, the faculty of philosophy; the night school of technology; the college for teachers; the school of medicine; the school of hygiene and public health; and the Johns Hopkins applied physics laboratory at Silver Spring, Md. Of the undergraduates in 1946 60% were war veterans. To meet demands of increased enrolment, Hopkins added 24 full professors, 41 associate professors and a great number of assistant professors and instructors. The university ranked among the seven top U.S. universities handling war scientific research contracts. It took the lead in postwar fundamental research, co-ordinated with government and industry through its newly established Institute for Co-operative Research. During 1946, the university established four new departments: aeronautics, classics, sanitary engineering and an unique department of writing, speech and drama. Recommendations of the report of the Postwar Planning Committee on Curriculum were implemented during 1946. The university sponsored a series of student forums on the local radio station. Extracurricular activities curtailed or abandoned during World War II resumed full-scale operation by 1946. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (I. Bo.)

Johnson, Herschel V.

(1894–), U.S. government official and diplomatist, was born May 3 in Atlanta, Ga. He graduated from the University of North Carolina in 1916, and served overseas with the A.E.F. during World War I, attaining the rank of a captain. After the war, he entered Harvard Law school and subsequently won an appointment to the U.S. foreign service. In 1921 he was named legation secretary to Switzerland and in the succeeding years he

held similar posts in embassies or legations in other countries. In 1941 President Roosevelt appointed him minister to Sweden. In the closing days of World War II, Count Folke Bernadotte passed on to Johnson and Sir Victor Mallet, the British envoy, Heinrich Himmler's peace proposals offering unconditional surrender to all the United Nations except the soviet union. Himmler's offer was promptly rejected by the Allies. In April 1946 Johnson was recalled from Stockholm to become deputy to Edward R. Stettinius, Jr., then chief U.S. delegate on the United Nations Security council. After Stettinius' resignation (June 3), Johnson was appointed interim delegate. Johnson rejected the Ukrainian charge against Greece and proposed (Sept. 18) that a subcommittee investigate the incidents along Greece's frontiers with Yugoslavia, Bulgaria and Albania.

Johnson, Walter

(1887-1946), U.S. athlete, was born Nov. 6 in Humboldt, Kan. After pitching sandlot baseball in Weiser, Ind., he joined the Washington Senators baseball team in 1907. Having great speed and control, he soon became the top pitcher of the Senators and stayed with that team for 21 years. During that time, he won 414 victories against 297 defeats. His best year was in 1913 when he won 36 games and lost only 7. He also set a record of 3,497 strikeouts during his 21-year span in baseball.

Johnson left the playing field in 1927 and was manager of the Senators, 1929-32, and of the Cleveland Indians, 1933-35. He entered politics in 1938, with a successful campaign for county commissioner. Johnson was elected to baseball's Hall of Fame at Cooperstown, N.Y., in 1939. In 1940, he lost a close race for U.S. representative. He died of a brain tumour in Washington, D.C., Dec. 10.

Johnston Island: see PACIFIC ISLANDS, U.S.

Jones, George Clarence

(1895-1946), Canadian naval officer, was born on Oct. 24 in Halifax, N.S. Shortly after completing his training at the old Canadian naval college, he was assigned to active sea duty, and during World War I he was engaged in mine-laying operations in the North sea. He later returned to Canada for duty as executive officer of the naval college and subsequently held other executive posts. His attendance at the Royal Naval Staff college and the Imperial Defense college was followed by tours of duty aboard British battleships. At the beginning of World War II he was captain of destroyers and escorted a number of wartime convoys moving out of Canada's eastern ports. He served as commanding officer of the Atlantic coast, 1940-42 (during which time he was promoted to rear admiral), vice chief of the naval staff, 1942-43, and succeeded Adm. Percy W. Nelles as chief of the naval staff in Jan. 1944. Rear Adm. Jones died in Ottawa on Feb. 8.

Judaism: see JEWISH RELIGIOUS LIFE.

Yugoslavia: see YUGOSLAVIA.

Julius Rosenwald Fund: see SOCIETIES AND ASSOCIATIONS.

Jumping: see TRACK AND FIELD SPORTS.

Junior Colleges: see UNIVERSITIES AND COLLEGES.

Justice, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

Jute.

All of the jute for bagging and other uses in the United States is imported, practically all from India. Imports in 1946 were expected to be about 150,000,000 lb. compared with 143,013,000 lb. imported in 1945 and an average of about 160,000,000 lb. in 1934-38. Most of the jute is used for open-weave cotton boll bagging. Other large uses are for rugs, carpets,

twine, bags for farm products and supplies. A cotton crop of 12,000,000 bales requires about 150,000,000 lb. of jute. Substitutes for jute bags were tested during World War II without much success. Paper and cotton were the principal materials used. (J. C. Ms.)

Juvenile Delinquency. In the 199 courts reporting to the federal children's bureau, division of statistical research there was an increase of 4% from 104,193 in 1944, to 108,662 in 1945. These represent various sections of the U.S. in 30 states, including the District of Columbia. There were important variations among the individual courts. South Carolina showed a decrease of 21%, Rhode Island an increase of 87%. However, Rhode Island in July 1944 raised the age from 16 to 18 years under which the juvenile court has jurisdiction over delinquent children. Utah showed an increase of 40%, whereas the 42 courts of New York state had a decrease of 9%. But the 65 courts dealing with large city areas and the 134 courts serving areas with less than 100,000 population, each taken as a whole, showed increases of 4%.

There was important variation between court cases of boys and girls. Boys' cases, which represent more than four-fifths of the total number of juvenile court cases, increased 7%. For all courts combined there was a decrease in girls' cases amounting to 5%.

Interpretation of these statistics in comparison with the year 1938 shows a consistent upward trend after 1939, reaching its highest point in 1945. Increases of city population with movement from rural areas was undoubtedly a factor. The development of services to children for the relief of tensions of wartime economic and social conditions hardly kept pace with need. Children were particularly vulnerable to social changes resulting in emotional stress to adults.

Significant programs of treatment and prevention were being attempted in some communities. The Youth authority of California, the establishment of juvenile divisions in police departments in many communities, showed awareness of the magnitude of the problem.

(See CHILD WELFARE; CRIME; FEDERAL BUREAU OF INVESTIGATION.) (M. V. W.)

Kalinin, Mikhail Ivanovich (1875-1946), soviet statesman, who became president of the U.S.S.R., was born of peasant parents on Nov. 20 in Verkhnyaya Troitsa, Tver (Kalinin) province. An active revolutionary from his early youth, he was frequently arrested for his overt opposition to tsarist rule. In 1911, he went to St. Petersburg (now Leningrad) to join the staff of the clandestine bolshevik publication, *Pravda*, and there worked closely with Nicolai Lenin and Joseph Stalin. After the outbreak of the Russian Revolution in 1917, Kalinin was elected to the central committee of the Communist party and in March 1919, on Lenin's recommendation, he was elected chairman, or president, of the all-Russian Central Executive committee—then the supreme governing body of Russia. In 1922 with the formation of the Union of Soviet Socialist Republics, he became chairman of the central executive committee of the U.S.S.R. Following the adoption of the Stalin constitution in 1936, he was elected president of the presidium of the supreme soviet. He was also a member of the Communist party's politburo (political bureau).

Although officially Kalinin held the post of chief of state for 27 years, actually he wielded little power. He retired in April 1946 as president of the presidium because of ill health, and died on June 3, according to a Moscow radio announcement. See *Encyclopædia Britannica*.

Kaltenbrunner, Ernst (1901-1946), Austrian politician, attended public schools at Linz and studied at the University of Prague. He joined the Austrian nazi party in 1932 and was leader of the S.S. (elite guards) in Austria in 1935. After the *Anschluss* he became the official head of the Austrian storm troopers. He was also appointed secretary of state for security in Austria, holding this post until 1941. He was made chief of the security police, Jan. 30, 1943, and following the assassination of Reinhard Heydrich by Czechoslovak patriots in June 1943, he became head of the Reich Security Head office. He was taken prisoner by U.S. troops on May 15, 1945, and was indicted on charges of war crimes by the international military tribunal at Nuernberg, Aug. 29, 1945.

At the trial, the prosecution introduced documents and witnesses who testified that Kaltenbrunner's rule was as bad if not worse than that of his predecessor. He was said to have agreed with Heinrich Himmler at a conference in 1942 upon the gas chamber form of execution to permit the slaughter of Jews.

In his defense, he claimed that the criminal program of the gestapo had been started before he took office and he also declared that he had had an understanding with Himmler before he became chief of the R.S.H.O. that he was to confine his activities to foreign intelligence only. He was convicted Oct. 1, 1946, of committing war crimes and crimes against humanity and was sentenced to death. He was hanged Oct. 16.

Kamerouns: see BRITISH WEST AFRICA; FRENCH COLONIAL EMPIRE.

Kansas. A central state of the United States, admitted Jan. 29, 1861; popularly known as the "Sunflower state." Total area, 82,276 sq.mi., of which 82,113 sq.mi. are land; pop. (1940) 1,801,028 (a decrease of 79,971 or 4.3% from 1930). Capital, Topeka (67,833). The two larger cities in 1940 were Kansas City (121,458) and Wichita (114,966). Of the state's population in 1940, 753,941 were urban, or 41.9%; 96.3% were white, 3.7% Negro and other races, 2.9% foreign born. The Kansas census as of March 1, 1946, reported the total population as 1,784,453, a loss of 8,613 from 1945. Wichita, with a 1946 population of 153,411, was the largest city; Kansas City was the second with 137,065, and Topeka third with 79,154. Wichita lost 22,905 from the war-industry employment peak of 1944, while Kansas City and Topeka made gains during 1945 of 3,853 and 2,564 respectively.



FRANK CARLSON, Republican, was elected governor of Kansas on Nov. 5, 1946

History.—The state election in 1946 resulted in a Republican landslide: Frank Carlson, governor; F. L. Hagaman, lieutenant governor; F. J. Ryan, secretary of state; George Robb, auditor; R. T. Fadely, treasurer; E. F. Arn, attorney general; L. W. Brooks, superintendent of public instruction. Only Ryan, Robb and Brooks had formerly held the same office. Only 18 Democrats were elected to the lower house of 125 members, and there was one Democrat in the senate, elected in 1944, who

was held over. The principal interest in the campaign centred in the contest for the governorship, in which Harry H. Woodring, former governor and former secretary of war in the F. D. Roosevelt administration, was the Democratic opponent of Carlson. The official figures gave Carlson 309,036 votes and Woodring 254,283. The principal issues centred around the Republican record on liquor, social security and school reorganization.

Education.—Enrolment in the elementary and secondary schools for 1944-45 was 323,974; and of this number 88,602 were enrolled in high schools and 235,372 in elementary schools. There were 4,981 one-teacher schools, with an enrolment of 53,979 pupils. Preliminary figures for the school year 1945-46 showed a reduction of one-teacher schools to 3,769, with the school-reorganization program authorized by the legislature of 1945 only partly executed. Emergency teachers' certificates issued for the calendar year 1945 numbered 8,157, and for the year 1946 the number was reduced by about 1,600, mostly through elimination of one-teacher schools.

Social Insurance and Assistance, Public Welfare and Related Programs.—The 1945 populations of the state's penal and charitable institutions was as follows: industrial school for boys, about 100; industrial school for girls, average 149; industrial reformatory, about 330 (peak, 1929, was 1,098); penitentiary, average 972 (peak 1936, 1,982); industrial farm for women, about 50 (peak 1927, 201).

A receiving home for the study of delinquent and maladjusted children was opened in 1944. Three state hospitals for the insane had a total of 5,060 inmates in 1945; a training school for mental deficient averaged 2,278 and a hospital for epileptics 757, while the state orphans home cared for from 109 to 130 children during the year.

Communication.—In 1944, the state had 9,373 mi. of rural highways under state control; the steam railroad mileage was 8,448; the number of airports was 127, 38 of which were commercial and 45 municipal.

Banking and Finance.—As of Dec. 30, 1944, there were 619 active banks, 176 of which were national, with demand deposits of \$1,163,100,000. Savings and time deposits of all banks amounted to \$116,100,000.

A state budget of \$34,627,290 was prepared for submission to the 1947 legislature for the biennium 1947-49, about \$11,500,000 more than was appropriated for the biennium 1945-47. This did not include the building program. Charitable institutions were to receive \$7,476,568, compared with \$5,422,344 appropriated for 1945-47; penal institutions \$2,426,592, compared with \$2,169,876; educational institutions \$15,731,314, compared with \$9,848,043. Tax collections for the fiscal year July 1, 1945-June 30, 1946, amounted to the unprecedented figures of \$45,500,948, and for the last six months of 1946, \$26,410,446. The opinion was expressed that the budget estimates recommended could be met out of regular revenues and accumulated surpluses, without tax increases.

Agriculture.—The 1946 production of Kansas crops was 1% more than 1945, but 14% less than 1944. The farm value was estimated at \$618,292,000, the highest on record, and 7% higher than the previous record of 1919. Wheat production was second only to 1931, the average yield being 16.2 bu. per ac. compared with the 10-year average of 13.5 bu. It was the sixth successive

good crop for the southwestern winter wheat belt, a record without equal. Corn production was 63,231,000 bu. compared with the 10-year average of 55,247,000 bu.

Fall planting of winter wheat for the 1947 crop was estimated at 14,994,000 ac., or 6% increase over the acreage sown for the 1946 crop. Wheat condition Dec. 1, 1946, was 94% compared with 78% at the same time in 1945. The spring movement of cattle from the southwest into the Bluestem pastures in 1946 was the largest in several years, 9% larger than in 1945 and 22% larger than in 1944—340,000 cattle and calves, compared with 312,000 in 1945, and a ten-year average of 224,000.

Manufactures and Mineral Production.—The value of manufactured products for 1939, the last prewar enumeration, was \$464,354,000, compared with \$543,807,000 in 1937. The war years brought many new industries and expanded others, and the postwar reconversion period brought an active campaign to locate new small industries in Kansas.

The mineral production of Kansas was valued at \$219,678,000 in 1944, compared with \$220,413,000 for 1943. The state ranked ninth as a mineral producing state; fifth in the production of petroleum, natural gas and zinc mining; third in salt and first in volcanic ash.

(J. C. MN.)

Keenan, Joseph Berry (1888—), U.S. government official was born Jan. 11, in Pawtucket, R.I. He received his B.A. and M.A. degrees from Brown university, Providence, R.I., and his LL.B. from Harvard Law school. He saw service on the Mexican border in 1916, and the following year went overseas as a first lieutenant and was assigned to the judge advocate general's office. After World War I, as assistant to the Ohio attorney general, he established a reputation as a successful prosecutor of gangsters and criminals. He was called to Washington in 1933 to become special assistant to Attorney General Homer S. Cummings, then spurring a federal campaign to curb kidnapping and racketeering. In 1939 he resumed private practice but was recalled by President Truman in Sept. 1945 to become chief prosecutor for the International Military tribunal in the far east that was to try Japanese leaders on charges of war crimes. He arrived in Tokyo Dec. 6, 1945, and four months later (April 29, 1946) returned indictments against 28 Japanese leaders on 55 counts, which included charges of crimes against peace, "conventional war crimes" and crimes against humanity. The trial started June 4. In his opening statement, Keenan asserted that his prosecution would be no "ordinary trial" but would be part of the battle to "preserve the world from destruction." Later, he returned to Washington where he disclosed (June 17) that a decision had been made on a "high political level" not to try the emperor as a war criminal.

Keitel, Wilhelm (1882-1946), German army officer, was born Sept. 22 at Gandersheim near Brunswick. He entered the army in 1901 and continued in the reich war ministry after World War I. Known as a political general, Keitel ranked high in Hitler's estimation and in Feb. 1938, Keitel succeeded Werner von Blomberg as chief of staff. He thus directed all major operations (under Hitler's guidance) from the Polish victory in 1939 to the final German defeat in 1945. Keitel, who headed the German delegation that signed the unconditional surrender terms in Berlin, May 8, 1945, was later arrested and held for trial as a war criminal.

At the Nuernberg sessions the prosecution produced documentary evidence showing that Keitel had approved nazi plans for seizure of Czechoslovakia, Poland, Norway, the Netherlands, Belgium and France. Although he protested against the invasion of the U.S.S.R. on strategical grounds, he finally

Leading Agricultural Products of Kansas, 1946 and 1945

Crop	1946	1945
Wheat, bu.	216,768,000	207,939,000
Corn, bu.	63,231,000	68,563,000
Sorghum (grain), bu.	11,448,000	17,695,000
Oats, bu.	40,556,000	16,940,000
Barley, bu.	5,022,000	7,086,000
Soybeans, bu.	2,178,000	2,350,000
Potatoes, bu.	1,632,000	1,394,000
Hay, tons	2,328,000	2,851,000
Sorghum (forage), tons	2,083,000	2,273,000

endorsed the attack.

It was also proven that Keitel ordered the army to carry out Hermann Goering's economic directives for "exploitation" of soviet territory, food and raw materials. He justified illegal treatment of soviet prisoners on the ground that "this is the destruction of an ideology. Therefore I approve . . ." He likewise endorsed Alfred Rosenberg's looting of cultural property of German-occupied countries and of the reduction of Poland to a slave nation. To field commanders in the soviet union he gave orders for terrorizing the civilian population, stating that legal punishment was inadequate. Keitel's defense, that as a soldier he only carried out orders issued by his superiors, was prohibited under the court's charter. He was found guilty Oct. 1, 1946, and sentenced to hang for crimes against the peace, war crimes, crimes against humanity and of conspiracy to commit those crimes. The sentence was carried out Oct. 16.

Kentucky. An east south central state of the United States, admitted to the union June 1, 1792, popularly known as the "Blue Grass state." Area 40,395 sq.mi., of which 286 sq.mi. constitute water (chiefly the Ohio river). Population as of July 1, 1940, was 2,845,627 of which 2,443,252 were whites. Negroes constituted 209,721 or 7.5% and 15,631 were foreign-born. Capital, Frankfort (11,492); largest city, Louisville (319,077). Other cities: Covington (62,018); Lexington (49,304); Paducah (33,765); Owensboro (30,245); Ashland (29,537). Population (estimated July 1, 1945) was 2,578,179—a loss of 11% from 1940.

History.—Chief officers (elected in 1943 for a term of four years) were Simeon S. Willis, governor; Eldon S. Dummitt, attorney general; Irvin Ross, auditor; T. W. Vinson, treasurer; John Fred Williams, superintendent of schools; Elliott Robertson, commissioner of agriculture. In the election of Nov. 5, 1946, John Sherman Cooper (Rep.) was elected U.S. senator for two years over John Y. Brown (Dem.) by 41,823 votes. The Republicans also elected congressmen in the 3rd, 7th and 9th districts. The general assembly of 1946 passed 248 acts. It adopted a budget of \$87,875,000 for the biennium, a motor responsibility act for all accidents if damages exceed \$50, and made it a felony to carry concealed weapons. It declared Franklin D. Roosevelt's birthday a state holiday (Jan. 30).

Education.—Elementary schools in 1946 numbered 5,898 with 12,519 teachers and 405,862 pupils. In 670 high schools were 5,118 teachers and 123,229 pupils.

Social Insurance and Assistance, Public Welfare and Related Programs.—In 1945-46 the unemployment board paid \$6,670,000 to 30,200 civilians. Old-age assistance was given to 52,268; dependent children numbered 6,631; needy blind, 1,591. The number of inmates in correctional institutions was as follows: reformatory, 1,497; penitentiary, 860; women's prison, 41; reform school for boys, 250; for girls, 45. The children's home reported 267. The assembly authorized five new sanatoriums for tubercular patients, and received back from the U.S. the Darnall hospital (renamed State hospital) Feb. 10, 1946, which took 437 mental patients from other hospitals. By the end of 1946, 92 counties had voted dry.

Communications.—The highway department maintained 10,153 mi. of hard roads during 1946. Total receipts were \$19,967,000 while expenses were \$17,554,000. In August the Livermore bridge was freed of tolls, and the Clay's Ferry bridge (1,736 ft. long, 250 ft. above the Kentucky river) was completed. Railway mileage declined to 3,705 mi.

Banking and Finance.—On June 30, 1946, there were 93 national banks with resources of \$627,881,000; 297 state banks and trust companies with resources of \$941,787,000; and 72 building and loan associations with assets of \$47,471,000. From

its general fund the state drew \$17,793,000 for education; \$7,374,000 for welfare work; and \$6,006,000 for general government. Receipts in the same period were: property and inheritances, \$9,725,000; income taxes, \$9,385,000; excise taxes, \$26,422,000; from alcohol taxes and licences, \$11,286,000; from other licences, \$6,842,000; total: \$64,341,000. In addition to these sums the Southern Pacific railroad paid current and delinquent taxes of \$4,104,000. The surplus rose to about \$30,000,000. There was no debt.

Agriculture.—The leading crops of 1946 appear as reported in the table.

Leading Agricultural Products of Kentucky, 1946 and 1945

Crop	1946	1945
Wheat, bu.	4,976,000	5,278,000
Corn, bu.	94,278,000	77,824,000
Oats, bu.	2,200,000	1,925,000
Tobacco, all types, lb.	488,790,000	469,395,000
Hay, tons,	3,010,000	2,525,000
Irish potatoes, bu.	4,752,000	3,999,000

Mineral Production.—During the year 1945 Kentucky produced 70,236,031 tons of coal, employing 52,891 miners, who suffered 126 fatalities. Petroleum yielded 10,332,301 bbls. Natural gas was estimated at 90,000,000,000 cu.ft. (E. T.)

Kenya: see BRITISH EAST AFRICA.

Keynes, John Maynard, 1ST BARON OF TILTON (1883-1946), British economist, was born on June 5 at Cambridge. For his early career, see *Encyclopædia Britannica*. A representative of the British treasury and exchequer at the Paris peace conference, Jan.-June 1919, he resigned his mission because he disagreed with several phases of Allied policy, asserting that the reparations clauses were too severe and that other measures of the Versailles treaty were also unwise. His principal argument, that the Versailles treaty would harm the Allies more than it would the defeated reich, was substantially borne out. Keynes derided the phrase "balancing the budget" as a shibboleth of little value and said in 1932 that there was no possibility of balancing a national budget "except by increasing the national income, which is the same thing as increasing employment." In the spring of 1940 he returned to the British government as a member of the chancellor of the exchequer's advisory council. He was elevated in 1942 to the peerage as 1st baron of Tilton. He participated in the first meeting, July 1, 1944, of the United Nations monetary and financial conference at Bretton Woods, N.H., where agreements were drafted for the establishment of an International Stabilization fund and an International Bank for Reconstruction and Development. He was later elected a vice-president of the world bank and fund. Keynes signed (Dec. 6, 1945) for his country the U.S.-British loan agreement under which Britain was to get a total of \$4,400,000,000 in credits from the U.S.—provided the measure was passed by congress. He returned to Britain for a rest in early April 1946, and died at his home in Firle, Sussex, on April 21.

Keyserling, Hermann, COUNT (1880-1946). German philosopher, was born on July 20 in Koenno, Livonia, of a noble family. See *Encyclopædia Britannica* for his early career. His principal work is *Das Reisetagebuch eines Philosophen* (1919), an English edition of which was published in 1925 under the title, *The Travel Diary of a Philosopher*. After the National-Socialists came to power, Count Keyserling was deprived of his German citizenship in 1934; this was later restored, allegedly because the nazis then were sensitive to adverse comment in other countries over their actions. During World War II the nazi party censured the count as "unworthy to represent the German spirit." Finally, in 1942,

he took refuge in Innsbruck, Austria, hoping to escape further attention from nazi officialdom. While living in the Tyrol he completed two more books, *The Book of Origin* and *Trip Through Time*. He died in Innsbruck on April 26.

Kidnapping. The end of World War II brought an upturn in the number of kidnappings, along with similar increases in other types of crime. Most widely publicized kidnapping of the year occurred in Jan. 1946, when Suzanne Degnan, six years old, was taken from her parents' home in Chicago. Discovery of her dismembered body started an intensive search for the slayer, but the more obvious clues produced no results. Five months later, when police activity on the case had subsided, William Heirens, a student at the University of Chicago, was arrested for burglary. His fingerprints were discovered to be similar to those found on a ransom note, and after many reports of confessions, Heirens was convicted not only of the Degnan crime, but of two other murders, and received three consecutive life sentences. His attempt at suicide was frustrated.

China was also featured as the locale of kidnappings. In April the Shanghai magnate Ying Teh-sheng was kidnapped, reportedly by three men. In August eight Chinese were executed for the crime. Political overtones featured a charge by communists that Chinese secret police had kidnapped Sun Chung-yuan in July, while the same month found United States military forces in Hsinanchwang seeking seven United States marines who reportedly had been kidnapped by unidentified Chinese. One month later 40 armed bandits attacked and looted a village near Wusih, and carried off 13 of its inhabitants.

Midsummer of 1946 also saw an outbreak of kidnapping in Italy, where several industrialists were seized by strikers as labour and social disorders became widespread. Also returning to criminal dockets were the ransom kidnappings long associated with the activities of the Mafia prior to its suppression in Sicily by Mussolini's police state.

Kidnappings on an unprecedented scale were charged to German nazis through mass seizures of children of various nationalities. In this connection the United Nations Relief and Rehabilitation administration conducted numerous investigations which were alleged to establish the existence of a systematic nazi kidnap policy affecting children in occupied countries.

Political influences were also at work in the Polish charge that the United States army had been instrumental in abducting 1,200 boys from a camp for "displaced persons" and in shipping them to Italy as part of Lieut. Gen. Wladyslaw Anders' political movement.

When Major J. S. Donald of the British army in India was kidnapped and held for ransom in September, the sum demanded was paid, but the kidnap victim was shot to death after his release. Thereupon British planes bombed villages along the Northwest Frontier in order to enforce recovery of the ransom. Tribesmen responsible for the kidnapping were reported to have agreed to return the ransom and to pay damages for the death of Major Donald.

During the 12-months' period ending June 30, 1945, there were 18 kidnappings in the United States. None of these were featured by demands for ransom and all were solved. From the time the FBI acquired jurisdiction on June 22, 1932, it had investigated 279 kidnapping cases. All but two of them had been solved. (See also FEDERAL BUREAU OF INVESTIGATION.)

(BR. S.)

King, William Lyon Mackenzie (1874-), Canadian politician, was born at Berlin (now Kitchener), Ont., Dec. 17. For a biographical account, see *Encyclopædia Britannica*. Following Canada's en-

try into World War II, the country stood behind Prime Minister King.

He co-operated with the United States in measures for common defense of the two countries, and he participated in several Churchill-Roosevelt conferences. In the general elections held June 11, 1945, King's liberal party emerged victorious although it failed by a slim margin to obtain a clear majority. King himself was defeated in his constituency in Prince Albert, Sask., but was re-elected in a parliamentary by-election in Ontario, Aug. 6. He participated with Truman and Attlee in the Washington conference on atomic energy, Nov. 15.

An espionage case was disclosed Feb. 15, 1946, by the prime minister, who asserted that 22 men were seized by Canadian police for questioning concerning their alleged disclosure of secret information to unauthorized persons including members of a foreign mission. On Feb. 20, the soviet government admitted that the soviet military attache obtained data in Canada, but said the "insignificant" information secured already had been published. In a report made March 18, King told the Canadian house of commons that the government had documents proving that Canada "was being used as a base to obtain information of matters of very great importance to the U.S. and Great Britain."

Kingman Island: see PACIFIC ISLANDS, U.S.

Kiwanis International: see SOCIETIES AND ASSOCIATIONS.

Kleffens, Eelco Nicolaas Van (1894-), Netherlands statesman, was born Nov. 17 in Heerenveen, the Netherlands. He was graduated with an LL.D. degree from Leyden university in 1918 and was a member of the League of Nations secretariat, 1919-21. He was appointed minister to Switzerland and Netherlands representative to the League of Nations (1939). Van Kleffens fled to England after the German invasion in May 1940, becoming foreign minister for the Netherlands government-in-exile.

He attended the United Nations conference in San Francisco in 1945, the U.N. sessions in London in early 1946 and the following sessions in New York.

During the London meetings of the U.N. Security council, Van Kleffens and Andrei Vishinsky clashed over the latter's demand (Feb. 10, 1946) for an investigation of the Indonesian dispute. Van Kleffens replied that he would agree to an investigation provided it were limited to the original charge of whether or not Britain was threatening world security.

In the debate over Spain in the Security council meetings in New York, he opposed Dr. Lange's proposal that all U.N. members sever diplomatic relations with Franco's regime. Van Kleffens said the question of whether Franco remained in office was a "purely domestic matter" that should be decided by the Spanish people. He was named the permanent Netherlands representative to the U.N. Security council (Feb. 26, 1946) and was appointed to the U.N. Atomic Energy commission, May 3, 1946.

Knights of Columbus: see SOCIETIES AND ASSOCIATIONS.

Koenigsberg: see EAST PRUSSIA.

Korea. A part of the Japanese empire from 1910 until the surrender of Japan in 1945. In accordance with the agreement reached at Potsdam in 1945 by representatives of the major victorious powers, Korea was divided at the 38th parallel; the northern half was occupied by soviet forces and the southern half by U.S. forces. Korea is a peninsula on the mainland of Asia directly west of Japan. On the N. it is bounded by Manchuria, on the W. by the Yellow sea, and on the E. by the Sea of Japan. Area: 85,225 sq.mi., including 1,018 adjacent islands;

pop. (Oct. 1, 1940) 24,326,327. Capital, Seoul, pop. 935,464. Chief cities: Pyeng-yang (285,965); Fusan (249,734); Seishin (197,918). Religion: Buddhism, Confucianism and Taoism. In 1938 there were 494,500 Korean Christians.

History.—A national assembly convened by Yo Unkyang, leader of a group of Korean intellectuals, established the Peoples' Republic on Sept. 6, 1945. This had the support of the Peoples' party (Socialist) and the South Korea Communist party. It was later reorganized by the Russians into the Korean Peoples' Interim committee. Lieut. General John R. Hodge, commander of the U.S. occupation forces, refused to recognize the Peoples' Republic and organized the Korean Advisory council consisting of 11 members, all of the Korean Democratic party. General Hodge had the support of the former Korean provisional government led by Kim Koo and Dr. Syngman Rhee. The political division of Korea was criticized in Korea and abroad.

The United States and the soviet union failed to reach an agreement in 1946 for the establishment of a provisional native government as outlined by the Moscow Conference in Dec. 1945. The multiplicity of parties, more than 60, and the conflicting interests of the parties on the right and left made agreement difficult. On May 6 Soviet-U.S. negotiations for a provisional government broke down. The Russians attributed the failure to attempts by Americans to force consultation with reactionary parties. The United States announced that it was prepared to resume discussions at any time.

On Oct. 16 Major General Archer L. Lerch, U.S. military governor, announced the creation of an interim legislative assembly to give Koreans control of their government. The assembly—45 members elected by the people and 45 appointed by the U.S. military governor—met on Nov. 3. The U.S. military government retained the power to dissolve the assembly, approve new members and require new elections.

Education.—Attendance in elementary schools in May 1946 was 1,613,826, in secondary schools 99,308, and in higher schools 10,315. Korea had almost 5,000,000 children of ages 6 to 12, of which number fewer than 2,000,000 were in school. In 1946 a group of Koreans visited the U.S. to study the educational system.

Finance.—Korea suffered from serious inflation. Average family expenditures in Seoul were reported to have increased by 14,190% from 1937. Controls over sales of commodities were extended and a program for collection of summer grains to prevent hoarding and speculation was instituted in August by the United States military government. The official fixed rate of exchange in the U.S. zone was 15 yen for one U.S. dollar. The national budget for the fiscal year 1946-47 estimated expenditures at 11,800,212,360 yen and income at 8,013,393,996 yen.

Trade and Communications.—Korea's imports in 1939 were 1,388,448,284 yen; exports were 1,006,793,785. In 1939 there were 17,011 mi. of roads. By 1946 these roads were in poor condition. There were 2,619 mi. of government and 1,107 mi. of privately-owned railways in 1940. In 1946 available equipment was estimated at 472 locomotives, 250 flat cars, 3,600 box cars, 3,600 gondola cars and 12 tank cars. Roughly the same amount was thought to be in the Russian zone.

Agriculture, Manufacturing, Mineral Production.—Agriculture is the chief industry in Korea although there was considerable industrial development during the later years of Japanese rule. Due to a flood it was estimated that the 1946 harvests would be less than 60% of the 1940-44 average of 1,669,590 tons. On May 1 the U.S. occupation authorities established a daily staple food ration of 150 grams. Industry was greatly hampered after the war by a serious lack of technicians, due to the Japanese policy of employing its own nationals in these po-

sitions. In 1946 the military government in the U.S. zone took over all former Japanese owned property estimated at 80% of the total.

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Krug, Julius Albert (1907—), U.S. engineer and government official, was born on Nov. 23 in Madison, Wis. He received an M.A. degree from the University of Wisconsin in 1930. He was associated with the Federal Communications commission as a public utilities expert (1936-37) and became chief power engineer of the Tennessee Valley authority (1938-40), chief power consultant of the Office of Production Management (1941) and program vice chairman of the War Production board and director of the Office of War Utilities (Feb. 1943). Krug joined the navy in early 1944 as a lieutenant commander and helped restore French power facilities after the Allied invasion. In Aug. 1944, President Franklin Delano Roosevelt called Krug back to the WPB, of which, on Sept. 30, 1944, he became chairman. Following World War II, he ordered the lifting of curbs on manufacture of civilian goods. Krug resigned from the WPB on Oct. 4, 1945, and on Feb. 26, 1946, President Harry S. Truman appointed him secretary of the interior as successor to Harold Ickes. Krug played an important role in the government's attempts to mediate the coal miners' strikes in 1946. In the second coal strike, he rejected John L. Lewis' demands for changes in the agreement under which the government was operating the mines; when Krug insisted that the mine operators should also be consulted, Lewis declared the agreement at an end. The coal strike started Nov. 23, 1946. Krug then put into effect the distribution of natural gas through the Big and Little Inch pipe lines to alleviate the coal shortage.

Kure (Ocean) Island: see PACIFIC ISLANDS, U.S.

Kuwait: see ARABIA.

Kyanite Minerals. Closely associated with kyanite are andalusite, dumortierite and sillimanite. Kyanite production in the United States was not reported in 1944 and 1945 but was 9,561 short tons in 1943. It is used in refractories and certain types of glass, supplies for the latter having been short. Imports, mostly from India, increased from 9,972 tons in 1943 to 14,554 tons in 1945, after dropping to 5,735 tons in 1944. Production of andalusite in Mono county, Calif., and of dumortierite in Pershing county, Nev., were not reported, but declined somewhat below the 1943 level. So far as was known no sillimanite production was made in 1945.

(G. A. Ro.)

Labor, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

Labor Relations Board, National: see NATIONAL LABOR RELATIONS BOARD.

Labour: see AGRICULTURE; AMERICAN FEDERATION OF LABOR; CHILD WELFARE; CIVILIAN PRODUCTION ADMINISTRATION; CONGRESS OF INDUSTRIAL ORGANIZATIONS; EMPLOYMENT; INTERNATIONAL LABOUR ORGANIZATION; LABOUR UNIONS; LAW; MOTION PICTURES; MUNICIPAL GOVERNMENT; NATIONAL LABOR RELATIONS BOARD; NATIONAL MEDIATION BOARD; NATIONAL WAGE STABILIZATION BOARD; NEGROES, AMERICAN; RADIO; RELIEF; SHIPBUILDING; STRIKES AND LOCK-OUTS; SUPREME COURT OF THE UNITED STATES; UNITED STATES; WAGES AND HOURS. See also under various states.

Labour Party, Great Britain. The by-elections during 1946 showed no sign of any substantial swing-away on the part of the electorate from the massive support given to the Labour party at the general election of 1945. One sequel to this victory was the foundation of a considerable number of new local party organizations, especially in small towns and rural areas, where there had been previously little or no organized propaganda except during elections. There was also a rise in individual membership of the local Labour parties. In parliament the Labour government carried through in 1946 a good instalment of the five-years' program on which it won the election. It nationalized the Bank of England, the coal industry and civil aviation; it passed into law the National Insurance act implementing the greater part of the Beveridge Social Security plan and got its National Health Service bill through the house of commons before the summer recess. It passed the New Towns act, providing for the building of a number of new towns under national auspices in pursuance of the policy of "dispersal" of population and industry. It brought family allowances and greatly improved old-age pensions into actual operation; and it carried through the new plan of compensation for industrial injuries. Its principal difficulties were in respect of food and housing and in international affairs. There was much criticism among Labour supporters of Ernest Bevin's foreign policy, especially in Greece and Spain and in relation to the soviet union; and the government's Palestinian policy also came in for much attack. As against this its Indian policy, which put an Indian national government into power, was widely approved; and a false move in Malaya was successfully retrieved.

In matters of organization the Labour party made a big effort in 1946 to improve the quality and amount of its educational work by starting numerous study groups and issuing special pamphlets designed for their use. It reached a new agreement with the Co-operative party, designed to remove friction over the choice of agreed parliamentary candidates; and it strengthened its central machinery for helping its local agencies in local government elections. It did well in the spring elections for county councils and for the smaller urban and rural authorities in the municipal elections of Nov. 1946. At the party conference held at Bournemouth in June 1946 the total membership for 1945 was given as 3,038,697, as compared with 2,672,845 in 1944. This included an increase of individual membership from 265,763 to 487,047, and of trade union affiliated membership from 2,375,381 to 2,510,369. Affiliated membership was likely to rise sharply as a result of the repeal of the Trade Unions act of 1927, as this repeal both allowed unions in the public services to rejoin the party and involved a return to "contracting-out" in respect of trade union political membership; *i.e.*, a member had now again to sign a form in order to avoid paying the "political levy" instead of signing a form indicating his willingness to pay it. The conference made no important new departures in policy, being anxious to allow the Labour government to proceed with its announced program. Mr. Bevin routed his critics for the moment in a highly effective speech, but did not prevent them from returning to the charge afterwards. The Communist party's application for affiliation was once more decisively rejected, and a renewal of it was excluded by a change in rules making other political parties definitely ineligible for affiliation. This did not affect the arrangement with the Co-operative party, which works in association with the Labour party, but is not affiliated with it. (See also CABINET MEMBERS; GREAT BRITAIN.) (G. D. H. C.)

Labour Unions. United States.—The outstanding feature of the labour history of 1946 was wide-

spread unrest and strikes. The first postwar year proved to be a period of unprecedented labour warfare. In spite of extensive union membership and universal machinery for bargaining collectively and settling issues peacefully, nearly all of the major industries of the country—oil, meat-packing, steel, automobile, railroad, coal-mining, telephone—were in whole or in part strike-bound at some time in the period from Sept. 1945 to Dec. 1946. In the calendar year 1946 more than 100,000,000 man-days were lost through strikes, not to speak of considerable indirect losses.

The issue which precipitated this strike wave was the postwar wage level. The Congress of Industrial Organizations unions, taking the lead in the wage controversy, demanded an increase of about 30% to compensate their members for the loss of war overtime. Unless wages were raised by such an amount, the C.I.O. argued, weekly earnings would drop, general purchasing power would decline and unemployment would increase. Some C.I.O. leaders argued also that substantial wage increases would require little or no rise in prices since higher wages would be paid for out of increasing efficiency and expanding profit margins. All of this was controverted by the employers who foresaw, as a consequence of a general wage rise, a proportionate rise in costs and prices.

The upshot of the controversy was the successive shutting down of key industries and the final settlement of the strikes for a wage advance of about 18 cents an hour. This amount became the pattern of settlement in the majority of industry. As soon as these advances began to be put into effect, they made their influence felt on prices. The Office of Price Administration came under increased pressure. The black market expanded and so many essential commodities were withdrawn from the regular markets that the OPA was discarded in the fall. Large-scale adjustment of prices to cost was made and by the end of 1946 the cost of living was 18% higher than at the beginning. The rapid and large rise in living costs raised the wage issue anew in the fall. John L. Lewis called his coal miners out a second time in the year in order to force another increase in wages. Unions generally made wage demands large enough to make up for the spurt in the cost of living. But determination of the character and outcome of this wage movement was deferred to 1947.

Whatever validity the wage and price decisions of 1946 had, the strikes which attended the year's developments turned public opinion against organized labour. Doubts were raised about the country's labour policy and in particular the terms and administration of the Wagner act. There was, in fact, a general feeling that perhaps the government had gone too far in encouraging unions and collective bargaining.

Because of these views the first effective legislative attack after the sit-down strikes of 1936-37 was made on the powers of unions. In congress representatives of both parties were critical of the behaviour of unions. A new labour bill, the Case bill, passed both the house and the senate with large majorities. The bill contained drastic restrictions on the rights and powers of organized labour. It was vetoed by the president and the veto was sustained. The temper of congress was revealed by the passage of the Hobbs bill, which brought unions under the Anti-racketeering act, and a bill aimed to regulate the activities of James C. Petrillo and the musicians' union. On several occasions it was made clear that the president shared some of the prevailing impatience with union conduct. In May the president appealed to the country and to the railroad employees to end a railroad strike and in November the administration obtained an injunction and fines to force the miners to call off their coal strike.

There is little question that labour trouble was an important factor in the Republican victories of November. The Republi-

cans captured both houses of congress and many local Democratic strongholds. Candidates backed by the political agencies of the C.I.O. and the American Federation of Labor were generally defeated and organized labour lost, for the time being, the hold it had long had on strategic points in the federal government. Hence, the way was paved for the revision of the national labour policy which had been in effect from 1933.

Competition between the A.F. of L. and the C.I.O. for membership, position and prestige continued in 1946. The A.F. of L. made the biggest capture through the reaffiliation of the United Mine Workers, an act by which the federation gained more than 500,000 members. On its part the C.I.O. persuaded the International Union of United Brewery, Flour, Cereal and Soft Drink Workers of America and the Amalgamated Lithographers of America, both old A.F. of L. unions, to join its ranks. Both the C.I.O. and the A.F. of L. made strong efforts to win the affiliation of the large independent unions of the Brotherhood of Railroad Trainmen and the National Federation of Telephone Workers, but with no success.

Although the position of the A.F. of L. abroad was reduced by the dissolution of the International Federation of Trade Unions and the rise of the World Federation of Trade Unions, which was sponsored by the C.I.O., much of the A.F. of L.'s prestige was restored by its designation as the official labour representative of the United States in the International Labour Organization (I.L.O.). This act was opposed by the C.I.O. and was followed by the C.I.O.'s withdrawal from the activities of the I.L.O. (*See also AMERICAN FEDERATION OF LABOR; BUSINESS REVIEW; CONGRESS OF INDUSTRIAL ORGANIZATIONS; LAW; NATIONAL LABOR RELATIONS BOARD; STRIKES AND LOCK-OUTS.*)

(L. Wo.)

Great Britain.—British trade unions during 1946 were largely occupied with problems of the transition from war to peace and with the new issues raised by the existence of a Labour government pledged to the public ownership and operation of a number of key industries. The Trades Union congress, to which the overwhelming majority of important trade unions belonged, was reinforced by the reaffiliation of the leading unions of civil servants, which had been compelled to leave the congress under the provisions of the Trade Unions and Trade Disputes act of 1927, later repealed, which was passed by the conservatives as an aftermath of the general strike of 1926. The repeal of this act put the law back to where it was before 1927—all restrictions on the sympathetic strike were removed, the legality of general strikes was again uncertain since the leading authorities differed, the rights of picketing were restored to what they were under the Trade Disputes act of 1906 and trade unionists' contributions to the political funds of their unions were once more on a basis of "contracting-out"—that is to say, when a union had taken a ballot and secured a majority in favour of a political fund, all members were liable to contribute unless they signed a form expressing unwillingness to pay, but no member could be penalized in his industrial position in the union because he contracted-out.

Up to 1896 trades councils, local federations of trade union branches, were eligible for affiliation to the Trades Union congress. They were excluded in that year on the ground of overlapping, and only in 1924 did the congress form a Trades Councils Advisory committee and begin to use recognized trades councils as its agents in local matters. It was proposed in 1946 to substitute "registration" for "recognition" and to insist on the adoption of model bylaws as a condition of registration. Further use was to be made of the registered trades councils and of regional federations linking them up over wider areas, and a renewed effort was to be made to get all trade union branches in their areas to join. In 1946 only about half the membership of

the Trades Union congress was included in recognized trades councils. A few councils were unrecognized because they were alleged to be under communist influence.

Some controversy arose in 1946 over the question of the closed shop, especially in the coal mines and in other services controlled by public corporations. The National Union of Mine-workers wished to make membership of one of its branches or of a union recognized as catering for a special class of workers, such as deputies or clerical workers, a condition of employment under the new National Coal board; and the Transport and General Workers' union pressed a similar claim in respect of the London Passenger Transport board. No general demand for the closed shop was put forward or was likely to be so, and the Trades Union congress at its meeting in Oct. 1946 made it plain that, while the trade unions would continue to press for 100% membership, there was no general intention of insisting on membership of a particular union, among those regarded as bona fide, as a condition of employment. It was, however, becoming more important as wages and conditions came to be settled more on comprehensive national lines, by negotiation or arbitration, to avoid the existence of rival unions claiming to represent, and to negotiate for, the same bodies of workers; and special difficulties arose when disputes inside a union led to breakaways and to the setting up of rival unions which claimed separate recognition and negotiating rights. The Trades Union congress had a disputes committee through which it tried to adjust quarrels between affiliated unions but this did not cover breakaways, as the new unions formed by the seceders did not belong to the congress. A number of noncongress trade unions, including some breakaway bodies, formed in 1946 a new Federation of Independent Trade Unions; but this new organization had little strength and showed no sign of being able to make any effective challenge to the established societies.

The trade unions pressed the government hard to remove the wartime controls over the free movement of workers from job to job and from industry to industry, and the controls remained only in a few key industries seriously short of labour, notably agriculture and coal mining. A good deal of the special machinery set up during World War II for dealing with labour questions was retained and adapted to the conditions of peace. A National Production Advisory council, aided by regional boards, was set up to replace the wartime machinery of collaboration between employers' organizations and trade unions and served as a general advisory agency to the government on labour matters. In the factories the wartime system of joint production committees was retained and extended to nonwar industries. National production advisory committees were also being set up for particular industries; and the trade unions played a large part in the working parties appointed by the board of trade to report on the changes in organization, technique and machinery of collaboration needed in many of the main industries in order to enable them to improve their efficiency and to work in with the plans for national industrial development.

Internationally, the Trades Union congress played an active part in the establishment of the new World Federation of Trade Unions and in the winding up of its predecessor, the International Federation of Trade Unions. The trade secretariats for particular industries, formerly associated with the I.F.T.U., were reconstituted as trade departments of the W.F.T.U.

Lord Citrine (formerly Sir Walter Citrine), who was secretary to the Trades Union congress for 21 years, resigned in 1946 in order to become a member of the National Coal board. His successor was H. Vincent Tewson, who had been assistant secretary for a number of years. The Trades Union congress held its 1946 meeting in October at Brighton; the affiliated membership, based on 1945 returns, was 6,671,120, as compared with

6,575,654 in the previous year. The number of affiliated unions was 192, as compared with 191. The smallness of the increase, despite the reaffiliation of several trade unions of civil servants, was the result of the large number of retirements from industry of women workers and elderly persons at the end of World War II. In 1939 the affiliated membership was about 5,000,000.

(G. D. H. C.)

Labrador: *see* NEWFOUNDLAND AND LABRADOR.

Lacrosse. The lacrosse team of the United States naval academy at Annapolis, Md., won the 1946 national collegiate championship.

At the meeting of the U.S. Intercollegiate Lacrosse association at the close of the 1946 season it was announced that 30 colleges would play the game in 1947. Dr. Carl P. Schott, re-elected president of the body, said that lacrosse would not be included in the 1948 Olympic schedule. It is necessary for ten different nations to participate in the sport before it can be added to the Olympic schedule. The only countries represented by lacrosse teams in 1946 were the United States, England, Canada and Australia.

On the distaff side a team of women from Philadelphia, Pa., captured the national title with a victory over Westchester, N.Y., 6-5.

•(T. J. D.)

La Guardia, Fiorello H. (1882-), U.S. politician and government official, was born Dec. 11 in New York city. He served in U.S. consulates in Hungary and Austria (1901-06) and was graduated from New York university law school in 1910. La Guardia was congressman from New York, 1917-21 and 1923-33. During World War I, he commanded the U.S. flying force on the Italian front. He was mayor of New York (1934-37) and was re-elected for two terms ending in 1945. He refused to run for another term.

President Franklin Delano Roosevelt appointed him chairman of the U.S. section of the Canada-U.S. permanent joint board on defense in Aug. 1940, and director of the Office of Civilian Defense in May 1941. On March 21, 1946, he was appointed director-general of the United Nations Relief and Rehabilitation administration. In the spring of 1946, he made several "wheat trips" to the midwest appealing to the farmers to grow more grain for U.N.R.R.A. distribution, and in the summer he visited several European countries in connection with his duties. La Guardia later recommended establishment of a new agency under supervision of the U.N. general assembly to carry on relief work after U.N.R.R.A.'s mandate expired. On Dec. 13, 1946, he relinquished his position as director-general to Gen. Lowell W. Rooks.

Lamb: *see* MEAT.

Lange, Oscar Richard (1904-), Polish statesman, was born July 27 in Tomaszow, Poland. He studied at the University of Cracow, receiving his doctor of laws degree in 1928, and in 1931 he joined the faculty of Cracow as a lecturer in economics and statistics.

He went to the United States in 1934 as a fellow of the Rockefeller foundation, studied at Harvard university and at the University of Minnesota and became a lecturer at the University of Michigan in 1936. Two years later (1938) he joined the University of Chicago as assistant professor of economics, becoming a full professor in 1943. In the latter year he was also naturalized as a U.S. citizen. In the summer of 1945 Dr. Lange relinquished his U.S. citizenship to become Poland's ambassador to the U.S.

Dr. Lange, who was also Poland's delegate to the United Nations, was the only delegate in the Security council who sided with the soviet union during the tense Iranian dispute. He also raised the controversial Franco issue before the council and on April 17, 1946, he formally asked that it recommend that U.N. member states sever diplomatic relations with the Franco regime on grounds that it threatened international peace and security. The Security council rejected (June 24) Dr. Lange's resolution by a 7-4 vote; Lange's subsequent resolution that the International Court of Justice be closed to all axis-installed governments was also rejected (Oct. 15) by a similar vote.

Laos: *see* FRENCH COLONIAL EMPIRE.

Lard. The United States production of lard in 1946 began to recover from the low level of 1945 and reached 2,100,000,000 lb. compared with 2,075,000,000 lb. in 1945 and the prewar average of 1,624,000,000 lb., 1935-39. Heavy exports of lard and smaller stocks held supplies for civilian consumption down near to the level of 1945. Total exports amounted to somewhat less than the 600,000,000 lb. exported in 1945, a large part of which was taken from accumulated government stocks. The production of lard dropped sharply in September with the restoration of the Office of Price Administration but recovered gradually as hogs were decontrolled in October. The price of lard was steady at 12.8 cents per pound through 1945 and up to July 1946. It then rose to 20.9 cents in July, 31.4 cents in August and declined to 17.3 cents in September. On Oct. 15 price ceilings were ended and prices again rose in response to the strong demand. Future trading in lard was resumed Nov. 4 at Chicago with July futures selling at 24 cents per pound, cash lard at 40 cents. (*See also* HOGS; MEAT; VEGETABLE OILS AND ANIMAL FATS.)

(J. C. Ms.)

Latin America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH COLONIAL EMPIRE; GUATEMALA; HONDURAS; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

Latter Day Saints: *see* MORMONS.

Latvia. One of the Baltic states of northeastern Europe, north of Lithuania, south of Estonia; an independent republic 1920-40, a republic of the U.S.S.R. 1940-41, part of the German "Ostland" 1941-44, reintegrated into the U.S.S.R. after the reconquest of 1944-45. Area 25,395 sq.mi.; population (census 1935) 1,950,502, (est. 1940) 1,990,000. Capital, Riga (393,211 in 1939); the other principal city is Liepaja (57,098 in 1935). Language, Latvian. Religion, Christian (Protestant 56%; Roman Catholic 24.5%; Greek Catholic 9%; Greek Orthodox 5.5%). Chairman of the Council of Ministers, 1946: Vilis Lacis.

History.—Like its neighbours Estonia and Lithuania, Latvia was forced to bow first to one, then to another, of the great warring powers. Mass deportations were carried through by both the conquerors, and the economy was forced through violent changes. After the soviet reconquest of 1944-45 the constitution of 1940-41 was reinstituted. Many thousands fled to Germany or were transported there as labourers; others risked their lives to evade both Russians and Germans and escaped to Sweden. The United Nations Relief and Rehabilitation administration estimated that in 1946 there were still 83,639 Latvians in the U.S., French and British zones of occupied Germany. Most of these remaining people did not want to return to soviet Latvia, and it was to care for just such situations that the International Refugee organization was set up.

In contrast to the bitter and tragic reports on conditions in Latvia which reached the west from refugees and from the diplomats of the independent regime of 1939 were the reports from Russian sources of reconstruction and progress. One western visitor to Latvia, writing in *Soviet Russia Today*, said that the plan established in 1945 was to allow agricultural production to decline about 10% from the 1940 level but to double industrial production. He was told by workers that with machines from Germany and raw materials from the U.S.S.R. they were receiving the necessary supplies and equipment "to develop our country." Agriculture was left on the basis of individual small peasant proprietorship, and 70,000 peasants were said to have received land after the establishment of the soviet republic. Farm animals were provided by the state on a ten-year loan system, and sales were increasingly in the hands of co-operative marketing organizations. Private trade was permitted in retail stores also, and there was no general attempt at collectivization. Factories, however, were nationalized (and the land for distribution to the peasants obviously came from dividing larger estates). The same report insisted that opposition to the communist government was small, and was fomented from the outside. Accounts in the *Moscow News* spoke of a 50,000,000 rouble project to restore the port of Riga, and of great electrical and metallurgical developments under way.

Great Britain and the United States continued through 1946 to refuse to recognize the soviet regimes in Latvia, Lithuania and Estonia.

Education.—In 1938-39 there were 1,987 elementary schools and 122 secondary schools. Enrolment at the University of Riga was 7,281. Total educational enrolment numbered 271,197—one-seventh of the population, with 13,106 teachers, and about 15% of the national budget went to education. There were 912 public libraries.

Finance.—The monetary unit was the lat (=19.3 U.S. cents at par, established as equivalent to the Swiss franc in 1921). In 1939 the budget estimate envisaged revenues of 190,878,000 lats and expenditures of 190,481,000 lats. The budget estimate for 1945 was 792,790,000 roubles.

Trade and Communication.—Imports in 1938 were 227,336,000 lats; exports 227,204,000 lats. Chief articles of import were industrial machinery, agricultural machinery, automobiles and accessories, coal, cotton textiles, cotton (raw) and wheat. Chief articles of export were timber, flax, plywood and butter. Exports went chiefly to Great Britain, Germany, the U.S.S.R. and the Netherlands. Imports were primarily from Germany, Great Britain, the U.S.S.R., Sweden and the United States. In 1940 the Latvian state railways operated more than 2,200 mi.; bus lines more than 2,800 mi. The principal harbours were Riga, Liepaja and Ventspils.

Agriculture.—The principal crops with their yields (in short tons) were as follows in 1939: rye, 493,830; barley, 245,041; oats, 534,395; wheat, 233,247; potatoes, 1,807,882; flax, 54,123. Livestock included 414,470 horses, 1,271,730 cattle, 1,469,570 sheep, 891,470 pigs, 4,729,120 poultry, 222,460 beehives. About 66% of the employed were in agriculture, cultivating some 237,000 farms, 80% of which were owner-operated.

Manufacturing.—After the decline in 1931 and 1932, Latvia's industrial production rose rapidly to a general index figure of 148 in 1937 (based on 100 in 1930). Strong efforts were made up to 1939 to increase the self-sufficiency of the country.

At the beginning of 1939 about 5,970 industrial establishments employed 98,500 persons, and in 1938 produced a value of 695,000,000 lats. About 15% of the employed were in industry and 5% in commerce. Chief industries were foodstuffs, wood and paper and textiles.

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Law. The change-over to peacetime production in the United States resulted in the rapid liquidation of war agencies which gave way to a smaller group of even more transitory reconversion agencies. The year 1946 definitely marked the end of an era of unprecedented extension of government controls over the nation's manpower and economic life. Some of the peacetime agencies, created before World War II to carry out New Deal projects, seemed likely to remain a permanent part of the federal system, but others seemed slated for discard under the gathering attack of opposition forces.

Congress attempted to deal with the nation's gravest postwar problem through the passage of the Atomic Energy act, which assigned the development and control of atomic energy to a five-man civilian commission to be appointed by the president subject to senate approval. The new law reserved to the federal government exclusive control over the production, ownership and use of fissionable material and prescribed the death penalty for disclosure of secrets in that field. The United Nations assembly also created a commission to study the international control of atomic energy.

Mopping-up operations continued against war criminals in the defeated nations and against war law violators in the United States. The long, dramatic trial of nazi leaders before a four-nation tribunal at Nuernberg established new legal procedures

and new applications of existing principles of law. Never before had the top officials of a defeated nation been tried and convicted by an international court for war crimes, crimes against humanity and crimes against the peace. Ten defendants were executed and seven sent to prison. Hermann Goering evaded the death penalty by suicide. The trial of Japanese Generals Tomoyuki Yamashita and Masaharu Homma followed a more traditional pattern but reached a similar result. They were sentenced to death by U.S. military commissions for violations of established laws of war. In the United States the prosecution of persons charged with violating price control, rationing, selective service and other emergency laws proceeded with waning enthusiasm and the prospect that the courts would soon be cleared of cases docketed.

To meet the recurrent demand for greater efficiency in government, congress planned its own revamping through the Legislative Reorganization act of 1946, which provided for the merger of 32 senate committees into 15 and 48 house committees into 19. The act provided for a new joint committee of both houses on national defense to replace their respective committees on military and naval affairs. It further directed the taxing and appropriation committees of both houses to meet jointly at the opening of each session of congress for the purpose of balancing expenditures against revenues. Salaries of senators and representatives were raised from \$10,000 to \$12,500 a year, and they were each allotted \$2,500 annually for expenses.

Congress also passed the Employment act of 1946 as a compromise measure in response to pressure for a "full employment act." The resulting law declared it to be the continuing policy of the federal government to co-ordinate and utilize all its functions and resources to promote maximum employment, production and purchasing power within the framework of a system of free competitive enterprise. The president was directed to submit to every session of congress an economic report, including an analysis of "current and foreseeable trends in the levels of employment, production and purchasing power," a review of the government's economic program, a statement of goals, and legislative proposals. The act also established a council of economic advisers to assist the president in preparing his report and a joint committee of congress to study the report and make recommendations for action.

Only the more important legal developments of general interest are reported in this article.

Administrative Law.—The fight for over-all regulation of federal administrative agencies, in abeyance during the war, was revived. It resulted in the enactment of the much-debated McCarran-Sumners bill, which in its final form became the Administrative Procedure act of 1946. This new law (1) provided that agencies shall issue as rules certain specified information concerning their organization and procedure, (2) laid down the essentials of several forms of administrative proceedings and the limitations on their powers, (3) provided in more detail the requirements for administrative hearings and decisions where such hearings are required by statute, (4) assured a remedy by judicial review for every legal wrong due to agency action except so far as statutes preclude such review or the action is within the scope of agency's legal discretion, and (5) set up a system of semi-independent trial examiners recruited under civil service to preside over hearings. The act did not attempt a codification of administrative law, however, nor introduce procedural innovations, but it extended to all agencies the requirement of internal separation of functions between (a) investigating and prosecuting officers and (b) hearing or deciding officers.

Decisions of the U.S. supreme court during the year applied

some of the long-established rules incorporated in the Administrative Procedure act. Thus the court denied relief in several cases because the petitioners had failed to exhaust their administrative remedies before appealing to the courts. The corollary to this rule (that if a party has exhausted his administrative remedies he is entitled to a judicial review) was applied by the high court in appeals from draft board classifications. Registrants who have completed procedural requirements by reporting for induction and being accepted for service may then properly apply to court for a reconsideration of their draft status (*Estep v. U.S.*; *Smith v. U.S.*, 327 U.S. . .).

The investigative powers of government agencies were several times upheld by the high court. In one case Office of Price Administration investigators had entered a gasoline station without a search warrant and removed ration books, permits and other government-issued papers which were used as evidence to convict the proprietor of black market operations. In another case Federal Bureau of Investigation agents, during an audit of a public contractor's books, took a cancelled check which helped convict him of making false claims against the government. No constitutional rights had been violated in either case, the court said, in view of trial court findings that the defendants had consented to the removal of the papers. In a third case the court sustained the right of the wage-hour administrator to force newspaper publishers to produce their books in response to a *subpoena duces tecum* for examination in proceedings under the Fair Labor Standards act.

The actions of various other federal agencies were also supported by the supreme court in decisions which approved: the uniform system of accounts required by the Federal Communications commission of a telephone company; findings of the Interstate Commerce commission that a refiner of crude oil products operating an interstate pipe line was a common carrier even though it transported only its own products; the wide discretionary authority exercised by the ICC in issuing certificates of convenience and necessity to motor carriers and a Great Lakes carrier; the power of the Federal Power commission as an agency of the federal government to issue a licence for a power project on navigable water without complying with state regulations; the refusal of the FCC to renew the radio licence of a broadcasting company which deliberately misrepresented its stock ownership to the commission; orders of the National Labor Relations board made in accordance with its own formal rules of procedure; death sentences imposed by the Securities and Exchange commission on holding companies where there was no showing that such a remedy was unwarranted in law or without justification in fact; and tax court rulings where the record disclosed no clear-cut mistake of fact.

The supreme court, however, rapped the knuckles of the postmaster general for assuming powers not delegated to him by congress when he withheld second-class mailing privileges from *Esquire* magazine on moral grounds. The court also declared that the Social Security board strayed out of bounds when it refused to classify "back pay" allowed an employee under the National Labor Relations act as "wages" under the Social Security act, since congress had laid down no such restriction in either statute.

Agriculture.—Congress endeavoured to stimulate agricultural research and experimentation through two enactments. The program set up in 1935 under the Bankhead-Jones act was augmented by amendments providing for additional research on all types of farm problems to be carried out through grants to state agricultural experiment stations and the co-operation of such stations and the department of agriculture in research projects of both national and regional significance. The Agricultural Marketing act of 1946, adopted at the same time, declared a sound,

efficient and privately operated system for the distribution and marketing of farm products to be essential to the national welfare and stated that it was the policy of congress to promote a scientific approach to the problems of marketing, transportation and distribution by providing for continuous research to be carried on by state and federal agencies in co-operation with private producers and industrial organizations. The secretary of agriculture was directed to set up an advisory committee to assist in this program, and substantial appropriations were granted for the support of research, state and federal. Both this law and the amendments to the Bankhead-Jones act authorized the agriculture department to enter contracts with private organizations for the use of their facilities and personnel on research projects.

Congress also passed the Farmers Home Administration act to simplify and improve credit services to farmers, to promote farm ownership, to authorize government insurance of loans to farmers and to create preferences for loans to enable veterans to acquire farms. This law abolished the Farm Security administration and certain functions of other agencies and directed the liquidation of resettlement projects. It amended the Bankhead-Jones Farm Tenant act to provide production and subsistence loans to farmers and stockmen and otherwise improve credit service to farmers.

Aliens and Citizenship.—In a 5 to 3 decision the supreme court ruled that an alien may be admitted to citizenship even though he declares, for religious reasons, that he would not bear arms in defense of the United States. The majority of the justices thus abandoned the contrary position taken by the court more than 15 years earlier in the *Schwimmer*, *Bland* and *Macintosh* cases (*Girouard v. U.S.*, 66 S. Ct. 826).

The denaturalization of a pro-nazi on the ground that he procured his citizenship certificate through fraud was affirmed by the supreme court. There was "clear, unequivocal and convincing proof" of his calculated, systematic activities on behalf of Adolf Hitler before and after his naturalization, thus fulfilling the requirements of the rule announced in the 1943 *Schneiderman* decision. The court, however, reiterated its previous position that naturalized citizenship is not a second-class citizenship but confers substantially the same rights, duties and privileges as belong to citizens born in the United States (*Knauer v. U.S.*, 66 S. Ct. 1304).

Congress authorized the admission to the United States of persons indigenous to India and the Philippine Islands and made them eligible for naturalization.

The Nationality act was also amended to provide citizenship for a child born abroad, one of whose parents is an alien and the other a citizen who has served honourably in the armed forces of the United States during World War II. Previously such a child became a citizen only if the citizen parent had a total of 10 years' residence in the United States, 5 of which occurred after his or her 16th birthday. Thus under the old law no serviceman father under 21 years of age could transmit citizenship to his child, if the mother was an alien.

Through another amendment congress arranged for the speedy naturalization of persons who had lost their citizenship by voting in a political election in a country not at war with the United States in World War II.

Bankruptcy.—A long-advocated reform was achieved by the Referees' Salary act which wiped out the old system of compensating referees in bankruptcy through fees paid out of estates in litigation and set up a system of full-time salaried referees.

The Municipal Bankruptcy act, which had been due to expire on June 30, was made a permanent part of the bankruptcy code. It was also amended to extend relief to municipalities and other

local authorities in connection with issues of revenue bonds, and procedural provisions were strengthened.

Business Regulation.—The government's long battle to break up monopolistic power in the tobacco industry resulted in a 6 to 0 supreme court decision against the "Big Three" tobacco companies and some of their officers. The court approved fines totalling more than \$250,000 against the defendants who were found guilty of the crime of monopolization under section 2 of the Sherman act. It was not necessary for the government to prove that the defendants actually asserted the power to exclude existing or potential competitors from the market. Proof that they combined to acquire and maintain the power to raise prices and exclude competition was sufficient to show a violation of the antitrust laws, even though such power was not exercised (*American Tobacco Co. v. U.S.*, and other cases, 66 S. Ct. 1125).

Another blow at monopolistic practices was struck when the supreme court affirmed a judgment for \$360,000 against a group of motion picture distributors and theatre owners for combining to deprive an independent Chicago, Ill., theatre of first-run motion pictures. Through the block booking system the respondents had favoured competing theatres which they controlled, causing losses to the petitioner's theatre for which he was entitled to treble damages under the Sherman act (*Bigelow v. RKO*, 327 U.S. 251).

In the first important application of the much-discussed "death sentence" clause of the Public Utilities Holding Company act of 1935, the supreme court ordered the North American company to divest itself of all but one of its utility systems. This company, the court said, was the "pinnacle of a great pyramid of corporations," which operated electric and gas utility properties having an aggregate capital value in excess of \$2,300,000,000. It dominated a system covering 17 states and the District of Columbia. The court brushed aside the company's contention that its business was solely the acquisition and holding of securities of subsidiaries for investment purposes and that it was therefore not engaged in interstate commerce (*No. Am. Co. v. SEC*, 327 U.S. 686). The high court also affirmed SEC orders for the dissolution of two subholding companies in the Electric Bond and Share company holding system based on findings that there was an unfair and inequitable distribution of voting power whereby the holding companies controlled the operating companies through disproportionately small investments (*Am. P. & L. Co. v. SEC*, 67 S. Ct. 133).

The SEC was again sustained by the supreme court when it approved a finding that an offering by one corporation of units in a citrus group development combined with a service contract by an associated company constituted an investment contract within the meaning of the SEC act. It was immaterial whether the investment was speculative or non-speculative, the court said.

Civil Rights.—In a series of important decisions the supreme court disapproved activities of local, state and federal officials which it held to be invasions of civil liberties. The manager of a company-owned town in Alabama and the manager of a federally-owned village in Texas had no right, the court said, to stop members of Jehovah's Witnesses from handing out tracts on the streets of their communities. Such interference with religious zealots, who campaigned for converts from door to door, abridged freedom of religion and of the press. State laws, making it a crime to refuse to leave premises when ordered out by the owners, did not justify the expulsion of missionaries (*Marsh v. Alabama*, 66 S. Ct. 276; *Tucker v. Texas*, 66 S. Ct. 274). The supreme judicial court of Massachusetts also supported the right to proselytize. It upheld an injunction obtained by Jehovah's Witnesses against city officials and a judge restraining them from continuing to arrest and convict members of that sect for distributing handbills in the street in violation of a municipal

ordinance, which the court ruled unconstitutional. Equity will protect individual rights for the same reason that it protects property rights, the court said (15 L.W. 2366).

The U.S. supreme court further supported freedom of conscience in a decision approving the right of a Seventh Day Adventist to become a citizen even though he would not promise to bear arms in defense of the United States. The court's previous position to the contrary was thus overruled (See *Aliens and Citizenship*, this article). The tolerance of the supreme court justices, however, did not extend to the approval of polygamy even though motivated by religious belief. Such belief was no defense in a prosecution for violation of the Mann act. (See *Criminal Law*, this article.)

The supreme court also struck at discrimination against Negroes by knocking out the Jim Crow segregation of bus passengers in interstate traffic. A Negro woman had been ejected from a bus travelling between Virginia and Maryland because she refused to move into a seat reserved for Negro passengers. Her subsequent fine for violating a state law requiring separation of white and Negro passengers on buses was reversed by the high court on the ground that it placed an undue burden on interstate commerce. The need for national uniformity in such traffic outweighs the right of the states to exercise their police power, the court said (*Morgan v. Virginia*, 66 S. Ct. 1050). So too the California supreme court rebuffed racial discrimination in ruling that a union having a closed shop agreement with an employer had no right to exclude Negroes from its membership. On the other hand, the supreme court of Arkansas approved the state's white primary law prohibiting Negroes from voting for state officials in Democratic primaries. The act, passed in 1945, was designed to avoid conflict with the federal constitution by setting up a separate primary for federal officials in which Negroes are permitted to vote.

A law prohibiting discrimination in employment because of race, creed, colour or national origin was passed in Massachusetts, thus bringing to five the number of states which had Fair Employment Practices acts.

Attempts to curb the freedom of the press were rebuked by the supreme court in two important decisions. The conviction of the publisher and editor of the Miami *Herald* for criticizing state courts for laxity in prosecuting gambling houses was reversed. Editorials and a cartoon charging that the courts showed special leniency toward such establishments did not constitute a clear and present danger to the administration of justice, as required under the ruling in the Bridges case. The right to a free press includes the right to criticize even though such criticism may be scurrilous or erroneous (*Pennekamp v. Florida*, 66 S. Ct. 1029). In its second blow on behalf of the press, the court rebuked the postmaster general for attempting to wield a power of moral censorship over periodicals through the denial of second-class mailing privileges to *Esquire* magazine. It rejected the postmaster's views that he could use such privileges as a special award to give competitive advantages to "good" magazines over those he considered "bad." The postal department has no power to prescribe standards for literature or art. To uphold the postmaster in this respect would grant him a power of censorship (*Hannegan v. Esquire, Inc.*, 327 U.S. 146).

Constitutional Law.—In a novel application of the due process clause the supreme court affirmed a court of claims award of \$2,000 against the United States in favour of a farmer for depriving him of the use of his land in raising chickens. The low flight of army bombers from an adjoining airfield frightened the chickens into committing suicide by throwing themselves against a fence. The consequent loss of enjoyment of the land was a "taking" of property requiring compensation under the federal constitution (*U.S. v. Causby*, 66 S. Ct. 1062).

In another decision of unusual interest the supreme court ruled unanimously that an act of congress ordering the removal of three federal employees from the government payroll for conduct alleged to be inimical to the United States was a bill of attainder prohibited under the constitution. Such a law attempted to inflict punishment not prescribed by any previous law and without the safeguard of a judicial trial (*U.S. v. Lovett*, 66 S. Ct. 1073).

Other important decisions involving points of constitutional law are reported throughout this article.

Criminal Law.—New rules, establishing uniform procedure for criminal cases in all federal courts, went into effect March 21, 1946. They included such simplifications as a short form of indictment to replace the involved forms which had been in use for a century, a single motion to dismiss instead of various technical motions, removal of the surprise element in alibi defenses and reduction of the costs of appeals for defendants.

Thirty-nine states signed the Interstate Parole and Probation compact. Through a system of state administrators it became possible for a parolee to "begin life over" in a new state under improved conditions, subject to safeguards against the abuse of the system to evade the authority of the state where the parolee was originally convicted.

Congress added teeth to the Anti-Racketeering act of 1934 through amendments providing fines up to \$10,000 and imprisonment up to 20 years for any one committing robbery or extortion which in any way obstructs, delays or affects interstate commerce. The law relating to larceny in interstate commerce was extended to apply to air transportation. Certain coercive practices affecting radio broadcasting were outlawed by the Lea or so-called "anti-Petrillo" act, amending the Communications act of 1934. The use of threats to compel radio stations to hire persons for broadcasting in excess of those needed and certain similar practices were made criminal offenses. A district court judge in Chicago held this statute unconstitutional. Under the antilobbying section of the Legislative Reorganization act of 1946 congress required the registration of persons who engage for profit in influencing the passage or defeat of federal legislation and the disclosure by registrants of their expenditures in connection with lobbying. Severe penalties were provided for violating these requirements.

The transportation of plural wives across state lines by members of the Fundamentalist cult of the Mormon faith was held by the supreme court to violate the Mann act. The conduct of the defendants was not justified on the ground that it was motivated by their religious beliefs (*Cleveland v. U.S.*, 67 S. Ct. 13). On the other hand, the government failed in its prosecution of members of the same cult under the federal Kidnapping act. Plural or "celestial" marriages did not violate that statute even though they involved the transportation of women, some of them minors, for immoral purposes, since there had been no involuntary seizure or detention (*Chatwin v. U.S.*, 66 S. Ct. 233).

The conviction of Edna W. Ballard and her son, leaders of the "I Am" religious cult, for use of the mail to defraud, was reversed in a 5 to 4 ruling of the supreme court on the ground that the proceedings were invalid because women were excluded from the grand and petit jury panels (*Ballard v. U.S.*, 67 S. Ct. 261).

The supreme court ruled that the federal Anti-kick Back act does not apply to labour union officials charged with forcing workers on federal projects to surrender part of their wages under threats that they will otherwise be dismissed (*U.S. v. Carbone*, 66 S. Ct. 734).

Family Relations.—The long-established common law right to recover for alienation of affections was bolstered by two court decisions. An Illinois statute purporting to prohibit "heart

balm" suits was held unconstitutional by the state supreme court for technical reasons and also because it violated the guarantee of the Illinois constitution that every person shall have a remedy for his injuries and wrongs (*Hecht v. Schupp*, 68 N.E. 2d 464). A decision of the U.S. circuit court in Chicago broke new legal ground in approving the right of children living in Pennsylvania to maintain a suit for damages against a woman in Illinois for alienating their father's affections. The children alleged that the defendant had lured their father away from them and their mother and induced him to stop contributing to their support. The court ruled that this complaint clearly stated a wrong for which the law should provide a remedy even though there was no specific authority for such an action in the court decisions or statutes of Pennsylvania or Illinois (*Daily v. Parker*, 152 F. 2d 174). These two decisions released a flood of alienation suits in Illinois. By the year's end more than 100 complaints asking an aggregate of more than \$10,000,000 for the stolen affections of a parent or spouse were pending in Chicago courts.

Labour.—The most publicized and provocative supreme court ruling of the year was its portal-to-portal decision in the Mount Clemens Pottery company case. Applying the general principles of its prior rulings on miners' underground travel time, the court held that time spent by employees in walking to work and preparing for their work on the employer's premises is working time within the overtime pay provisions of the wage-hour act, since it is required by the necessities of the employer's business and is under the employer's complete control. The court, however, remanded the case to the trial court for the determination of the amount of portal-to-portal work actually performed and the resulting damages under the Fair Labor Standards act, stating that if it were found that travel and make-ready time were negligible, no award should be made (*Anderson v. Mt. Clemens Pottery Co.*, 66 S. Ct. 1187). This decision set off a nationwide wave of law suits for the collection of portal-to-portal overtime wages. By the end of the year the total amount of such claims filed in court ran into many billions of dollars.

In a series of rulings the supreme court held that the wage-hour act was applicable to the employees of a newspaper publisher even though only about 45 of the newspaper's 9,000 to 11,000 copies daily went to out-of-state subscribers; to workers employed by an electrical company which dealt in motors and generators with customers who produced goods for interstate commerce; to employees of a window-cleaning company engaged wholly within the state of Michigan in washing windows of buildings used for the production of goods for interstate commerce; to mechanics employed by a service company in repairing and maintaining vehicles operated by a company transporting automobiles and army materials in interstate commerce; and to maintenance and service employees of a building tenanted by occupants who receive, work on and return, in intrastate commerce, goods belonging to nonoccupants who afterward ship substantial parts of such products to other states.

The 1942 ruling of the National Labor Relations board that foremen may choose the same union to represent them as production and maintenance workers was upheld in circuit court decisions. In one case the court stated that foremen are part of management in the obligation to get out the work and negotiate grievances, but they should be classified as employees for the purposes of negotiating over their own wages and conditions of labour through bargaining units free from employer control. Plant guards, who were also members of a municipal police force, were held not properly represented by a union of production employees.

Voters in Arkansas, Florida, Nebraska, South Dakota and Arizona approved state constitutional amendments outlawing

the closed shop, and in Massachusetts an act requiring labour unions to file with the state declarations giving details as to their organization and finances was approved by referendum.

The year ended with public attention focused on a labour-management drama in which John L. Lewis, president of the United Mine Workers, held the centre of the stage. A U.S. district judge had issued an injunction restraining Lewis and his union from breaking a contract with the government in connection with the operation of soft coal mines and from striking against the government. The miners stopped work, ignoring the order on the ground that it was unconstitutional and violated the Norris-La Guardia act. The court then entered a fine of \$3,500,000 against the union and \$10,000 against its president for contempt of court. The supreme court agreed to review the lower court's contempt conviction without requiring that the case should first go to the circuit court of appeals.

Military Justice.—The supreme court dealt with two situations testing the extent of military jurisdiction. It refused writs of habeas corpus to the Japanese generals, Yamashita and Homma, who had been sentenced to death by military commissions for permitting their troops to commit atrocities in the Philippines. The court pointed out that the trial of enemy aliens by military tribunals for violations of the law of war had been sanctioned by congress. The rulings of the commissions on evidence and the conduct of the trial were not reviewable by the judicial branch of the government which could only pass upon the validity of the organization of such commissions (*In re Yamashita*, 66 S. Ct. 340).

The second test of military jurisdiction arose in Hawaii where military courts had imposed jail sentences upon a Honolulu businessman for embezzlement and a naval workman for assaulting marine corps sentries. Both defendants were released by the supreme court on writs of habeas corpus. The Organic act, which created the territory of Hawaii, permitted the declaration of martial law, the court said, but civilians could not thereby be deprived of their right to a jury trial before a civilian court. The armed forces do not acquire an absolute right to supplant all civilian laws and procedures with military regulations and tribunals under a declaration of martial law where conditions are such as to indicate no necessity for such drastic action (*White v. Steer*; *Duncan v. Kohanamoku*, 327 U.S. 304).

A thorough revision of the army's courts-martial system was recommended by an advisory committee on military justice appointed by the American Bar association at the request of Secretary of War Robert P. Patterson. The committee, headed by Arthur T. Vanderbilt, found serious defects in the operation of the system, namely: (1) a lack of sufficient attention to and emphasis upon the military justice system and of preliminary planning for it; (2) a deficiency of qualified, trained men to act as members of courts-martial; (3) domination of courts-martial by commanding officers; (4) ineffectiveness of defense counsel because of (a) lack of experience and knowledge and (b) lack of a vigorous defense attitude; (5) excessively severe sentences, sometimes fantastically so; (6) discrimination between officers and enlisted men, both as to bringing charges and as to convictions and sentences; and (7) inefficient and inadequate investigations before trial. The committee recommended that: (1) qualified enlisted men be permitted to sit on courts trying enlisted men; (2) the law members of each court and defense counsel be appointed by the judge advocate general's department from its personnel instead of by the commander who orders the trial, as at present, but such commander should continue to name the trial judge advocate; (3) it be made unlawful for commanders or others to try to influence the action of appointing or reviewing authority in connection with courts-martial or to reprimand a court on its members; (4) the judge advo-

cate general's department be enlarged sufficiently to provide trained lawyers for courts-martial duty; and (5) a board of officers be named to make a continuous study of desirable changes in the Articles of War and courts-martial procedure.

Patents, Trade-marks and Copyrights.—The Atomic Energy act of 1946 prohibited the granting of patents for inventions and discoveries useful solely in the production of fissionable material; revoked any rights already conferred for such inventions; required that such inventions and discoveries be reported to the commission created by the act; and authorized the commission to take over and pay just compensation for such inventions and discoveries. Other 1946 enactments amended provisions with reference to damages for patent infringement and temporarily extended time for filing applications for the restoration of patent rights which had lapsed during World War II.

The United States signed an accord making available to the nationals of the 12 participating governments full rights to use (without royalty payments) all former German-owned patents issued by such governments, subject to existing rights lawfully acquired by non-Germans.

The entire law of trade-marks was revised and codified by the Lanham Trade-mark act which was passed July 5, 1946, to become effective July 5, 1947. This new statute superseded all prior federal trade-mark laws; gave trade-marks an independent status as property assignable without the accompanying transfer of the business with which they were originally connected; extended protection to the identification of services as well as goods; increased the benefits derived from registration; made it possible, except in a few instances, for a trade-mark to become incontestable after five years' continuous use from the date of registration; and created a new right to register sound trade-marks such as musical signatures identifying the sponsors of radio programs. Another enactment authorized the president to extend time for the renewal of trade-mark registrations by foreign owners where war conditions had prevented them from so doing, provided that such owners are nationals of countries according equal treatment to U.S. citizens in the same respect.

A copyright convention was signed by representatives of the American republics extending reciprocal protection to authors of literary, scientific and artistic works in their respective countries, but at the year's end this treaty had not yet been ratified by the U.S. senate.

Reconversion.—On Jan. 4 the president appointed a director of liquidation in the Office for Emergency Management to expedite the closing out of war agencies; and after much shifting, merging and reshifting of emergency offices, administrations and corporations, the president finally on Dec. 12 abolished a group of agencies, including the Office of War Mobilization, the Office of Price Administration, the Civilian Production administration, the Office of Economic Stabilization and the National Wage Stabilization board. Their few remaining functions were for the most part transferred to a newly-created Office of Temporary Controls, headed by the Federal Works administrator.

Priority and allocation powers were in general continued until March 31, 1947, and the allocation of building materials until June 30, 1947, through the extension of the Second War Powers act. Food controls were ended except the rationing of sugar and rice and certain controls exercised by the secretary of agriculture over food production and distribution to permit the allocation of food to famine areas and the equalization of domestic shortages. Construction priorities were assigned to the housing expediter under the Veterans' Emergency Housing act.

The Emergency Price Control act expired on June 30, 1946. The first bill drafted by congress to extend controls was vetoed by the president. After a brief hiatus, during which OPA con-

tinued to exercise some controls under the Second War Powers act, the president on July 29, 1946, signed a redrafted measure extending rent control and limited price control until June 30, 1947, with provisions for the rapid decontrol of prices. By the end of the year all price ceilings were removed except on sugar. On Nov. 9, 1946, all wage and salary controls were also lifted.

The Surplus Property act was amended (1) by designating the department of state as the disposal agency for surplus property outside the continental United States, its territories and possessions and (2) by clarifying the rights of former owners of real property taken by the government for war uses to reacquire such property.

On the last day of the year the president proclaimed that World War II hostilities were ended. This had the effect of terminating 20 emergency laws at once and of setting the expiration date for 15 at the end of 6 months thereafter, for 10 at the end of 1 year and for 8 at the end of periods of more than 1 year. Among the laws immediately stricken from the books were provisions of the Smith-Connally act permitting the government seizure of strike-bound plants and mines. The government's control of facilities already seized might continue, however, for six months from the date of seizure. Numerous other emergency statutes, effective "for the duration of the war" or until "the end of the emergency" remained in force.

Social Security and Health.—Legislation in this field included: (1) amendments to the Railroad Retirement act which increased the tax rate, made changes as to benefits and eliminated certain inequities; (2) amendments to the Social Security act, granting benefits to the dependents of certain deceased World War II veterans, extending unemployment relief coverage to maritime workers, providing additional federal funds for assistance to the aged, to the blind and to dependent children, and freezing the old-age and survivors insurance contribution rate at 1% through the year 1948; (3) the National School Lunch act, which provided for federal grants-in-aid to assist the states in establishing and operating a nonprofit school lunch program; and the National Mental Health act of 1946, which established the National Institute of Mental Health for research and development of more effective methods of preventing mental disease and authorized grants to the states to aid them in similar work. Agitation for extending social security to include health insurance provisions found expression in the Murray-Wagner-Dingell bill, which failed of passage.

Taxation.—The use of "family partnerships" as a means for lessening the impact of income tax rates was limited by the supreme court to situations where both partners actually contribute to the production of the income (*C.I.R. v. Tower*, 327 U.S. 280; *Lusthaus v. C.I.R.*, 327 U.S. 293). In these cases, and in several others involving highly technical distinctions, the supreme court followed its 1943 ruling in the *Dobson* case that it will not review tax court findings of fact; but it reversed a tax court decision that embezzled money must be reported as taxable income, saying that this was a clear-cut mistake of law. The money so taken still belonged to someone else, and was not a gain or profit within the meaning of the revenue laws (*C.I.R. v. Wilcox*, 66 S. Ct. 546).

Conflicts between the taxing powers of the national and state governments were resolved by the supreme court with a view to upholding the authority of both as far as possible. The court sustained the right of Montana to collect licence taxes from liquor stores in Glacier National park; declined to interfere with an Arkansas tax on the severance of timber from federal forest preserves within that state; construed provisions of the Reconstruction Finance corporation act so as to permit a Pennsylvania county to levy real estate taxes on removable machinery in buildings owned by the federal defense plant corporation;

and upheld the right of Minnesota to collect taxes on real estate which was under contract of sale by the federal government to a private buyer who had entered into possession but had not acquired full legal title. But the court ruled that the state of New York was not immune to a federal excise tax on the sale of mineral water from springs owned by the state.

In a unanimous decision the supreme court approved a tax imposed by South Carolina on the gross receipts of foreign insurance companies derived from business in the state. The 1944 decision in the South-Eastern Underwriters' case, that interstate insurance business is subject to federal control under the commerce clause, did not rule out state taxation of this sort. Moreover, the McCarran act of 1945 specifically authorized state regulation and taxation of the insurance business. The supreme court thus in effect validated similar taxes in some 15 states (*Prudential Ins. Co. v. Benjamin*, 66 S. Ct. 1142).

The attempt of Indiana, however, to levy a gross receipts tax on the price received for securities sent out of the state to be sold to residents of other states was an unlawful burden on interstate commerce, according to the supreme court (*Freeman v. Hewit*, 91 L. Ed. 205). So too California exceeded its legal authority in trying to collect a sales tax on oil delivered to foreign tankers for shipment to foreign countries. Such a levy violates the constitutional ban against imposts on exports (*Richfield Oil Co. v. State Board*, 91 L. Ed. 123).

Torts.—By the passage of the Tort Claims act, as title iv of the Legislative Reorganization act of 1946, congress at last waived the government's immunity from liability for the wrongful acts and omissions of its agents and employees. Compensation for such claims could formerly be obtained only through special appropriations by private acts of congress. The new law authorizes the heads of government agencies to settle tort claims in amounts up to \$1,000 and permits suit to be brought against the government in the federal district courts on larger claims.

Veterans.—In a 6 to 1 decision the supreme court rejected the "super-seniority doctrine," promulgated by the director of selective service, that a veteran has an absolute right to re-employment at his old job or one of like seniority, status and pay, even though this may force the displacement of an employee with greater seniority who had not seen war service. All that the statute guarantees is that the veteran "steps back on the seniority escalator at the precise point he would have occupied had he kept his position continuously during the war," said the court (*Fishgold v. Sullivan D. and R. Co.*, 66 S. Ct. 1105).

Congress passed several enactments designed to extend aid to veterans of the armed services and merchant marine in re-establishing themselves in civilian life and to provide medical care and equipment for those who were disabled. Educational grants and allowances were increased; insurance privileges were liberalized; and an effort was made to relieve the housing problem through the Veterans' Emergency Housing act. This law created the Office of Housing Expediter with authority to allocate housing materials under priorities for veterans, establish price ceilings on new houses, make incentive payments to stimulate production of materials, authorize Federal Housing administration insurance on loans for veterans' housing and guarantee markets on new types of building materials and fabricated houses. (M. DN.)

Great Britain, Commonwealth and Europe.—All British and European countries were involved in two types of legislative developments during 1946 arising naturally out of the cessation of hostilities. The first of these was of a transitional nature and included provisions for the punishment of collaborators, the regulation of currency and trade pending a full return to normal conditions and a sorting out of emergency legislation (some of which was revoked while the rest became permanent). In countries overrun by axis forces during World War II new electoral laws and new constitutions were also established. The second type was truly international and progressive and included the establishment of the Court of International Justice at The Hague (which continued under the United Nations the functions of the Permanent Court of International Justice under the League of Nations, with merely incidental changes), and the establishment of an international court (which first sat at Nuernberg) to try war crimes. (See INTERNATIONAL LAW; WAR CRIMES.)

Great Britain.—The lord chancellor, Lord William Jowitt, faced with an alarming increase in the number of divorces awaiting hearing and of applicants for divorce who could not afford the cost (about £60) of a divorce obtained in the usual way through a solicitor, brought into the public service as divorce judges the county court judges throughout England and a large number of king's counsel and other distinguished barristers in London, and so increased the courts trying divorce cases from 8 to more than 60; he also added to the staff of solicitors paid out of public funds who dealt with poor persons' cases, and instead of 8 in London there were by the end of the year 34 spread out all over England. He appointed a committee on procedure in matrimonial causes

of which Mr. Justice Alfred Denning, a king's bench division judge who had been a divorce judge, was chairman. The Denning committee made sweeping recommendations which in Dec. were still under consideration by the government; but the most important one was adopted and the period of waiting between trial and pronouncement of final decree was shortened from six months to six weeks in October. This alone allowed the completion of hundreds of divorce cases then outstanding.

The lord chief justice, Lord Rayner Goddard, carried through a similar speeding up of trials on the common law and criminal side. He had commissioners with judges' powers appointed all over the country and reduced the delay in bringing cases before the courts to such time only as was necessary for the parties or the director of public prosecutions to have their cases adequately prepared for hearing. He also gave several interesting decisions; in motoring cases he ruled that licences must always be suspended in cases of dangerous driving unless the cause of the dangerous driving was directly connected with some such emergency as a doctor hurrying to a patient in an urgent case; reasons such as that the driver earned his living by driving, which had before been taken as permitting a relaxation of the rule that licences should be generally suspended for such an offense, were no longer sufficient. In criminal appeals, as president of the court of criminal appeal, he often increased sentences on appeal and made it unwise to lodge an appeal in a criminal case without sound reasons and proof that a miscarriage of justice had occurred. The much-publicized Harold Laski libel case was the first after World War II in which a special jury was empanelled and resulted in an important vindication of the right of a newspaper to report political heckling at election meetings, and in the government's decision to review the whole question of the proper qualifications for special and common jury service. Common juries, which during the war had been rare, came back into more general use.

A Bank of England act passed in Feb. 1946 made the bank a department of the treasury and so brought it under national control; but this change was mainly formal, as the bank, although technically independent, had been indirectly controlled by the government for many years. Coal was taken over by the state under a National Coal act passed in July and a board established to work coal, develop mining and control prices. Dock labourers, who formerly had not known whether they would be working on any particular day or not, were brought under dock workers' employment schemes by a new law at national expense. An Education act of May 1946 enlarged considerably the state-controlled schools and provided for temporary state assistance to voluntary schools. State-controlled schools were also authorized to provide clothing for their pupils in cases of real need.

Various attempts were made to alleviate the housing shortage; a procedure was enacted for acquiring land for houses, with a speedier variation in urgent cases, and the power to extinguish rights of way; increases and extensions were made in the state grants available; and tribunals were set up to keep the rents of furnished houses down. Shortage of furnished accommodation had resulted in excessive rents, particularly in the more thickly populated areas, and to these tribunals rents for furnished accommodation were referred. The tribunals could alter the rents and register them locally, after which it was an offense to receive a rent above that registered.

An insurance code was passed which required eventually compulsory insurance for all. Insurance companies carrying on most forms of business were compelled by law to have a larger margin of solvency or excess of assets over all possible liabilities after they had been in operation for two years, but were freed from depositing a large sum as before. Procedure for accounting was also laid down. Land was authorized to be taken over by the state instead of death duties and a national land fund started to acquire land for the state.

Legislation, which during the war years had been effected by acts, orders, rules and regulations over a wide variety of subjects, was revised; some of it was revoked, some extended on a temporary basis and some enacted as part of the permanent law. In addition all orders, rules and regulations which had the effect of law had to be printed, numbered, published and made available to the public in the same way as acts of parliament, and the procedure for their sanction or annulment by parliament was laid down. Litigation was made quicker by the use of special commissioners with the powers of high court judges on a lavish scale to supplement the judges.

A post office law provided for expenditure of £50,000,000 on postal and telephonic development. Agricultural legislation provided for the establishment of a national centre for research and the supply of material for artificial insemination of livestock, and for the extension of state grants for plowing grasslands and to hill farmers. A code of water supply law for Scotland was enacted and the secretary of state for Scotland was given the duty of promoting the conservation and ensuring the supply of water and of undertaking research, with the assistance of a large number of local bodies.

Trade unions were freed from the provisions of the Trades Disputes act, 1927; the result of this was that members of trades unions instead of contributing to the unions' political fund only if they agreed to do so, had to contribute unless they notified their union that they did not wish to do so.

Treason against the British state was held on an appeal to the supreme criminal tribunal, the house of lords, to have been committed by a U.S. citizen who had broadcast for the Germans in World War II and had been issued with a British passport; he was hanged. This decision, although in form a declaration of existing law, went beyond previously decided cases and had the appearance of being an extension.

The United Nations were recognized as an authority entitled to call on the government to take any steps short of actual warfare, by an act which provided that orders could be made to enforce any such requirements of the Security Council. Diplomatic privileges were extended to United Nations' personnel.

The Commonwealth.—In Canada three provinces enacted that appeals, instead of going eventually to the judicial committee of the privy council in London, were not to go beyond the supreme court of Canada, which had before been the penultimate tribunal. Under the Canadian constitution such statutes were liable to be declared unconstitutional (and so

invalid) by the judicial committee or in some cases to be overruled by acts of the dominion parliament. The validity of these laws was not established by Dec. 1946.

In Ceylon the establishment of town councils was enacted to undertake local government.

Cyprus, used as a control centre for the temporary accommodation of illegal immigrants to Palestine, was involved in litigation in the British high court in Palestine when habeas corpus applications to prevent removals to Cyprus from Palestinian ports were dismissed. An ordinance provided a procedure for the governor to proclaim persons charged with murder or manslaughter to be outlaws, after judicial investigation and report; this ordinance was limited to one year and loss of all rights followed outlawry.

India had legislative changes; an act was passed to allow all members of the vice-regal council to be independent Indians in place of the previous law under which three members were servants of the British crown in India; another act allowed the central government to exercise powers which before had been reserved to provincial legislatures provided that the viceroy had previously consented to the introduction of all legislation under these powers. Inside India the Nizam of the progressive state of Hyderabad granted a constitutional government by providing that more than 60% of the members of the legislature should be elected; an interesting feature was the arrangement by which any candidate receiving 51% of the votes of his own religious community was elected first; candidates receiving less than 51% of the votes of their own communities only were affected by the total number of votes received.

The Union of South Africa unsuccessfully endeavoured to obtain international legislation by the United Nations to incorporate South-West Africa into the union. Domestic legislation restricted the rights of Indians settled in the union.

Europe.—Czechoslovakia added to its existing laws against "unreliable persons," the effect of which was that Germans, Magyars or persons who had shown sympathy with these nationals were forbidden to take part in the majority of industries (nationalized the previous year) or to occupy positions of importance. A later decree provided for the levying of two taxes: an increment duty on the increase in value of nearly everything between Jan. 1, 1939, and Nov. 15, 1945; and a tax on capital values at Nov. 15, 1945. These taxes provided for a value below which tax was not payable and a sliding scale rising in the case of the increment duty to 100% on values of more than \$9,300 (465,000 Czech crowns); and in the case of the capital tax to 30% on values of more than \$400,000 (20,000,000 Czech crowns).

France spent all its legislative energy on electoral and constitutional development; it succeeded by the end of the year in deciding on a constitution.

Germany under divided rule began to elect its own legislative representatives in certain districts from its own population, but wholly subject to the occupation authorities.

Greece after a referendum again became a monarchy. Laws included one providing harsh penalties on any person unlawfully possessing or dealing with any article belonging to the Allied forces. This was aimed at suppression of rebellions.

The Netherlands imposed strict currency laws on Dutch subjects inside Holland, the effect of which was to restrict the spending of individuals to their earnings, except in special circumstances: the laws were successful in restricting unnecessary expenditure without imposing hardships on individuals.

Norway's laws were chiefly directed to dealing severely with collaborators and to increasing the pensions granted to persons who fought for the nation: merchant seamen, hitherto practically excluded from these benefits, were granted rights comparable to naval personnel. In addition to funds provided under the law, voluntary contributions subscribed on a nation-wide scale were administered with the national funds. The working and living conditions of serving merchant seamen were also improved and much higher standards applied by law. Coastwise shipping, taken out of the hands of individuals and nationalized by law, was brought into line with other nationalized transport services.

Poland's legislation consisted mainly of nationalization and provided for state control of all industrial undertakings "capable of employing more than 50 persons on one shift" except builders and contractors, and concerns already owned by co-operatives or municipalities. Compensation was payable unless the concerns were previously German-owned. Legal procedure was evolved by which concerns were scheduled and decisions were taken as to whether they were to be permitted to remain in private hands or not by the end of the year. In appropriate cases the national or provincial commission might authorize undertakings to remain in private hands if it were in the interest of the state, or allow new private enterprises to begin. The laws provided for the procedure of taking over and for state guardianship committees to administer undertakings liable to be taken over pending decisions. Persecuted persons counted as Polish nationals, and those who tried to escape to German-occupied Poland as Germans.

A further law provided for sequestration of all German- or Gdansk-owned property (which became state property) including property previously German or Gdansk which had been bought by Poles. Property abandoned during the war reverted to its prewar owner if claimed within periods ranging from 5 to 20 years. Temporary state trusteeship was enforced on property believed to come within this law.

Another law provided that material salvaged from damaged buildings became the property of the state and that the buildings repaired became state property for a period not exceeding ten years during which the person entitled to eventual ownership paid rent to cover the cost of repairs: at the end of ten years (or earlier if he had repaid the state expenditure in full) the tenant became the full owner.

Turkey passed laws regulating importation, which had the effect of an import licensing system; their object was to make the best use in the national interest of available foreign currency.

U.S.S.R. legal and legislative changes were manifested in the neighbouring countries (for example by the nationalization laws in Poland) rather than by internal legal developments; the laws of inheritance were, however, revised.

Yugoslavia enacted laws compelling registration with the government of stocks and shares; the issue of bearer shares, the holding of shares by nominees and transfer of shares without government permission became illegal. War profits were forfeited to the state by another law, with severe penalties for nondisclosure. Legislation also effected the nationalization of important industries (including coal, gasoline, mining, electricity, chemicals, textiles, sugar, oil, timber, glass, paper and agricultural seeds); and introduced state control for three years of all property abandoned during the war (which had reverted to its prewar owners by a law of 1945) with a new provision that such property should not be returned at all if it were "in the state interest" to retain it under public control. The effect of this legislation was to penalize or possibly even expropriate foreign investors. (See also AGRICULTURE; BANKING; BUSINESS REVIEW; CONSUMER CREDIT; PATENTS; PUBLIC UTILITIES; RELIEF; TAXATION.) (A. L. C.)

Lawn Tennis: see TENNIS.

Lawrence, Sir Geoffrey (1880—), British jurist, was born Dec. 2, the son of the 1st Baron Trevethin (Sir Alfred Tristram), lord chief justice of England. He studied at Haileybury and at New college. Oxford, and was admitted to the bar at the Inner Temple in 1906, where he worked under Sir John Simon. During World War I, he served as second lieutenant with the field artillery in France, Palestine and Gallipoli, was wounded and received the distinguished service order. In the postwar years his legal practice was made up chiefly of cases from the dominions and colonies presented before the privy council's judicial committee. He became judge of the high court of justice of the king's bench division (1932), master of the bench of the inner temple, lord justice of appeal (1944) and privy councillor (1944). On Sept. 28, 1945, he was named senior British member of the international military tribunal at Nuernberg to try nazi criminals and was later named chairman and presiding judge of the tribunal. Justice Lawrence intervened in the trial after Hermann Goering concluded his testimony (March 22, 1946) with a statement that he would not tolerate any more speech-making in defense of naziism. He was among the four justices who handed down the verdicts in the trials, Oct. 1, 1946. On Dec. 31, Justice Lawrence was elevated to the peerage.

Lead. The wartime gaps in the world production table had been nearly all filled in by the end of 1946, but world totals were still lacking for 1944 and 1945.

Table I.—World Smelter Production of Lead, 1939–45

	(Thousands of short tons)					
	1939	1940	1941	1942	1943	1944
Australia . . .	297.1	211.8	239.1	231.8	202.3	173.1
Belgium . . .	108.3	34.9	9.8	17.9	8.8	8.5
Burma . . .	86.7	89.0	82.1	—	—	—
Canada . . .	190.6	220.1	228.0	243.3	223.9	142.6
Germany . . .	204.7	193.2	190.5	164.1	186.5	165.5
Mexico . . .	235.5	211.6	166.6	212.7	234.2	196.5
U.S.S.R. . . .	82.5	82.7	9	110	139	9
United States . .	445.6	516.6	544.7	548.8	469.5	464.6
Total (est.) . .	1,945	1,890	1,860	1,810	1,690	?

It is to be noted that in the countries reported production decreased 13% in 1944, but increased 3% in 1945. Appreciable improvement was made in 1945 in Mexico and Canada, and to a minor degree in Australia, but part of these increases was offset by the decrease in the United States.

Table II.—Data of Lead Industry in the U.S., 1939–45

	(Thousands of short tons)					
	1939	1940	1941	1942	1943	1944
Mine output . .	414.0	457.4	461.4	496.2	453.3	416.9
Refinery output .	484.0	533.2	571.0	566.8	469.6	464.8
Domestic ores .	421.0	433.1	470.5	467.4	406.5	394.4
Foreign ores . .	63.0	100.1	100.5	99.5	63.1	70.3
Imports . . .	86.9	282.5	381.2	492.5	319.1	319.7
Exports . . .	74.4	49.1	14.4	5.8	13.3	15.5
Secondary . . .	241.5	260.3	397.4	323.0	342.1	331.4
Consumption . .	667	782	1,050	1,043	1,113	1,119
Stocks, year-end						
Producers . .	148.1	143.4	100.1	117.2	129.5	125.1
Consumers . .	?	78.5	101.0	81.7	115.2	84.9
Government . .	—	—	—	248.4	173.9	90.5

While the refinery output dropped 4% in 1945, mine output declined 6%, beginning in May and continuing into 1946. Mine

output for the first ten months of 1946 was 244,800 tons, or a rate of 329,760 tons for the year, a drop of 15% from the 1945 average rate.

Canada.—Mine production for the first three quarters of 1946 was 139,236 short tons, an advance of 13% over the same period of 1945, following a 14% increase in 1945 and 1944.

Mexico.—Production in Mexico declined sharply in 1946; refinery output in the first three quarters was 124,595 short tons, against 224,925 tons in 1945.

Australia.—Refinery production was 113,477 short tons in the first three quarters of 1946, as compared with 174,552 tons in 1945. (See also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

League of Arab States: see ARAB LEAGUE.

League of Nations. The 21st and last assembly of the League of Nations met at Geneva, Switzerland, from April 8 to 18, 1946. C. Hambro of Norway, president of the 20th assembly, Dec. 1939, was chosen president by the 31 states represented. The assembly met to receive the report of acting Secretary General Sean Lester on the work of the League during and in spite of the war; to provide for the transfer to the United Nations organization (U.N.O.) of all the League's assets, together with such functions of the League as U.N.O. had already agreed to assume, and to dissolve the League of Nations.

The early part of the assembly, the debate on the report, was largely valedictory: praise for the League's high achievement, realization of its weaknesses and hopes for the future of international co-operation. The general conviction was that, now that U.N.O. was endowed with "teeth," it was better suited to the central task of preventing war.

Special interest was shown in the future of mandates and of the technical and administrative work of the League, which, under the charter name of "specialized agencies," were in various stages of being transferred to the control of the economic and social council of U.N.O. The traffic in drugs, never more likely to be a menace than after a world war, was in the hands of a permanent U.N. commission. The League's health organization was expanded and centralized under a new body, the World Health organization (W.H.O.), which at New York, with an all-time record of attendance of 71 states, adopted the first World Health charter. Intellectual co-operation had grown

DELEGATES AND OFFICIALS of the League of Nations bidding each other good-by after the league had voted itself out of existence at Geneva, Switzerland, on April 18, 1946



up into the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.) in Paris, with its wide-flung aims for changing the human mind and enlarging its defenses against war.

The International Labour organization, stalwart survivor of the years between the wars, continued, with at least two successful conferences to its credit. Special agreements already existed between U.N.O. and I.L.O., U.N.E.S.C.O. and the new International Refugee organization (I.R.O.) which took over the whole refugee problem, under ultimate control of U.N.O. Others were to follow.

The League's work for nutrition, which made the world "nutrition-conscious," was magnified in the Food and Agriculture organization (F.A.O.), with its master plan for a World Food board. The League court at The Hague survived under the new name of The International Court of Justice, with judges and rules ready for the first cases.

By a "common plan," which U.N.O. accepted early in the year, all League assets, secretariat and assembly buildings at Geneva, real estate, furniture and so on, were handed over to U.N.O., under an expert board of liquidators. Finally, a formal resolution was adopted, that "from the day following the close of the present assembly the League of Nations shall cease to exist." So ended the first great experiment in international endeavour for peace and human progress. (See also DRUGS AND DRUG TRAFFIC; MANDATES; UNITED NATIONS [U.N.])

(M. FE.)

League of Women Voters of the United States: see SOCIETIES AND ASSOCIATIONS.

Leahy, William Daniel (1875–), U.S. naval officer, was born at Hampton, Ia., on May 6. He was graduated from the U.S. naval academy, Annapolis, Md., in 1897. He was commissioned vice-admiral in 1935 and admiral in 1936. In Nov. 1940, President Franklin D. Roosevelt named him ambassador to the French government at Vichy. In April 1942, Roosevelt summoned Leahy to Washington where, on July 21 he became chief of staff to the commander in chief. In this capacity he accompanied the president to the international conferences held during 1943 at Quebec, Cairo and Tehran. In Dec. 1944 Admiral Leahy was promoted to the five-star rank of admiral of the fleet. He accompanied President Harry S. Truman to Berlin for the Potsdam parley (July-Aug. 1945).

Leahy was appointed by Pres. Truman, March 28, 1946, to a special 10-man national defense board composed of top leaders of the armed services. He went to London in the spring of 1946 for discussion of "mutual" problems with British chiefs of staff and declared (May 17) that Britain and the U.S. would agree on common use of their Pacific bases. It was generally believed that the president leaned heavily on Leahy in the shaping of foreign policy in 1946 and that the admiral was a leading advocate of a "firm policy" toward the U.S.S.R.

"Lend-Lease" Act (H.R. 1776): see LEND-LEASE.

Leather. The leather production outlook early in 1946 was generally favourable, and many in the leather industry predicted a general trend toward an improved production situation as the year progressed. Production was well maintained during the first half of the year, but it nose-dived in the third quarter because of the meat production lag. It regained some lost ground towards the end of the year, but the outlook for 1947 was not wholly satisfactory to tanners, and not entirely clear.

Table I.—Average U.S. Monthly Leather Production, 1942-46

Average monthly production of the principal types of leather in 1946 is shown in the following table, with comparison of average monthly output for the preceding four years.

	Average Monthly Production				
	1946	1945	1944	1943	1942
All cattlehides (including kips for side leather)	2,569	2,297	2,179	2,136	2,569
Sole (sides)	1,739	1,421	1,403	1,382	1,739
Belt and mechanical (butts)	100	110	120	108	100
Side upper and patent (sides)	2,600	2,428	2,167	2,179	2,600
Bag, case and strap (sides)	156	95	105	133	156
All other (hides)	221	215	221	183	221
Calf and whole kip	1,022	970	911	926	1,022
Goat and kid	3,427	2,002	2,888	3,113	3,427
Cabretta	280	368	298	285	280
Sheep and lamb (excl. shearlings)	3,669	3,828	4,050	4,057	3,669
All sheep and lamb	4,028	4,370	4,608	4,991	4,469

Raw stock supplies for the year as a whole were far below normal, and were gleaned from so many sources that at the end of the year no reliable statistics showing the actual decline in supply could be compiled. With the shrinkage of U.S. raw stock supplies, there was also a continuance of a corresponding shrinkage in raw stock imports, a shrinkage that by the end of the year had become alarming.

On the vital question of imported hide and skin supplies, Julius G. Schnitzer, chief of the textile and leather division of the department of commerce, reported in Nov. 1946 that: "Current reports indicate a world-wide increase in the demand for meat, so that world hide and skin supplies may be higher than in prewar years." He observed that prospects for hide importations in 1947 were relatively favourable, with probable imports of 1,500,000 hides. The outlook for larger importations of calfskins was not so bright, the report continued, particularly in the case of goat and kid skins.

During 1946, the U.S. department of commerce had been compiling such information as was available on world developments by countries. While the total area of world raw stock and leather production had not yet been satisfactorily covered, it was apparent that tanning activity abroad expanded generally during World War II. There was much pressure in many countries that were formerly important sources of raw stock for the U.S. leather industry to reduce exports of raw stocks from those countries, convert the stocks into finished leather and leather goods domestically and distribute them domestically or cultivate export markets. The trend in this direction was plainly visible at the end of 1946. The cumulative reports were far from complete, but were highly significant.

Supplies of important tanning materials were somewhat erratic through 1946, and there were some serious shortages, notably in chestnut extract, chromium, caustic soda and corn sugar. At the end of the year some of the shortages were easing slightly, but it was felt that the chestnut extract problem could be solved only by the successful development of blight-resistant domestic chestnut to provide new sources of supply.

Many of the wartime controls over the leather industry remained in effect until late in the year, with numerous changes and amendments, most of which were of an administrative nature or were adjustments to changing conditions. By the end of 1946, practically all of those controls had been removed, and for the first time in years, the leather industry was "on its own."

The industry's principal peacetime problem was becoming apparent—competition from substitute materials of many kinds. Many of those materials were widely used during shoe rationing and had become well established in volume shoe markets. With shoe manufacturers experiencing difficulty in obtaining leather to make record pairage production, the threat of substitutes increased substantially, despite a clear consumer preference for leather.

The following table shows the trend toward increased use of substitute materials for shoe soles, a trend that was definitely accelerated during 1946.

Table II.—Estimated Percentage of Leather and Non-leather Sales in Shoe Production

	1940		1941		1942		1943		1944		1945	
	Leather	Other	Leather	Other	Leather	Other	Leather	Other	Leather	Other	Leather	Other
Men's dress	83.8	16.2	86.1	13.9	91.6	8.4	81.7	18.3	77.2	22.8	74.2	25.8
Men's work	43.3	56.7	49.2	50.8	57.3	42.7	33.7	66.3	36.8	63.2	43.0	57.0
Women's	82.3	17.7	85.8	14.2	88.4	11.6	74.1	25.9	78.9	21.1	4.4	95.6
Youths' and boys'	42.9	57.1	43.7	56.3	52.1	47.9	37.1	62.9	29.7	70.3	36.5	63.5
Misses' and children's	76.2	23.8	77.3	22.7	81.4	18.6	69.3	30.7	69.0	31.0	54.5	45.5
All civilian types	73.3	26.7	75.5	24.5	83.3	16.7	69.6	30.4	54.8	45.2	56.9	43.1

There was considerable progress in research and technological study by the leather industry in 1946. The subject of tanning machinery and equipment was given more attention than in prior years, although it still lagged in actual progress far behind scientific developments in leather making.

An industry report, commenting on this lag, stated that to a large extent the answer might be found in the average asset life of tannery equipment and the relatively limited market for innovations. In addition, traditional practice and the capital cost of new equipment had been deterrents to change. Finally, the report states, in an industry where raw material constitutes so large a proportion of total costs, the importance of technological change tends to be subordinated to the apparently more important element of market fluctuation.

Increased attention was given in 1946 by the Civilian Production administration and other federal agencies to the Florida scrub oak project. This project was initiated by the University of Florida experimental station, with a view to producing both tanning extract and pulp in substantial quantities. According to estimates based on scrub oak resources in Florida, it was calculated that 6,000,000 tan units per month could be made available over a period of 20 years.

According to a soviet news bulletin, a rapid vegetable tanning process had been developed by Russian scientists. It was reported that this achievement had resulted in methods which cut tanning time to one-sixth of the time previously required.

The Tanners Research laboratory reported on a study of quebracho tanning material on calfskin squares. The earlier work by Robert M. Lollar on the take-up of quebracho tannin by hide powder was extended to include the fixation of the tannin by hide substance in the form of calfskin squares. Raising the pH of tannage from 4.0 through 4.8 to 6.0 lowers the fixation progressively. At all three pH levels, the tannin fixed as determined by A.L.C.A. analyses of the leather is related to the equilibrium solution analyses for free tannin in such proportions that rectification by the method developed by Langmuir can be successfully applied to the data, thus suggesting sorptive phenomena. This work has only limited immediate application, but it is part of the fundamental problem of the mechanism of tanning. (See also SHOE INDUSTRY.) (R. B. B.)

Lebanon: see SYRIA AND LEBANON.

Leeward Islands. A British crown colony and archipelago forming the northern part of the Lesser Antilles in the Caribbean; some of the Leeward Islands are United States, Dutch and French possessions. British islands in the Leeward group are organized politically in four presidencies. They are: Antigua (including Barbuda, 62 sq.mi., and Redonda), area, 170.5 sq.mi., pop. (1946 census), 41,826; Montserrat, area, 32.5 sq.mi., pop. (1946 census), 14,275; St. Kitts-Nevis (including St. Christopher, 68 sq.mi., Nevis 50 sq.mi., and Anguilla, 34 sq.mi.), area, 152 sq.mi., pop. (1946 census), 46,206; and the (British) Virgin Islands, area, 67 sq.mi., pop. (1946 census), 6,505. Total area, 422 sq.mi.; total pop., 108,812. Racial composition is more than 75% Negro. The four units are governmentally federated. The capital of the colony and of Antigua is St. John's (pop. est., 10,000); the capitals of Montserrat, St. Kitts-Nevis and the Virgin Islands are, respec-

tively, Plymouth (pop. est., 1,893), Basseterre (pop., 1943 census, 19,895), and Road Town (pop. est., 900). Governor in 1946: L. B. Freeston.

History.—The Leeward Islands were concerned primarily

during 1946 with the possibility of political federation with other British colonies. Police and judicial services were already operated jointly by the Leeward and Windward colonies. A preliminary agreement for union of the two groups was reached early in 1946, with the possible capital to be on Grenada in the Windwards; proposals were also made for functional federation of services with Barbados, British Guiana and Trinidad. Representatives from the Leewards attended the civil aviation conference held on Trinidad beginning June 1. Legislative elections held on Antigua and St. Kitts-Nevis at the end of July resulted in general victories for the Labour party candidates.

Education.—Under the terms of the second British colonial development and welfare act, passed in 1945, a free grant of £200,000 was made early in 1946 for construction of school buildings in the Leeward Islands. The colony was also concerned with plans for a new teacher training college in Trinidad, to serve that island and the Leewards and Windwards.

Finance.—The monetary unit is the West Indian or Trinidad dollar, equivalent to 4s. 2d. and exchanging for approximately 84 cents U.S. The Leeward colony sent delegates to the West Indian currency conference held in Barbados beginning May 13. Sentiment in the colony concurred in the conference recommendation of a decimal currency based on the West Indian dollar. Allocations of £278,860 were made by the British government early in 1946 to the Leeward Islands under the colonial development and welfare act of 1945; other grants totalled £190,136.

Communication.—British West Indian Airways provided weekly plane service to St. Kitts and Antigua. Local plane service was begun during 1946 to connect Nevis with the Windward Islands and Trinidad. Antigua was the location of one of four United States-leased air bases opened to civilian aviation in 1946.

Agriculture.—The 1946 sugar crop on St. Kitts and Antigua, respectively, was 33,513 and 26,022 long tons. Cotton production in 1946 on St. Kitts and Nevis, respectively, was 120,000 and 250,000 lbs.

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Le Fanu, Henry Frewen: see PERTH, ARCHBISHOP OF.

Legislation: see BUSINESS REVIEW; LAW.

Legend Stanford Junior University: see STANFORD UNIVERSITY.

Lemons: see FRUIT.

Lend-Lease. The Lend-Lease act, which expired for most purposes on June 30, 1946, after having been extended three times, was enacted by congress as a U.S. defense measure on March 11, 1941, at a time when the nazis had subjugated most of Europe and threatened the remaining democracies of the world. Lend-lease became the great allied supply system by which more than \$50,000,000,000 worth of U.S. goods and services were furnished to countries fighting the axis. The termination of the lend-lease program began promptly with the formal ending of World War II.

Under the termination program, "straight" lend-lease, which in general was the granting of aid in goods and services without specific agreement for payment, was discontinued as of V-J day, with the exception of aid to China and certain other minor

cases. Aid to China was continued by the direction of the President to enable the national government of the republic of China to disarm and take into custody for repatriation the millions of Japanese in China and thereby re-establish Chinese sovereignty over the vast areas of its territory that had been under Japanese domination. The continuance of lend-lease aid to China, which by agreement was being provided on a reimbursable basis after June 30, 1946, also enabled the Chinese to participate in the occupation of Japan.

With the capitulation of Japan two other important steps were taken in lend-lease affairs, in addition to the termination program. Arrangements were made with foreign countries for the disposal to them of lend-lease goods which were in inventory or in the process of procurement as of V-J day and, secondly, the negotiation of final settlement agreements covering lend-lease aid from the beginning of the program was begun with foreign governments.

Lend-lease goods in inventory or procurement as of V-J day were termed pipe-line goods. Since most of the pipe-line items were manufactured to foreign specifications and consequently had little postwar civilian value in the U.S. market, the U.S. government notified foreign countries that these materials would be available for delivery to them upon reasonable credit payment terms. As a result, pipe-line sale agreements were negotiated with 13 countries, with total sales amounting to about \$1,200,000,000. By the end of 1946 substantially all the supplies in the pipe-line had been shipped. Under the Lend-Lease act the powers of the president to carry out contracts or agreements made with foreign governments prior to July 1, 1946, were continued until July 1, 1949.

In negotiating the final lend-lease settlement agreements certain broad principles were generally applied. These principles provide that the United States and the foreign countries each pay for and receive full title to lend-lease and reverse lend-

lease articles of postwar civilian utility which were in their respective possessions as of V-J day, while military items remain in the possession of the recipient governments, without payment, but subject to a right of recapture. In most instances lend-lease goods supplied by the United States to its allies and consumed in the prosecution of the war were furnished without payment by the foreign governments. Some of the settlement agreements also covered the sale to foreign countries of surplus U.S. army and navy articles and all the agreements that were negotiated to the end of 1946 contained provisions for the settlement of outstanding claims between the United States and the foreign governments which arose as a result of the war.

By Dec. 31, 1946, final lend-lease settlement agreements had been concluded with the United Kingdom, France, Belgium, Turkey, Australia, New Zealand and India. The final agreement with the United Kingdom, which received by far the greatest amount of lend-lease aid, was signed on Dec. 6, 1945, and provided for the payment to the United States of \$650,000,000 for the settlement of lend-lease and reverse lend-lease and for the acquisition of U.S. surplus property and interest in installations in the British Isles. Under the lend-lease agreement signed on May 28, 1946, France was to pay the United States \$420,000,000. The Belgian and U.S. lend-lease and reverse lend-lease accounts were in approximate balance and in the agreement concluded at Washington on Sept. 24, 1946, no payment was required by either government. The settlement with Turkey, signed on May 7, 1946, specified a cash payment by Turkey of \$4,500,000. The Australian agreement, which included the purchase of U.S. surplus property, was concluded on June 7, 1946, and resulted in an obligation to the United States of \$27,000,000, of which \$20,000,000 was paid in cash. A lend-lease agree-

PHOTOGRAPH RELEASED by the U.S. navy in 1946 shows U.S. sailors launching a navy Catalina plane at Women's bay, Kodiak, Alaska, after its delivery to the Russians for ferrying. It was disclosed that 188 of these planes, as well as Norden bombsights and the latest types of radio and radar gear, were sent to Russia under lend-lease during 1944 and 1945



ment with New Zealand was reached on July 10, 1946, and since the obligations for lend-lease and reverse lend-lease offset each other no payment was necessary. In the agreement with India, signed on May 16, 1946, the accounts were also in approximate balance and no payment was required by either country. Since India was largely a military supply base during the war, much of the lend-lease material which the United States shipped to that country was actually for the use of United Kingdom forces or for transfer to China. These final settlement agreements covered 70% of the total lend-lease aid that the United States supplied to its allies after March 11, 1941.

Agreements remaining to be negotiated at the close of 1946 included those with the soviet union, China, Greece, the Netherlands, Norway and the Union of South Africa.

Lend-lease aid from the beginning of the program on March 11, 1941, through Sept. 30, 1946, totalled \$50,692,000,000. Of this total, munitions such as guns, planes, tanks and explosives represented more than 50%. The British empire received 65% of all lend-lease aid; the British empire, the soviet union, France and China accounted for 98% of all aid. In the period from V-J day to Sept. 30, 1946, goods in the pipe-line sold on payment terms, aid to China and other miscellaneous lend-lease charges amounted to \$2,113,000,000. Reverse lend-lease aid to the United States, cumulative from the beginning of the program to V-J day, totalled \$7,820,000,000.

The realization to the United States from payments in the settlement agreements, cash payments for lend-lease goods and services, reverse lend-lease aid and the sale of pipe-line supplies exceeded \$10,000,000,000 by the end of Sept. 1946. The great contribution of lend-lease, however, was its vital and significant role in victory and in the U.S. and allied lives which were saved by speeding the day of the triumph of democracy over fascism. Although the cost of the program to the U.S. people was heavy, lend-lease can never be measured in dollar terms.

After Oct. 20, 1945, the lend-lease program was administered by the department of state. Chester T. Lane as lend-lease administrator was in charge of lend-lease operations. (See also AGRICULTURE.) (C. T. L.)

"Lend-Lease" Act: see LEND-LEASE.

Leprosy. Experimental work on new drugs for leprosy would be greatly facilitated if it were possible to determine their effect on cultures of the acid-fast leprosy bacillus (*Mycobacterium leprae*). Though 74 yr. elapsed from the time Armauer Gerhard Henrik Hansen discovered this organism in material from leprosy patients its growth outside of the body was not satisfactorily demonstrated. Many studying this problem obtained cultures of acid-fast bacilli from leprosy nodules but bacteriologists accepted none as being the leprosy bacillus. From India came an interesting report on another attempt to grow the elusive *Mycobacterium leprae* in tubes containing a culture of *Leishmania donovani*, a flagellate protozoan causing kala-azar. The experiment was suggested to the author after he had observed certain serological features common to the two diseases. Tubes containing an active culture of the protozoan were inoculated with tissue from a leprosy nodule. After a period of two weeks there appeared to be a definite increase in the number of leprosy bacilli. When subcultured on a medium which did not sustain growth of the protozoan small yellow colonies of acid-fast bacilli resulted. In this manner growth was obtained of material from four nodules and no failures reported. Much more work must be done by the author and his methods tried by others before evaluation could be made.

Eye specialists use the slit lamp for direct, minute, in vivo examination of blood vessels and other structures of the eye.

Using this instrument one observer studied the eyes of 1,279 leprosy people. He concluded that data obtained by this method of examination facilitated the classification of the type of disease in his patients.

Emphasis on the frequency of a serious complication of leprosy-occlusion of the larynx by leprosy tissue, was the subject of a report from the Kalaupapa Leprosy settlement, Territory of Hawaii, where 13% of the patients were being kept alive by the use of tracheal tubes.

Encouraging results were reported on the use of promin but this drug could not be well tolerated by mouth and had to be given intravenously. From Carville, La., were reports on the use of sulfone drugs suitable for oral administration. Diasone was tried on 104 patients over a period of two and one-half years. As very little improvement was seen in less than six months, evaluation was made of only those cases receiving it for more than that period. Nearly all cases were of the types in which clinical improvement would not ordinarily be expected. Objective improvement occurred in 65% and in none were lesions considered worse. Toxic reactions prevented approximately 25% from continuing treatment. No opinion was offered on what effect this drug might have on the ultimate outcome of a leprosy case. A preliminary report was made on the effect of a second sulfone drug, promizole. It was given orally to 11 patients. Seven continued treatment for one year with results sufficiently encouraging to warrant further trial when adequate quantities became available.

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Lettuce. The U.S. record lettuce crop of 1946 was estimated by the U.S. department of agriculture at 34,504,000 crates compared with 29,767,000 crates produced in 1945 and a 10-yr. average of 22,524,000 crates, 1935-44. The total acreage was 207,980 ac. in 1946 compared with 173,000 ac. in 1945 and 154,270 ac. 1935-44. The average yield was 167 crates per acre, slightly less than the 173 crates of 1945; the 10-yr. average was 146 crates. The winter, spring and summer crops were larger than in any previous year and the fall crop was 23% more than that of a year earlier and 58% more than the average. About 65% of the lettuce crop was produced in California. In 1946 more than 22,000,000 crates of the winter, early spring, summer and fall crops came from the 126,650 ac. devoted to the crop in California. Arizona was a close second with a production of about 6,500,000 crates of the winter and early spring crops. Florida was third for the winter crop and New York led all the eastern states with a production of about 1,000,000 crates of summer crop.

The price of lettuce was generally lower in 1946 than a year earlier during the first half of the year. Prices were higher in August and then declined as shipments increased. Growers' prices of lettuce reached a high of \$3.15 per crate in 1945 and

U.S. Lettuce Production, 1946, 1945 and
Average, 1935-44

(In thousands of crates)

Crop	1946	1945	Average 1935-44
Winter	9,387	7,572	5,360
Early spring	8,391	8,122	6,298
Late spring	1,309	1,025	918
Summer	7,450	6,596	4,933
Fall	7,967	6,452	5,016
Total	34,504	29,767	22,525

averaged \$2.90 for the year; but through 1946 it averaged only \$2.55 per crate. Lettuce shipments by air were the subject of experimental shipments in 1946 with some promise that as air rates were reduced the practice would expand. (See also VEGE-TABLES.) (J. C. Ms.)

Lewis, John Llewellyn (1880—), U.S. labour leader, was born Feb. 12 in Lucas, Ia. After seven years of schooling he was compelled, because of his family's financial need, to desert his studies and enter the mines. Lewis became president of the United Mine Workers of America in 1920, holding the post from then on. He had long favoured industrial organization of open-shop mass production industries, contrary to traditional A.F. of L. craft unionism. In 1935 he formed the Committee for Industrial Organization. When he refused to heed the A.F. of L. executive council's order to dissolve the committee, the participating unions in the C.I.O. were suspended in 1936 and the following year were expelled from A.F. of L. membership.

Lewis supported Franklin D. Roosevelt in 1936, but in 1940 he switched his support to Wendell Willkie and promised to resign as C.I.O. chief if Willkie lost. He made good his promise but retained the U.M.W.A. presidency. In Oct. 1942, he led the mine workers' out of the C.I.O. and after three years of negotiations, his union was finally readmitted to the A.F. of L., Jan. 25, 1946.

He called two major strikes in 1946. The first (April 1–May 29) ended to the mine leader's satisfaction; he signed a government contract (to continue during government operation of the mines) which included an 18½¢-per-hour wage increase and provisions for establishing a miners' "welfare and retirement fund" financed by a levy of five cents per ton of coal produced.

The second strike ended less happily for Lewis. After contract negotiations with Secretary of Interior Julius Krug, Lewis rejected the government's proposal that the miners stay on the job for 30 to 60 days while the talks continued, and he notified the government that the contract had ended. The government contended Lewis had no authority to abrogate the contract; Lewis maintained that he did and the coal miners went out on strike Nov. 21. The government promptly obtained a restraining order from Judge Thomas Goldsborough of the U.S. district court of Columbia requiring Lewis to revoke his contract termination notice. Lewis, who ignored the order as a violation of the Norris-LaGuardia act, was hailed before Justice Goldsborough in Washington for disobeying the government's injunction. Lewis and the U.M.W. were convicted Dec. 3 of civil and criminal contempt; the following day (Dec. 4), Goldsborough fined Lewis personally \$10,000 and the U.M.W. \$3,500,000. Lewis called off the strike Dec. 7 and in a brief filed before the U.S. supreme court, Jan. 11, 1947, Lewis and the U.M.W. accused the government of surrendering to "political expediency" in using the injunction to stop the strike.

Liberal Party. Immediately after the general election of 1945 in Great Britain a committee under the chairmanship of Noel Newsome was appointed to recommend changes in the organization of the party. The report entitled *Coats Off for the Future* was published in March 1946 and for the remainder of the year the party, not only at its headquarters but also throughout its area and constituency organization, was engaged upon a vigorous campaign. The special assembly in May, attended by 1,300 representatives, pledged themselves to the following resolution: "We, Liberal representatives, here assembled, realizing mankind's desperate need of the spirit and practice of Liberalism, dedicate ourselves to the purpose of rebuilding the Liberal party as an effective political force capa-

ble of assuming the government of this country."

A foundation fund was successfully launched; it included a membership scheme on a national basis by which a mass membership at a subscription of threepence per week was being built up. As a receipt for such subscription a four-page Liberal newsheet was supplied to members each week.

During the autumn foundation fund rallies were held throughout the country, at which leading personalities in the party were principal speakers. On March 20 Lt. Col. Frank Byers was appointed chief whip to the parliamentary party on the resignation of T. L. Horabin; Lady Violet Bonham Carter was re-elected as president of the organization. (W. Rs.)

Liberia. This Negro republic lying on the west coast of Africa at the lower curve of the continental bulge, bordering the narrowest part of the South Atlantic bottleneck, is the closest area of Africa to South America. The land (area: 40,000 sq.mi.) was bought in 1820 by the American Colonization society for the purpose of repatriating freed slaves from the United States to the state of their forefathers. England had already established a similar colony on land named Sierra Leone which bounds Liberia on the northwest. Except for Liberia's coastline (350 mi.) the rest of the country is surrounded by French territory: French West Africa and Ivory Coast. It is estimated that of the estimated population of 1,000,000 only 12,000 are descendants of the original colonists from the United States. The remaining majority is comprised of the uncivilized aborigines consisting of 28 tribes speaking as many dialects. The descendants of the U.S. Negroes, known as Americo-Liberians, are the intellectual and ruling class and speak English. The colony declared its independence on July 26, 1847, and adopted a form of government patterned after that of the U.S. The president in 1946, the Hon. William V. S. Tubman, was inaugurated in Jan. 1944 for a term of eight years. Liberia, although officially Protestant Christian, grants religious freedom to all and welcomes all sects to evangelize its peoples.

History.—The United States embarked on a comprehensive program of assistance to develop Liberia's economy and to bring about a betterment of health conditions. Under the supervision of the U.S. navy a port was under construction in 1946 at Monrovia to cost between \$15,000,000 and \$20,000,000 from funds advanced by the U.S. government. In Feb. 1946, the first load of rock was put in place amid colourful ceremonies, and Liberia's first railway connected with the port project was opened when the U.S. minister turned over locomotive and cars to Pres. Tubman. The U.S. Public Health mission, with a staff of 22 coloured Americans and 1,000 Liberian employees, had almost completed its elimination of mosquitoes in Liberia and environs, and was conducting a school of subprofessional members and, under the auspices of the U.S. state department's division of cultural co-operation, also a nursing education mission. In 1946 the Liberian government purchased equipment from the U.S. War Assets administration hospital at a cost of \$85,000. In memory of Harvey S. Firestone, plans were formulated by his heirs to initiate an ambitious health program in Liberia with leading U.S. colleges participating in the foundation's activities. From late in 1944 up to early in 1946 a U.S. economic mission saw service in Liberia. From the fall of 1944 an American officiated as agricultural adviser to the government.

Constitutional amendments were ratified by the electorate in 1946: granting woman suffrage; giving political representation to the hinterland by seating in the house of representatives an aborigine from each province; remodelling election laws designed to ensure fairer elections.

At the request of the Liberian government the U.S. sent a geological mission to Liberia to make a survey of iron deposits

in the Bomi hills. The survey report, submitted in 1945, estimated the reserves of high grade ore at about 5,000,000 long tons and from 75,000,000 to 150,000,000 long tons of milling-grade ore. A U.S. company secured a concession to exploit the Bomi hills area and company representatives were on the scene in 1946.

Education.—In 1946, institutions included 84 government, 81 mission, 11 tribal (supported by aborigines) and 25 private schools. The three largest were: Liberia college, chiefly supported by the government; College of West Africa, which received \$600 yearly from the government; and Booker T. Washington Industrial and Agricultural institute, supported by U.S. philanthropy, and a \$5,000 yearly grant from the government. Substantial sums for education are expended by the Protestant Episcopal Church, American Lutheran Church, American Negro Baptists and Assembly of God. African Methodist Episcopal and A.M.E. Zion Churches and Seventh Day Adventists maintain schools. Compulsory education for children from 6 to 16 is free. A larger educational appropriation was recommended to the legislature for 1947. Forty Liberian students were in the U.S. during 1946, principally on government scholarships.

Finance.—During the ten-year period ending 1944, and also in 1946, Liberia operated under a balanced budget and paid off regular instalments on its bonded and floating debts. Within three years, including 1946, the debt was reduced from \$1,193,000 to \$690,000, and the floating debt from \$76,000 to \$26,000. Government revenues for 1946 approached \$2,000,000. In 1944-45, internal and customs revenues and other collections totalled \$1,897,869.46; the total for the 1945-46 fiscal period was \$2,197,879.19. As regards foreign trade, comparative data showed that exports increased from \$10,420,511 in 1945 to \$12,958,244 in 1946.

Trade and Agriculture.—The Firestone company first planted rubber in Liberia in 1925, and the operation of the company's plantations played an important part in the country's economic progress. Firestone's est. production of 1945 was 41,000,000 lb. and was somewhat larger for 1946. There were more than 100 on the foreign staff, and from 21,000 to 22,000 Liberians on the pay roll. Liberia was one of three countries to supply the Allies with rubber during World War II, and the only country to export latex. Rubber was by a wide margin the chief item of export with gold taking second rank. The country also ships abroad piassava, palm oil, palm kernels and cocoa. The first consignment of wood was sent to Europe in 1946.

Liberty Ships: see SHIPBUILDING; SHIPPING, MERCHANT MARINE.

Libraries. Unquestionably the most serious problems for U.S. libraries in 1946 were those of finance and personnel, the latter closely related to the former. Another problem, that of increased use, was created by the large enrolments in colleges and universities of veterans eager to take advantage of the government's provision for further education. Library facilities were severely taxed, added to which was the inadequate supply of recent, standard books.

Appropriations for tax-supported libraries were very generally increased. Because of the decreasing returns from investments the situation of libraries supported by endowments was becoming increasingly difficult unless new sources of income could be found. In view of the rising cost of living coupled with many staff vacancies, some action was imperative, and it was encouraging to note that many of the larger libraries adopted better salary schedules. These increases, however, together with many cost-of-living bonuses, did little more than offset rising prices. In spite of what had been done in 1944-45, salaries for

trained librarians in 1946 were still distressingly low when compared with other positions requiring like ability and preparation. The American Library association standard of a minimum salary of \$2,100 for beginning professional positions was a modest goal when salaries in business and industry were considered. In fact it would be necessary to increase salary schedules one-third above the 1941 level to meet the increased cost of living.

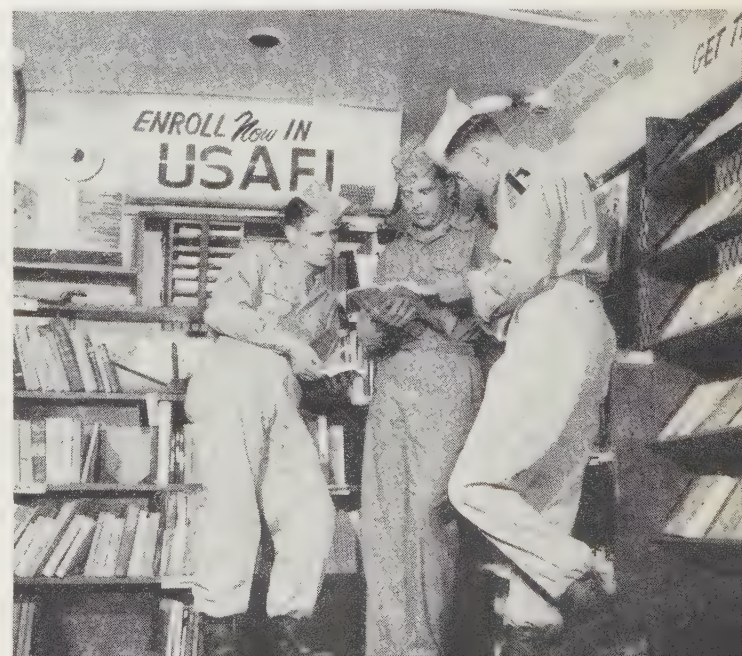
Although low salaries were perhaps the main cause of the inability to fill many professional positions, another reason for the shortage was the much smaller number of graduates of the accredited training schools from 1941 to 1945. There were in 1946 perhaps 3,500 fewer trained people than there would have been if library school enrolments had merely maintained the point reached in 1940. It was clear that this lack of qualified personnel would handicap libraries for many years, and that at a time when there had seldom been greater need for adequate library service or greater opportunity for library development. Joseph L. Wheeler's excellent report, *Progress & Problems in Education for Librarianship*, prepared for the Carnegie corporation, summarized much of the current discussion about professional training. Recruiting and revision of curricula were matters that received special attention.

The total enrolment (March 1, 1946) in the 36 schools of various types accredited by the board of education for librarianship of the American Library association was 1,547, including 194 advanced and 154 special or nonmatriculated students, an increase of 199 as compared with 1945. Of the total number enrolled, 193 were men and 600 (all matriculated students) were part-time.

Because of rising costs and the continuing shortage of materials, there was practically no library building. Work on the new library at Princeton university was proceeding and tentative plans for the undergraduate library at Harvard, announced in 1945, were prepared and the site determined, but for the most part plans for new buildings or additions to present buildings were in abeyance.

The sorting and distribution of books acquired by the Library of Congress mission, mainly in Germany, France and Italy, was begun, allocation by subjects to the participating libraries being made on the basis of priorities determined by the present strength of their collections, and geographical location. The

MOBILE LIBRARY UNIT of the United States Armed Forces institute was housed in an army truck. Institute staff member counsels two soldiers of the occupation forces in Japan on a selection of some of the 450 educational courses offered by the institute



International Relations office of the American Library association and the recently organized American Book Centre continued their work of distributing books and periodicals needed by scholars to libraries in war areas.

The Linda Hall library, Kansas City, Mo., opened late in 1946 in the remodelled Hall residence, was established by Herbert F. Hall as a memorial to his wife, Linda Hall. Hall died in 1941, and his will provided a trust fund of \$6,000,000 for this purpose. The library was planned as a special scientific and technical collection to meet the needs of the Kansas City area and to supplement existing library resources. The collections of the American Academy of Arts and Sciences of Boston, established in 1780, consisting of more than 62,000 volumes and strong in periodicals, were purchased as the nucleus of the new library.

On Oct. 19 Yale university held a special convocation to mark the return of the university's great collections to peacetime use. On this occasion the honorary degree of Doctor of Humane Letters (L.H.D.) was conferred on four distinguished librarians: Lawrence C. Wroth, Keyes D. Metcalf, Harry M. Lydenberg and Luther H. Evans.

Size of Collections.—The figures for libraries possessing more than 1,000,000 volumes have generally been taken from statistics published by the American Library association. The preparation of these tables was discontinued in 1945. There were 22 libraries containing more than 1,000,000 volumes each, and two "runners-up" (the New York State library, Albany, and the St. Louis Public library) rapidly approaching that mark. These 22 libraries were divided as follows: government libraries 2 (Library of Congress, and Army Medical library); university libraries 11 (Harvard, Yale, Columbia, Illinois, California, Chicago, Minnesota, Michigan, Cornell, Princeton, Pennsylvania); public libraries 9 (New York, Cleveland, Chicago, Boston, Los Angeles, Cincinnati, Brooklyn, Detroit, Carnegie Library of Pittsburgh). The Library of Congress ranked first with more than 7,000,000 volumes. Harvard university (all libraries) and the New York Public library (both reference library, more than 3,000,000 and branch libraries) were nearly equal with just more than 4,500,000 each. Yale stood fourth with nearly 3,400,000 volumes.

Librarians.—Franklin F. Hopper, director of the New York Public library from 1935, retired Oct. 1, and was succeeded by Ralph A. Beals, director of the University of Chicago libraries from 1942 and dean of the university's graduate library school from 1945. Dr. Clarence H. Faust, dean of the college of the University of Chicago from 1941, assumed the deanship of the library school Oct. 11. Wyllis E. Wright, appointed librarian of the reorganized Army Medical library, Washington, D.C., July 1, 1945, resigned late in the year to become librarian of Williams college. Glenn M. Lewis, a member of the staff of the Minneapolis Public library for more than 20 years, was named chief librarian in succession to Carl Vitz now at Cincinnati. Harrison W. Craver, director of the Engineering Societies library, New York city, from 1917, retired and was succeeded by Ralph H. Phelps. Craver organized the technology department of the Carnegie Library of Pittsburgh in 1900, and was appointed librarian in 1908. He was a pioneer in this specialized field of librarianship, and was president of the American library association in 1937–38. Dr. Otto Kinkeldey, distinguished musicologist, retired from the librarianship of Cornell university and was succeeded by Stephen A. McCarthy.

Benjamin E. Powell, librarian of the University of Missouri for ten years, returned to Duke university as director of libraries, having previously served on the Duke staff in various capacities. Francis R. St. John, chief of the circulation department of the New York Public library, resigned at the end of the year to become director of the Veterans' administration libraries.

Charles H. Brown, president of the American Library association in 1941–42, and librarian of the Iowa State college at Ames, retired July 1 and was succeeded by Robert W. Orr. Jerrold Orne, formerly at Knox college, was appointed director of libraries at Washington university, St. Louis, Sept. 1. Kenneth R. Shaffer was appointed director of the School of Library Science at Simmons college, Boston, and J. Periam Danton succeeded Sydney B. Mitchell as director of the School of Librarianship at the University of California.

Harry M. Lydenberg retired Sept. 30 as director of the International Relations office, Washington, of the American Library association, a post he had filled with distinction and energy from 1943. Of particular interest was the appointment in August of S. Hartz Rasmussen as librarian of the United Nations at New York. Rasmussen, born and educated in Denmark, received his professional training at the Columbia university library school, was head of the reference department of the Frederiksberg public libraries in Copenhagen and, after 1931, in charge of departments of the library of the League of Nations, first at Geneva and later at Princeton. (See also AMERICAN LIBRARY ASSOCIATION; SOCIETIES AND ASSOCIATIONS.)

BIBLIOGRAPHY.—For further information about U.S. libraries consult: *Bulletin of the American Library association* (Chicago); *Library Journal* (New York); *College and Research Libraries* (Chicago); *Library Quarterly* (Chicago). Important contributions to library literature were: American Library association, Committee on Postwar Planning, *A National Plan for Public Library Service* (1946); W. H. Carlson, ed., *College and University Libraries and Librarianship* (1946); J. P. Danton, *Education for Librarianship; Criticisms, Dilemmas and Proposals* (1946); M. C. Manley, *Library Service to Business; Its Place in the Small City* (1946); Lowell Martin, ed., *Personnel Administration in Libraries*, papers presented at the 10th library institute at the University of Chicago (1946); Julia Pettee, *Subject Headings; the History and Theory of the Alphabetical Subject Approach to Books* (1946); D. M. Singer, *Insurance of Libraries; a Manual for Librarians* (1946); J. L. Wheeler, *Progress and Problems in Education for Librarianship* (1946); R. R. Hawkins, ed., *Scientific, Medical and Technical Books Published in the United States of America, 1930–44; A Selected List of Titles in Print with Annotations* (1946); F. M. Palmer, comp., *Books Published in the United States, 1944; A Selection for Reference Libraries*, a supplement to the list prepared by C. F. McCombs covering 1939–43 (1946). (C. F. McC.)

Army Library Service.—In the year's activities of the Army Library service, emphasis was placed upon assuring that library service of a professional character would become a permanent part of the peacetime army. The assignment of professional librarians to United States army installations throughout the world continued. By the end of 1946 there were 214 librarians in Europe, Alaska and the Pacific and Caribbean areas; 285 librarians operated libraries within the continental limits of the United States.

These librarians supervised and operated a network of 800 libraries containing a total of 4,000,000 volumes. The aim was to render library service in accordance with fundamental principles of U.S. public library practice.

Distribution of overseas editions of books and magazines continued. By the end of the year a grand total of 275,000,000 magazines and 98,000,000 Armed Services editions had been shipped to overseas troops after the inauguration of the program in 1943. (P. E. P.)

Navy Library Service.—The beginning of the calendar year of 1946 saw the navy library service well on its way to a reduction from the wartime peak of more than 9,000 libraries to a postwar size at the end of the year of approximately 2,000. The reduction was only in numbers as the scope and basis of the work remained the same. These libraries, which include material needed in the everyday work of the ship or station to supplement the training program, to make the individual a broader and more useful citizen and for recreation, are provided for all units both afloat and ashore. The upkeep of these libraries was provided through automatic distribution of current material. The number of professional librarians provided for the major shore activities such as training centres, air stations, hospitals and marine corps activities, was reduced from 292 in January to 46 in December. (I. D. B.)

Great Britain.—The gradual restoration, in full, of the library service throughout Great Britain and the preparation of plans for expansion were a special concern in 1946. New books and new buildings were urgently needed. The official opening by the king of the Bodleian new library at Oxford took place in October. Queen Mary laid the foundation stone in 1937; the war years saw the building taken over for other purposes; but in 1946 it was restored to the university for its rightful purpose. The Rockefeller foundation contributed three-fifths of the cost of the building, which, with its great stack, would provide for the intake of two centuries. The prime minister visited Chaucer House, the London headquarters of the Library association, to speak at a ceremony marking the completion of the work of the Inter-Allied book centre. This centre was opened in 1944, after much preparatory work, for the sorting, allocation and dispatch of about 1,000,000 books collected for the restoration of war-devastated libraries in the Allied countries. Seven new schools of librarianship were established. The students were almost entirely young men and women librarians whose studies had

been interrupted by the call to military service; it was hoped that the schools, with the University of London school, would later be the normal training grounds of all recruits to the library profession. (D. C. H. J.)

Libya: see ITALIAN COLONIAL EMPIRE.

Lie, Trygve (1896—), Norwegian statesman and United Nations official, was born July 16 in Oslo. After graduating from Oslo university law school in 1919 he became secretary general of the Norwegian Labour party. Lie rose rapidly in the party's ranks and was named justice minister in the Nygaardsvold cabinet in 1935 and minister of commerce in 1939. After the German invasion of Norway in 1940 Lie escaped to England where he joined the Norwegian government-in-exile; he was first minister of shipping and supply, and then foreign minister in the exiled regime.

He headed the Norwegian delegation to the United Nations conference at San Francisco, Calif., in 1945 and to the London sessions of the U.N. that opened in Jan. 1946. At the latter conference he was elected, Feb. 1, 1946, as secretary general of the Security council.

Lie's statement (April 16) questioning the legality of the Security council's decision to retain the Iranian case on its agenda after both parties to the dispute had asked for its dismissal brought up the question as to whether he had the authority to intervene in the council's discussions. After some debate the Security council decided in the secretary general's favour and authorized him to intervene in any debate before that body.

Liechtenstein. An independent, tiny, European state, northeast of Switzerland, to which it is united by a customs union. Area, 65 sq.mi.; pop. (census Dec. 1941) 11,102. Chief town, Vaduz (capital, pop. 2,020). Ruler: Prince Franz Joseph II, b. 1906, was given ruling authority by his 84-year-old uncle, Prince Franz I, on March 30, 1938, and after the latter's death was crowned prince on May 29, 1939. Language, German; religion, mainly Roman Catholic; products, corn, wine, fruit, wood and marble. There is no army. Posts and telegraphs are administered by Switzerland. (S. B. F.)

Life Insurance: see INSURANCE.

Life Span: see BIRTH STATISTICS; DEATH STATISTICS; INFANT MORTALITY; SUICIDE STATISTICS.

Lighting: see ELECTRICAL INDUSTRIES.

Lilienthal, David Eli (1899—), U.S. government official, was born on July 8 in Morton, Ill. A graduate of De Pauw university in 1920, he studied law at Harvard university, receiving his degree in 1923. From 1931 to 1933 he was a member of the Wisconsin Public Service commission, and in the latter year Pres. Franklin D. Roosevelt picked him as a director of the newly created Tennessee Valley authority with authority to develop its power program; he became chairman in 1941. He was associated also with the atomic experiments conducted at near-by Oak Ridge, Tenn., in the capacity of consultant. His committee's report to the state department on the control of atomic energy was the basis on which the United States drafted its proposals for the United Nations Atomic Energy commission. On March 28, 1946, the state department revealed that the Lilienthal report called for world monopoly of uranium under an international authority which would forbid its use for explosives but permit distribution of "denatured" plutonium for industrial uses and experimental work. He resigned from TVA to become chairman of the U.S. Atomic Energy commission (Oct. 28, 1946) which was to direct and control the development of atomic energy in the United States.

Lime. Demand for agricultural, industrial and refractory lime decreased in the United States in 1944, while building demand increased. The total output declined from 6,473,563 short tons in 1944 to 5,920,579 tons in 1945, including 4,565,551 tons of quicklime and 1,355,028 tons of hydrated lime; by uses, the breakdown was: agricultural 373,410 tons; building 549,547 tons; chemical 3,810,288 tons; and refractory 1,187,334 tons. Practically all of the 1945 decline may be accounted for in uses of lime connected with the metallurgical industry (refractories, smelter fluxes, ore concentration, calcium carbide to make acetylene for welding, and other metallurgical applications); declines in other uses were offset by a number of relatively small increases.

Canadian production of lime dropped from 885,214 short tons in 1944 to 831,982 tons in 1945. (G. A. Ro.)

Limes: see FRUIT.

Limestone: see STONE.

Linen and Flax. U.S. linen became almost commonplace on the counters of U.S. stores during 1946 but the price was still in the luxury class. The production was not sufficient to warrant specific statistics as to yardage in the official reports of the census bureau but its sponsors believed that it had a place in the future linen market alongside the older linen products of Europe and China. With an increased production of flax straw in the United States, still concentrated in Oregon, some interest was expressed during the year in the so-called cottonized flax, a combination of cotton and flax. This type of yarn was extensively used in Germany, Italy and Poland prior to and during World War II, and some work was carried out in the United States in the Georgia experimental station of the department of agriculture.

European production was still recovering from the effects of war destruction and production control. In November, the Scottish linen manufacturers complained that continued government controls prevented their returning to normal prewar levels. In Ireland, the Linen Trade Advisory committee was reconstituted by the minister of commerce, consisting of 13 members, 6 from the central council of the linen industry, 6 appointed by the minister of commerce and 1 from the textile finishing trade in Northern Ireland. The 1946 flax crop in Northern Ireland was expected to yield 6,300 long tons of scutched flax compared with a wartime peak of 19,200 tons in 1944. With government aid, 44 new scutch mills were erected and 137 mills enlarged during World War II bringing into operation approximately 400 scutch mills. Flax cultivation in 1946 dropped to 35,778 ac. compared with 80,299 in 1945 and 124,500 ac. in the peak year of 1944.

During the first 6 months of 1946, the total flax fibre and tow consumed by the United Kingdom was 19,250 tons. Prior to the war, this consumption was 68,000 long tons annually, of which only 6,000 tons were home grown.

More than 90% of the flax, before 1939, came from the U.S.S.R., the Low Countries and the Baltic states. In 1946, these countries were beginning to re-enter the field. Belgium's acreage was unofficially estimated at 50,000 ac., although throughout German occupation, the acreage was said to have been highest in history. The Belgian goal was 86,500 ac. annually. In Latvia, flax production suffered severe losses during the war. Output declined from 164,000 centners in 1940 to 37,000 centners in 1945. Their goal, to be achieved by 1950, was 200,000 centners, according to the five-year plan. Bulgarian flax crops also were comparatively smaller by the end of the war. Available information for 1945 showed a flax output of 172 tons (5,259 ha.) down from the 1944 total of 905 tons (11,801

ha.). In the U.S.S.R., the council of ministers of soviet Russia were planning a yield of 120,000 tons of flax fibre and 65,800 tons of flaxseed. The flax plantings in 1947 were set at 1,302,800 ha.—1,036,500 ha. on collective farms and 266,300 ha. on small farms. French scutching mills expected to produce 12,000 metric tons of flax fibre in 1946. In addition, they expected to receive 15,000 metric tons from Belgium and the soviet union. This supply would mean a total production for 1946 of 20,000 metric tons of linen yarns of all description.

Spain planted more than 1,000,000 ac. to flax in 1946, it was estimated, compared with about 700,000 in 1945. Poland was also returning to the industry with a monthly production of 10,806,000 m. (2,092,293 yd.) of fabrics and 550,000 kg. (606 short tons) of yarn during 1946. Turkey reported an output in 1945 of 1,743 metric tons, a sharp decrease from wartime production.

A new interest in combinations of linen and ramie developed in 1946. The fibre was produced extensively in China with some amounts coming from Brazil and the Florida Everglades section. It is a heavy fabric, suitable only for sportswear of the sturdier type. Ramie is closely affiliated with linen in appearance and texture. Its use in combination with linen and its low price were expected to open new fields for flax.

Production of flax fibre in Canada, considerably developed during World War II, continued at about the same pace. The grade scutched flax yield in the 1946-47 season was 937 tons with 1,874 short tons of tow. The estimated planted area was 15,761 ac. In the previous season, there were 985 tons of flax and 1,521 tons of tow. Of this, 3,642 tons were exported, compared with 3,375 tons in 1944-45. The United States took 1,852 tons, or almost all, of the tow. This nearly tripled the previous season's receipts. Shipments to the United Kingdom, on the contrary, decreased by nearly 45% over the 1944-45 exports of 2,674 tons. Canadian acreage for 1946 was 25,000 ac. or 18% over the 1945 area.

Flax production in countries of high cost where it was introduced during the war as an emergency source continued to decline. In British East Africa, for example, the flax growers turned to other crops as the result of the British ministry of supply's decision to stop guaranteed purchases after 1946.

The linen industry of the United Kingdom, concentrated in Northern Ireland, showed an export of 31,152,000 sq.yd. during 10 mo. of 1946. During the first 9 mo. the exports were valued at £9,651,938, compared with £4,108,521 in the like period of 1938. The United States received 45% of the 27,000,000 sq.yd. of piece goods as well as 70% of the damask table linen. Total exports in the 9 mo. were 61% piece goods, 10% finished thread, 7% handkerchiefs and 7% table damask.

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Lions Clubs, International Association of: see SOCIETIES AND ASSOCIATIONS.

Liquor Control: see LIQUORS, ALCOHOLIC.

Liquors, Alcoholic. From the beginning of World War II until V-J day, the contribution of the beverage distilling industry amounted to an approximate total of 750,000,000 gal. of industrial alcohol, representing almost half of the total amount of this commodity turned out during the war years by all producing sources. The uses of war and industrial alcohol were mainly for the production of synthetic rubber, smokeless powder, hospital supplies and various other essential civilian and industrial products.

Another wartime activity of the beverage distilling industry was its contribution to the production of penicillin.

In addition, the beverage distilling industry continued to pro-

duce high-protein animal feed as a by-product of the distilling process. The nutrient value of the recovered feed is considerably enhanced by the addition of proteins, vitamins and fats through the use of yeast and limestone water during fermentation. This animal feed was a significant factor in the increase of about 150% in meat production during the war over prewar levels. Department of agriculture figures revealed that the production of dried grains in the year ending Oct. 1, 1946, was 330,000 tons, an increase of 35% over the 1939-42 average of 244,000 tons, and it was expected that production would reach 500,000 tons in the 1947 year.

The wartime concentration on alcohol production by beverage distillers not only severely depleted their aged whisky inventories, but also disrupted the aging schedules of whisky. This arose from the fact that consumers were being supplied with beverage spirits during the war period, although the whisky thus used was not being replaced by new production.

Evaporation and leakage were also important in depleting aging inventories. Each year that whisky stays in charred barrels during its aging period a considerable quantity is lost because of evaporation and leakage. For example, at the end of four years, about 22% of the whisky originally stored for aging is lost because of these factors. (Official allowance for tax purposes is made by the U.S. bureau of internal revenue with respect to these losses.)

Therefore, at the end of World War II, the inventory position of the whisky distillers was in a sense much the same as that at the end of prohibition. Inventories of whisky in Aug. 1945, were 262,200,000 tax gal. on a net inventory basis, about 34% less than the 413,500,000 net tax gal. stored in bonded warehouses at the end of Sept. 1942.

Because supplies of war alcohol were judged to be sufficient for immediate war needs, the industry was given three one-month furloughs from its war job in Aug. 1944, Jan. 1945 and July 1945. Although the beverage distilling industry was released from war work by the WPB on Aug. 31, 1945, the department of agriculture continued to restrict grain allotments to the industry for beverage spirits production.

An allocation of grain for four and one-half days of operation was made in Aug. 1945, and a five-and-one-half day production period was granted the industry the following month. Gradual extensions in grain allotments were granted until a maximum of ten days was reached in Dec. 1945 and Jan. 1946. Beginning with Feb. 1946, however, allocations of grain for beverage spirits production were tightened.

Beginning in March 1946, beverage distilling plant operations were limited to five days in each month; for the months of May through August of 1946 grain allocations were further restricted to the equivalent of three days of operation per month. Subsequently, there was a slight relaxation of government restrictions because of improving grain supplies and the industry was permitted to operate about three and one-half days in each of the September-November months.

During all this time, there were restrictions on the kind of grain used by the industry, as well as the amount of grain available for production of potable spirits. Use of wheat was banned, rye use was limited and the industry was permitted the use of corn of grades 4, 5 and sample only.

At the close of Nov. 1946, the department of agriculture officially announced substantial liberalization of restrictions on corn for beverage spirits production. The department's announcement stipulated that beginning Dec. 1, 1946, beverage distillers would be permitted unlimited quantities of corn grades 4, 5 and sample. However, the ban on wheat use continued and the use of rye was limited to 6% of total grain used in any one plant in any one month.

This latest move of the department of agriculture was dictated by record crops of corn and other grains—in most instances well above the previous peak levels. The relaxation of corn use, it was expected, would permit the industry to make progress in rebuilding depleted inventories of whisky, especially bourbon.

Wartime and postwar restrictions further slowed down the efforts of distillers to bring their inventories up to "normal" levels. Thus by June 1946, inventories of whisky were only 308,086,000 tax gal. on a net inventory basis.

Distilled spirits production in the fiscal year ended June 30, 1946, amounted to: whisky 147,476,460 tax gal., gin 7,456,384 tax gal., rum 2,657,580 gal., brandy 34,365,037 gal.

The limited resumption periods for beverage spirits production which were permitted in 1944, 1945 and 1946 did not allow distillers to do more than about maintain withdrawals of whisky from inventories at the same level as the previous year—fiscal year 1946 withdrawals totalled 63,200,184 as against 63,891,224 tax gal. in the 1945 fiscal year. These whisky withdrawal totals were well below the prewar levels. Increased supplies of whisky (and gin) were put into consumption channels through the use of grain neutral spirits, which were used principally to make the popular whisky spirit blends. Thus, blending spirits used totalled 96,681,455 tax gal. in the 1946 fiscal year as against only 65,552,162 tax gal. in the 1945 fiscal year.

As a result of the increased use of blending spirits, bottled output of all whiskies rose from 143,171,432 wine gal. in the 1945 fiscal year to 163,709,118 tax gal. in 1946.

Total consumption of all distilled spirits in 1944 recovered to 166,704,541 wine gal. from 1943's low level of 145,515,666 gal. In 1945, consumption was 190,044,134 wine gal., reflecting rising national income and easier supplies. For the first six months of 1946, consumption of all distilled spirits was 114,983,353 wine gal. as compared with 88,614,720 wine gal. during the first six months of the previous year. This increase was to some extent because of the return to the United States of millions of servicemen who had been overseas during the first half of 1945.

The cessation of Scotch whisky production in Great Britain from 1940 through the end of 1944 (partially resumed early in 1945) resulted in the depletion of Scotch whisky inventories and the consequent gap in aging schedules, as happened in the United States, and further reduced the amounts of Scotch available for export. In 1945, Scotch imports into the United States dropped to 3,985,570 tax gal. from 4,446,050 tax gal. in 1944. Prewar imports of Scotch whisky had been approximately 7,500,000 tax gal. per year. Scotch whisky imports for the first nine months of 1946 totalled 2,917,884 tax gal. as against the 2,933,684 tax gal. for the same period the year before.

Scotch whisky distillers made relatively generous quantities of whisky available to the foreign markets during the war years despite the fact that in so doing they were steadily reducing their inventories of aged and aging whisky. What the Scotch industry had been doing, in effect, was the same thing the U.S. industry had been doing—drawing upon reserves of whisky which were in reality earmarked for aging and use over future years.

With the exception of the United Kingdom, the major sources



BLIND-FOLDED "EXPERTS" tasting samples of whisky to see whether they could distinguish imported Scotch from domestic Scotch type whisky, in a test held by the Illinois State Liquor commission in 1946

of imported spirits during 1946 gradually resumed their prewar status. Canada was again resuming its position as a major exporter of whisky to the United States. France was again becoming an important shipper of brandy, cordials and liqueurs. Shipments of gin from Cuba, Mexico and Argentina declined sharply during the first nine months of 1946 from the first nine months of 1945. During the war years, the Caribbean countries were the chief suppliers of foreign spirits sent to the United States. Total distilled spirits imports for the first nine months of 1946 were 16,972,364 tax gal. as against 16,462,585 tax gal. for the first three-quarters of the previous year.

Federal tax receipts from alcoholic beverages constituted the major source of government commodity tax revenue. During 1946, as a result of record high tax rates and substantially increased population, federal receipts from taxes levied on alcoholic beverages reached peak levels. It was indicated that full calendar year collections for 1946 from distilled spirits, wine and beer would aggregate approximately \$2,600,000,000. In addition, revenue from alcoholic beverages constitute a major source of income to state and local governments; during the calendar year 1946, it was estimated that state and local returns from alcoholic beverages were \$700,000,000. The following table shows internal revenue receipts from distilled spirits, wine and beer during each of the past several years as well as for the first nine months of 1945 and 1946:

Table II. — Revenues from Alcoholic Beverages

	Distilled Spirits	Beer	Wine	Grand total
1941	\$ 558,547,795	\$348,876,726	\$20,008,266	\$ 927,432,787
1942	777,793,659	403,436,418	33,943,923	1,215,174,000
1943	906,378,809	515,063,123	32,759,793	1,454,201,725
1944	1,408,368,230	627,458,724	47,625,921	2,083,452,875
1945	1,661,793,763	659,055,927	49,073,828	2,369,923,518
1st 9 months, 1945	1,183,150,111	492,683,049	33,578,885	1,709,412,045
1st 9 months, 1946	1,436,492,766	479,985,544	54,955,527	1,971,433,837

(A. J. LI.)

Table I. — Distilled Spirits Statistics, Fiscal Year Ended June 30, 1946

	Whisky	Gin	Rum	Brandy	Neutral Spirits*	Total
			(Tax gallons)			
Production	147,476,460	7,456,384	2,657,580	34,365,037	96,681,455	288,636,916
Withdrawals	63,200,184	6,989,771	706,771	4,890,212	96,681,455	172,468,393
Inventories (Original entry gauge)	374,072,802	597,876	2,172,292	13,209,593	—	390,052,563
Net—After evaporation and leakage losses. . .	308,075,000	—	—	—	—	—
			(Wine gallons)			
Bottled output.	163,709,118	19,898,864	948,374	3,633,509	193,037	203,038,779
					Cordials & Liqueurs 13,980,638	Miscel. 675,239

*Represents neutral spirits used in rectification, neither production nor withdrawal figures show volume of neutral spirits actually used for beverage purposes. Production and withdrawal equivalents are best determined by employing neutral spirits used in rectification (for whisky blending, and gin, cordial and liqueur processing).
Source: Prepared by Licensed Beverage Industries, Inc., from data of the Alcohol Tax Unit, Bureau of Internal Revenue, Treasury Department.

Liquor Control.—The 13th year of repeal, 1946, saw the removal of many of the government restrictions affecting alcoholic beverages. OPA ceilings on whisky came to an end. With some exceptions, they had previously been removed on all other alcoholic beverages.

Early in the year, President Harry S. Truman, by proclamation, limited the amount of grain to be used by distillers and brewers for the manufacture of their products. World famine conditions impelled this action. Month by month limitation increased. In November, the grain allotment by the department of agriculture to distillers was enough for only about three and one-half days of operation.

Brewers were restricted to approximately 70% of normal usage. As a practical matter, before the year was over, brewers and distillers were in a position to make as much of their product as they desired. The restriction on grain for distillers related only to the better grades of corn, to rye and wheat.

In the last days of the year President Truman announced the end of hostilities, which meant that within six months, unless congress passed new laws, the wartime excise tax of \$9 a proof gallon would go back to \$6.

Tax collections on alcoholic beverages remained high. The first ten months showed a total of \$2,200,000,000 as against \$2,000,000,000 in 1945. Distilled spirits tax collections alone were \$1,600,000,000, an increase of 19% above 1945. Taxes on beer and wine accounted for the balance. Total revenues for 1946, including state taxes and local and state licence fees, ran more than \$3,000,000,000.

Local option made minor gains: The wet and dry picture remained much the same; 81% of the population lived in wet areas. The number of monopoly states remained unchanged.

The National Committee on Alcoholism gained greatly in strength during 1946. State committees were operating in many states. Changes in state laws, while numerous, were not of great importance.

Agitation for change in the present federal method of retail liquor dealers tax stamp issuance continued vigorously; a fight for the passage of legislation doing away with this system was anticipated in the 1947 congress. Bills calling for partial or total prohibition, and bills against liquor advertising, did not find much support.

Industry efforts at self-regulation continued. An important milestone was the merger of Allied Liquor Industries and the Conference of Alcoholic Beverage Industries—both strong public relations and propaganda institutions—into a new agency called Licensed Beverage Industries, Inc. L.B.I. had been extremely active in urging upon retailers strict obedience to law and the maintenance of wholesome conditions in taverns. It had advertised extensively, calling attention to the accomplishment of the distillers during World War II in the manufacture of alcohol and the enormous revenues and large employment caused by the liquor industry. The monopoly states continued their system of rationing in 1946.

Progress in control in 1946 was the result, not only of better understanding of the problems, but also of a will both on the part of officials and the industry to cope more adequately with them. More effective methods were urgently needed and it seemed not too much to hope they would be forthcoming. (See also BREWING AND BEER; INTOXICATION, ALCOHOLIC; WINES.)

(M. Lb.)

Literature: see AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; PRIZES OF 1946; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

Lithium Minerals. The production of lithium ores and compounds in the United States reached a new record high in 1944; in spite of decreased outputs of amblygonite and lepidolite, gains in spodumene and dilithium sodium phosphate gave a total of 848 short tons of LiO₂ content shipped in 1944, against 463 tons in 1943, dropping to 274 tons in 1945. The industry was trying in 1946 to develop new peacetime uses to utilize the available production capacity.

(G. A. Ro.)

Lithuania. A Baltic country of northeastern Europe, N. of Poland; in 1941 it became a part of Germany's "Ostland," and in 1944 was reconquered by the Red armies and re-established as a republic of the U.S.S.R. Area, 22,958 sq.mi. (1940); pop. (Jan. 1, 1940) 2,879,070. Chief cities: Vilnius (Vilna, cap. 1942, 182,000); Kaunas (1941 est. 120,000).

History.—Lithuania's independence, won after World War I, was short-lived. In 1940 the country was incorporated into the U.S.S.R. as one of the constituent republics. In 1941 it re-declared independence, but the invading Germans allowed the state to function for only seven weeks. In 1944-45 the Russians drove out the Germans and reintegrated Lithuania into the soviet system.

Thousands of freedom-loving Lithuanians continued to fight for independence. The Russians in turn insisted on maintaining control, reoriented education and sent in officials to assure a government friendly to the soviet union. Small bands of guerrillas attacked the Russians, broadcast propaganda from secret radio stations and in illegal newspapers and hampered the administration in every way possible. Repeated skirmishes resulted in many deaths on both sides, and the whole opposition movement intensified the soviet attempt to deport the revolutionary elements. Despite the paucity of news and the contradictory nature of the reports available it was obvious in 1946 that agriculture was suffering. Women and children tried to work the fields, but much land lay idle; thousands of men were dead or deported or in voluntary exile. The United Nations Relief and Rehabilitation administration reported 57,243 in the British, U.S. and French zones of occupied Germany. The Lithuanians themselves reckoned the number at 70,000 and counted another 8,275 in Austria, Denmark and other European countries. They claimed 1,300 Lithuanian students in the universities of western Germany; 400 of these were at the Baltic university in Hamburg.

The United States and Canada already held about 25% of the Lithuanian-speaking people. Since these countries, like Great Britain, still refused to recognize the soviet regime of the Baltic lands, it was natural that they should become centres of propaganda for the freedom of the Baltic states. Pres. Harry S. Truman, members of congress, the state department and governors were repeatedly memorialized on the plight of Lithuania, and they gave repeated expressions of sympathy as replies. The U.S.S.R. was for the most part silent, resting upon its *de facto* control. When the Lithuanian minister Povilas Zadeikis, was invited to a state department dinner, however, a Russian correspondent of *Pravda* complained that "state department officials retained a 'sneaky' feeling for 'dead souls.'"

Reports from neighbouring Latvia indicated that progress was being made by the Russians in the industrialization of all the Baltic countries (see article on LATVIA).

Education.—In 1938-39 there were 2,335 private schools with 298,429 scholars and 83 secondary schools and gymnasias with 19,539 scholars. Part of the university at Kaunas was moved back to Vilnius Jan. 15, 1940.

Finance.—The monetary unit was the lita (=16.1 U.S. cents at par, established in 1922 as one-tenth the U.S. gold dollar). At the end of 1939 the foreign debt was 68,915,300 litas, and the domestic debt of the government was 65,231,200 litas. In 1939 the budget estimate of the government balanced at 341,785,274 litas. After 1945 the monetary

unit was again the ruble, but dependable statistics were not yet available for 1946 at the end of the year.

Trade and Communication.—In 1938 imports amounted to 223,686,000 litas and exports to 233,200,000 litas. Chief articles of import were cotton yarn and thread, woollen yarn and thread, cotton fabrics, woollen fabrics, coal and fertilizers. Chief articles of export were meat, butter, flax fibre, pigs and eggs. Almost 40% of the exports went to Great Britain, 27% to Germany, 5.7% to the U.S.S.R. Imports came 31% from Britain, 24.5% from Germany, 6.7% from the U.S.S.R. In 1938 telephones numbered 26,591; radio sets 53,667, broadcasting stations 2.

Agriculture.—Almost 77% of the population was engaged in agriculture, and 49% of the land was arable. Chief products in 1939 and their output in short tons were as follows: rye 726,636; wheat 282,850; barley 282,740; oats 450,841; potatoes 2,290,469; flax fibre 31,416; butter 21,890. The 1939 estimate of livestock was: horses 521,000; cattle 1,004,000; sheep 1,224,000; pigs 1,224,000; poultry 5,130,920.

Manufacturing.—In 1938 about 1,441 industrial establishments employed 40,818 people. Meat and fish products were valued at 44,919,000 litas; manufactured timber 12,532,000 litas; tissues and yarns 28,131,000 litas; machines, etc., 13,215,000 litas; leather goods 14,374,000 litas. Lithuania increased industrial production from an index of 100 in 1929 to 354 in 1939. Total industrial production of 1939 was 405,749,000 litas.

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Livestock. The total number of livestock on farms, including chickens, ceased to decline during 1945 and on Jan. 1, 1946, was estimated by the U.S. department of agriculture at 146,535,000 animal units, compared with 146,187,000 units in 1945 and the peak of 171,149,000 units in 1944. Every class of livestock declined during 1945 except hogs and poultry. The strong demand for meat through 1946 halted the decline in the case of poultry but it kept on with respect to sheep, horses and cattle.

Prices of all meat animals, considered as a group, stood at an index of 240 compared with 111 in 1940—a gain of 139%. The declining military needs, smaller purchases for relief, the end of subsidies, all led farmers to become conservative. The large feed supply was a factor on the other side but not sufficient to maintain production. Civilian supplies of meat at about 145 lb. per capita were larger than the 138 lb. in 1945 because of the reduced military purchases. Exports declined during the second half of 1946; on Sept. 30 the government ceased buying except for the United Nations Relief and Rehabilitation administration which was terminated Dec. 31. The strong demand for beef checked the decline in cattle production that began in 1945. More cattle were put into feedlots, particularly in the last half of the year when the movement of stock and feeder cattle increased. The high prices of beef cattle in July and August and again in September stimulated feeding of cattle. Lamb feeding declined, chiefly because of the smaller number of lambs raised. The good feed crops, especially corn, led hog raisers to feed hogs to heavy weights. The 1946 fall pig crop was about 6,000,000 head less than in 1945. The high fall hog prices led to heavier breeding for spring pigs in 1947.

The total value of livestock on farms on Jan. 1, 1946, was estimated at \$8,922,700,000, not including chickens which were valued at \$662,137,000. This total was about \$800,000,000 more than the value on Jan. 1, 1945. All species of animals were worth more per head, except horses and mules. (See also AGRICULTURE; CATTLE; HOGS; HORSES; MEAT; POULTRY; SHEEP.) (J. C. Ms.)

Numbers of Livestock on U.S. Farms, Jan. 1, 1946, 1945 and average, 1935-44

(In thousands of head)

	1946	1945	Average 1935-44
Horses	8,259	8,841	10,596
Mules	3,196	3,405	4,133
Cattle	79,791	81,909	71,037
Milk cows	26,785	27,674	25,656
Sheep	44,241	47,780	52,768
Hogs	62,344	59,759	55,300
Chickens	525,536	510,939	447,889
Turkeys	8,734	7,323	6,789

Livestock Shows: see SHOWS.

Local Government: see MUNICIPAL GOVERNMENT.

London. London bid a formal farewell to the World War II period in June 1946 when a victory celebration was held. It consisted of a foot-march through main streets by soldiery, a longer suburban tour by a mechanized force and an air parade, all the Allied fighting services eventually joining in a salute and march past the king and queen in the Mall. London's return to peace was symbolized when Sir W. Bracewell Smith, lord mayor, used his gilded coach in the lord mayor's show.

The return of peacetime entertainment was severely restricted by the shortage of theatres and concert halls. Distinguished national playwrights were unable to lease London theatres. When Sir Thomas Beecham formed the new Royal Philharmonic orchestra for the Royal Philharmonic society, it had to undertake its first series of concerts at a Croydon cinema because the Albert hall bookings would allow only a monthly concert. Covent Garden opera house, now in the safekeeping of national trustees, became the new home of Sadler's Wells ballet, recruited its own orchestra and established British opera under Karl Rankl. During the year the Ballet theatre of New York and the San Carlo opera of Naples had long and successful seasons at Covent Garden. The London Philharmonic orchestra started Sunday concerts there.

Housing remained as London's principal social problem. At one time it became so pressing that squatters took possession of some large empty properties and were turned out by legal action. The five chief instigators were prosecuted and bound over for two years. Meanwhile the ministry of town and country planning pressed on with the scheme to build ten satellite towns on the fringes of London for its surplus population. Under the New Towns act, 1946, satellites were announced for Stevenage, Crawley, Hemel Hempstead and Harlow. Others for Ongar and Pitsea-Laindon were recommended. In London proper rehousing proceeded slowly owing, principally, to labour shortages. By the end of October, 11,884 families had been rehoused, mostly in rebuilt bomb-damaged premises. The permanent new houses and flats finished numbered 356 and the prefabricated dwellings erected were 3,090. The London County council decided to take over Hurlingham, the polo grounds, for housing. Rents tribunals were set up to hear complaints of excessively-rented furnished accommodation. Re-equipment for education also went ahead slowly, urged on by repeated protests by teachers for better school accommodation. The L.C.C. budget for education in 1946-47 reached the record figure of £6,000,000.

Long-term plans continued to be made. A plan for rebuilding the City of London was rejected by the government chiefly on the grounds that it neither adequately set off St. Paul's cathedral nor solved the through-traffic problems. The City engaged two town-planning experts to help it to devise a new plan. The larger traffic problem of London was the subject of a report of railway technicians who proposed nine new deep-level double-tunnels beneath London carrying tracks for full-sized electric trains and acting as underground trunk routes through the city. They estimated that more than 100 mi. of tunnels and tracks could be erected in 30 years at a cost of £240,000,000.

The political complexion of London went more noticeably Labour. The results of the triennial L.C.C. elections in March were: Labour, 90; Conservative, 30; Liberal, 2; Communist, 2. This represented a gain of 14 seats by Labour which had been 12 years in power. Under the proposals of the Boundary commission which rerigged boundaries of parliamentary divisions, London's parliamentary representation would be cut down from 60 to 40 seats in the L.C.C. area. On the ground that the commission fixed new boundaries on a wartime register of voters, the government ordered the work to be done again on the most recent register.

Crime statistics for London suggested that the postwar wave

of crime in the metropolis was well on the wane. Indictable crimes for the first nine months of 1946 were roughly a tenth less than those during the same period of 1945. Cases of shop-breaking, for example, fell from 1,239 to 959. Murders in the period were 15 against 17 in 1945 but 6 of these were unsolved. The police were greatly aided by the London system of dialling "999" by the public. More than 50,000 of such telephone calls were received by the police and for every ten, including false alarms, one criminal was caught. Special appeals for recruits were issued by the Metropolitan police during the year and a call was made for 6,000 voluntary special constables.

(P. BN.)

London University. 1946 was a year of great activity in all branches of the university. A return to peacetime conditions was hampered both by the extensive air raid damage which remained unrepaired and by the general shortage of living and teaching accommodation. The situation was further complicated by the tremendous demand from ex-service and other students for admission to university courses. The number of internal students began to approach prewar figures and the number of external students outstripped the 1939 figure by 11,000, reaching a total of 21,000. A large number of appointments were made to fill vacancies and also to fill new chairs and readerships instituted in connection with the many new developments either planned or in operation.

For the first time after 1939 all the schools and institutions of the university were once more established in London. The university library was reopened to readers and the university headquarters returned to the senate house, although the central office of information continued to occupy a large part of it for some months. The university union reopened in temporary premises, pending the erection of a permanent building on the Bloomsbury site. The athletic union revived some of its prewar clubs and established new ones, all of which had successful seasons.

The university welcomed back the chancellor, the earl of Athlone, on his retirement from the governor-generalship of Canada. It became possible to revive some of the peacetime ceremonies: presentation day ceremony was held in May at the Albert hall and was followed by the usual Westminster abbey service; in July Princess Elizabeth attended a special degree ceremony in the senate house at which she received the honorary degree of bachelor of music; and foundation day was celebrated in Nov. by a dinner, reception and honorary degree ceremony.

(K. M. E.)

Loran Navigation: see ELECTRONICS.

Lorenz, Adolf (1854-1946), Austrian surgeon was born on April 21 in Vidnava, Silesia. He was famed throughout the world for his successful work in correction of orthopaedic ailments by "bloodless surgery." Dr. Lorenz made more than 20 visits to the United States, where his arrival was generally attended by such wide publicity that he incurred the scorn of a large part of the U.S. medical profession; the charge against him was that countless numbers of cripples had "their hopes raised to the skies, only to have them blasted when they find they have been misled." His unorthodox techniques were the subject of considerable controversy within the profession. The New York health commissioner welcomed his arrival in that city despite strong opposition from local doctors and arranged for him to examine more than 2,000 cripples, upon 20 of whom he operated. He retired in 1934 and two years later published his autobiography, *My Life and Work* (1936). He died in Vienna on

Feb. 12. (See *Encyclopædia Britannica*.)

Los Angeles. Leading all U.S. cities in area with 452.2 sq.mi., Los Angeles in 1946 stood as the fifth most populous city in the country. As a result of a special census, the U.S. census bureau credited it with a population of 1,805,687, a gain of more than 301,000 over the 1940 census figure of 1,504,277. Mayor (Dec. 31, 1946) Fletcher Bowron. Los Angeles county, which contributes most of the area of the metropolitan district, in 1946 had a population estimated at 3,525,000 as compared with 2,785,643 in 1940.

In 1946 Los Angeles continued to expand its industrial capacity, contrary to general expectation. In the first 11 months of the year \$140,000,000 was invested in the creation of new industrial plants and expansion of existing ones. This represented an investment greater than the total for the years from 1934 through 1940. Developments were characterized by the construction of several new automobile assembly plants in addition to steel mills, chemical factories and the continued operation of all war plants except shipyards.

Retrenchment in employment proved to be less than was expected. By the middle of the year manufacturing employment in Los Angeles county stood at 233,100 as against 154,700 in 1940. Demobilized members of the armed forces were being absorbed into the economic pattern, but housing continued to remain an acute problem because of the lack of home building during the war and because of continued inactivity in that field on account of material shortages.

Los Angeles continued its lead in the production of commercial aircraft and development of new military models. It was the third greatest generator of air traffic in the United States and exceeded all cities on the west coast combined in generation of transcontinental traffic.

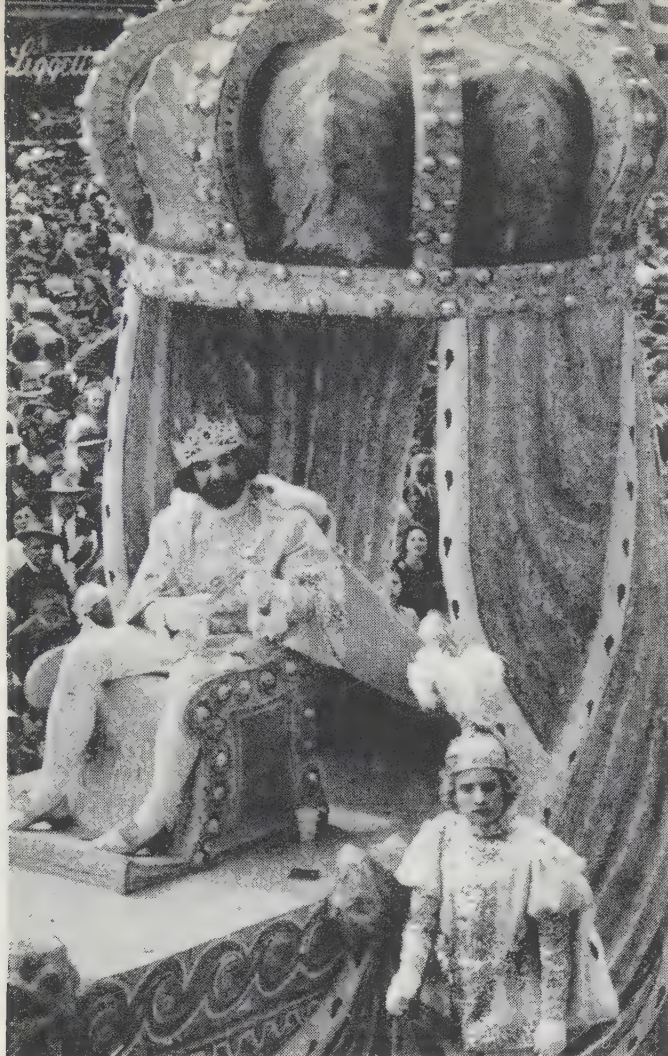
The city is the hub of the richest agricultural county in the United States, and the value of its products in 1945 exceeded \$200,000,000—an all-time record—and indications were that 1946 was a record year in volume of production if not in value.

In the fiscal year 1946-47 the assessed valuation of the city was \$1,664,548,330. The city tax rate was \$6.4188 per \$100 with the assessment at 50% of market value on real estate. The budget for 1946-47 was \$69,409,129, not including harbour and water and power departments.

(J. E. SN.)

Louisiana. One of the west south central states of the United States, admitted to the union in 1812 as the 18th state, Louisiana is popularly known as the "Pelican state," "Creole state" or "Bayou state." Area 48,523 sq.mi., of which 45,177 sq.mi. are land. Pop. (1940) 2,363,880, of which 1,383,441 or 58.5% were rural and 980,439 or 41.5% urban; 64% native whites, 34.3% Negroes and 1.7% foreign-born. On July 1, 1945, the bureau of the census estimated the state's population at 2,456,057. Capital, Baton Rouge (34,719). Other important cities: New Orleans (494,537), Shreveport (98,167), Monroe (28,309), Alexandria (27,066), Lake Charles (21,207), Lafayette (19,210).

History.—The legislature met on May 13, 1946, in regular 60-day biennial session. Four new agricultural experiment stations were established, and state and parish fairs received increased financial aid. Appropriations for elementary, secondary and higher education were increased, and higher salaries were provided for all public school teachers except those in the highest bracket. A legislative committee of eight members was created to make a study and survey of the needs and necessity for improvement in all state public schools, colleges and universities, with findings of this committee to be used as a basis for future educational legislation.



PARADE at the Mardi Gras, pre-Lenten carnival held in New Orleans, La., in 1946, after a four-year wartime ban. Shown is king of Rex and king of the Mardi Gras, identified as U.S. Judge Wayne G. Borah

Many salaries paid from state funds were increased. The per diem of legislators was doubled, and substantial salary increases were provided for state executive department heads and for some judges and other local officials. A pension and retirement system was established for all state employees covered by civil service; a state auto driver's licence law was passed.

After failure of a bill for calling a constitutional convention, the legislature directed the Louisiana Law institute to prepare a draft of a *projet* for a constitution of the state, to be laid before the 1948 session. There were 31 proposed constitutional amendments submitted to the electorate, 25 of which were approved at the general election of Nov. 5, 1946.

The most controversial issue before the legislature was a series of proposals to define the legal responsibility and to restrict certain activities of labour organizations. Some of these proposals were enacted into law after heated discussion, while others were defeated; and after the session adjourned, the governor vetoed the most highly controversial labour measure passed by the legislature.

Aside from the legislative session, the most important political event of the year was the defeat of Robert S. Maestri for reelection as mayor of New Orleans, thus retiring from office the last prominent leader of the old Huey P. Long political machine which was so powerful in Louisiana during the 1930s.

Other important events during the year were: attempts to alleviate the critical housing shortage in the larger urban centres; rehabilitation and adjustment to civil life of veterans of World War II; fight by state authorities to prevent exportation of natural gas from the state; labour controversies arising from

the increased cost of living and the shift from wartime conditions in industry; state leases of its coastal waters for petroleum exploration; plans for an enlarged program of state highway construction, and for a comprehensive drainage, flood control and reclamation project and the mounting state income from taxes of all kinds, which reached a new high because of prosperous conditions in agriculture and industry.

State officers in 1946 were: James Houston Davis, governor; J. Emile Verret, lieutenant governor; Wade O. Martin, Jr., secretary of state; A. P. Tugwell, treasurer; L. B. Baynard, auditor; Fred S. LeBlanc, attorney-general; John E. Coxe, superintendent of education; Lucile May Grace, register of land office; Harry D. Wilson, commissioner of agriculture and immigration.

Education.—In 1946 the 823 public schools for whites enrolled 210,917 elementary and 58,631 high school pupils and employed 10,037 teachers; the 1,767 public schools for Negroes enrolled 151,839 elementary and 13,908 high school pupils and employed 4,526 teachers. The 175 private schools for whites enrolled 47,075 elementary and 9,139 high school pupils and employed 1,734 teachers; the 79 private schools for Negroes enrolled 11,922 elementary and 2,680 high school pupils and employed 344 teachers. The state maintained 11 public trade schools.

State appropriations for the 1946-47 fiscal year were \$28,854,000 (exclusive of local funds) for public elementary, secondary and trade schools and \$11,000,000 for state-supported colleges and universities. All the colleges and universities were crowded to capacity by returning veterans seeking higher education with federal government assistance.

Social Insurance and Assistance, Public Welfare and Related Programs.—Louisiana expended nearly \$20,000,000 on public welfare work in 1946. Approximately 98,500 individuals were aided, including 50,535 aged persons, 36,809 dependent children, 1,819 needy blind, 506 foster children and 8,820 special cases. In spite of labour shortage and high wages prevailing in industry and agriculture, state expenditures for general relief and unemployment insurance increased considerably as compared with the preceding year.

The state maintained the following institutions in 1946: charity hospitals at New Orleans, Shreveport, Lafayette, Monroe, Pineville, Independence and Bogalusa; insane hospitals at Jackson and Pineville; a tuberculosis sanitarium at Greenwell Springs; schools for the blind and the deaf at Baton Rouge (for whites) and at Scotlandville (for Negroes); and a training school for the feeble-minded at Alexandria. The 1946 legislature provided for the establishment of another tuberculosis sanitarium at Ruston, the Hot Springs hospital near Alexandria and a special school for spastic children.

The state maintained two prison farms for its 3,300 adult offenders and separate training institutes for about 350 white juvenile delinquents. A new training institute for delinquent Negro boys was under construction near Baton Rouge.

State appropriations for charitable and correctional institutions were \$14,600,000 for the 1946-47 fiscal year.

Communication.—In 1946 Louisiana had 18,200 mi. of public highways, 14,800 mi. of which were state-maintained, 10,500 being gravelled and 4,300 paved. State expenditures for highways were only \$13,191,737 for the 1945-46 fiscal year, because of scarcity of materials for new construction; but an ambitious construction program was launched during the year, and about \$40,000,000 (exclusive of matching federal funds) were made available for the 1946-47 fiscal year. There were 4,400 mi. of railways and 4,800 mi. of navigable waterways. New Orleans, Baton Rouge and Lake Charles are ports for ocean-going commerce, with aggregate tonnages of 39,446,276 in 1941, distributed as follows:

Table I.—Commerce of Louisiana Ports in 1941

Ports	Foreign	Coastwise	Internal	Total
Baton Rouge	509,522	3,608,249	4,031,737	8,149,508
Lake Charles	76,026	1,154,196	9,159,277	10,389,499
New Orleans	5,096,509	4,318,868	11,491,892	20,907,269
(Totals)	5,682,057	9,081,313	24,682,906	39,446,276

There were 26 airports for land planes and 11 seaplane bases and anchorages in operation in 1946, with several others under construction. Nearly 325,000 telephones were in service in 1946.

Banking and Finance.—Louisiana had 33 national banks in 1946, with total deposits of \$1,025,000,000 and resources of \$1,075,000,000; and 122 state banks, with total deposits of \$450,000,000 and resources of \$480,000,000. There were 67 savings and loan associations, with total resources of about \$100,000,000. State budget for the 1945-46 fiscal year: receipts \$120,145,918; expenditures \$107,475,755. State bonded debt approximately \$150,000,000.

Agriculture.—Excessive rainfall during the growing season and shortage of labour and machinery for cultivation materially reduced the yield of some of the principal crops in 1946, the cotton crop being the smallest in 36 years. However, higher prices for most crops and livestock boosted the total agricultural income above that of 1945.

Total value of principal agricultural and truck crops in 1946 was \$238,277,000, compared with \$233,260,000 in 1945; total acreage harvested was 3,552,000, compared with 3,624,000 in 1945. Total cash income from crops and livestock was \$295,000,000 in 1946, compared with \$290,000,000 in 1945; from government payments \$9,500,000, compared with \$12,000,000 in 1945.

Table II.—Leading Agricultural Products of Louisiana, 1946 and 1945

Crop	1946	1945
Cotton (bales)	250,000	395,000
Corn (bu.)	15,936,000	23,140,000
Rice (bu.)	21,508,000	23,028,000
Sugar cane (tons)	4,600,000	5,618,000
Sweet potatoes (bu.)	10,800,000	10,724,000
Irish potatoes (bu.)	2,500,000	2,520,000
Oats (bu.)	3,960,000	4,248,000
Hay (tons)	420,000	400,000
Pecans (lb.)	9,000,000	9,200,000
Peanuts (lb.)	1,780,000	1,785,000
Peaches (bu.)	364,000	422,000
Pears (bu.)	235,000	230,000
Citrus fruits (boxes)	360,000	290,000
Truck crops (value)	\$20,277,000	\$18,260,000

Manufacturing.—The pent-up civilian demand for manufactured products kept many of the larger industries working at wartime level during 1946. Nearly 2,000 industrial establishments, employing 150,000 workers and paying \$200,000,000 in wages, produced finished products worth \$1,000,000,000 in 1946, as compared with \$1,100,000,000 in 1945. Louisiana industries were not materially affected by strikes and labour difficulties in 1946.

Mineral Production.—Civilian demand pushed production of some minerals beyond wartime levels in 1946, though some others dropped below 1945 figures.

Table III.—Principal Mineral Products of Louisiana, 1946 and 1945

Mineral	1946	1945
Petroleum (bbl.)	140,000,000	133,000,000
Natural gas (M. cu. ft.)	600,000,000	550,000,000
Natural gasoline (bbl.)	2,600,000	2,500,000
Sulphur (tons)	925,000	745,000
Salt (tons)	900,000	1,500,000
Shell (tons)	1,440,000	1,500,000
Sand (tons)	1,340,000	1,290,000
Gravel (tons)	2,520,000	2,600,000
Stone (tons)	720,000	800,000

Total value of mineral production was estimated at \$280,000,000 in 1946, compared with \$275,000,000 in 1945. Some new petroleum fields were discovered during the year.

Forest Products, Furs, Fisheries.—Louisiana forests produced 1,000,000 bd. ft. of lumber and 680,000 cords of pulpwood in 1946, compared with 900,000,000 bd. ft. and 640,000 cords in 1945. The 1945-46 Louisiana trapping season yielded 8,869,609 pelts valued at \$15,553,185, compared with 6,521,767 pelts valued at \$7,898,104 for the 1944-45 season. Louisiana fisheries produced catches valued at \$9,603,210 in 1944, \$3,561,022 representing fresh-water and \$6,042,188 salt-water varieties. Though the catches of some varieties were smaller in 1945 and 1946, increased prices brought the total value higher in those years than in 1944.

(W. P. R.)

Lumber. In the United States, lumber continued during 1946 as one of the most critical materials, especially for housing. With the end of World II, it had been expected that the deficiencies in dwelling construction would be promptly made up by the sawmills and that there would be sufficient lumber for housing the home-coming soldiers, as well as for the normal annual construction of dwellings which in former years had been about 800,000 per year.

During the first six months of 1946, however, production of lumber was seriously curtailed in the west due to strikes, lack of skilled labour and difficulty of securing sawmill equipment and supplies. Production in the south and east increased so that the total production during 1946 for the United States was about 32,000,000,000 bd. ft. This was a definite increase over the production for 1945, which had been about 4,000,000,000 bd. ft. less. The increased production, however, was far short of the demand for housing, as well as for increased industrial uses. The increased lumber production was due largely to the following conditions: (1) improved weather in most of the United States and especially for logging in the woods; (2) production from new mills, especially of the smaller capacities; (3) increased production from the older and larger mills, especially those producing from 20,000,000 to 50,000,000 bd. ft. per year; (4) availability of more man power, especially in southern pine and hardwoods of the south and southeast.

Southern pine continued as the leading species produced by the lumber industry, closely followed by Douglas fir and ponderosa pine. These three groups produced approximately two-thirds of the total lumber output of the country. Other important softwoods were white pine (including northern white pine and Idaho white pine), hemlock, both of the western and eastern species, spruce, sugar pine, redwood and southern red cypress. The leading hardwoods produced were oak, red gum,

yellow poplar and hard maple. Other important hardwoods were birch, ash, basswood, hickory, black cherry, tupelo, cottonwood and black walnut.

The year was marked by increasing interest on the part of lumber manufacturers and timber owners generally in improved growing conditions for merchantable timber in the future. It was determined that most of the available standing timber in the United States is found in relatively small ownerships, especially among farmers, in small tracts of approximately 5 to 200 ac. or more each. Industrial ownership of timber represents a relatively small amount of the total. Many lumber companies, as well as other industrial users of standing timber, had recognized the increasing importance of forest management, including better methods of fire protection, improved selective logging, the planting of more trees for the future, the prevention of injurious pests such as insects and fungi which attack trees, and other methods to improve the supply of available timber. This movement was made noteworthy by the American Forestry congress in Washington, D.C., on Oct. 9 to 11, 1946.

Some lumber was exported, principally to Europe and South America, as well as to Central America, but the total amount did not reach the normal quantities of prewar years.

Because of the restrictions of the Office of Price Administration and the very strong demand for all kinds of lumber, considerable lumber found its way into the black market, and for this exorbitant prices were paid. Lumber stocks in retail and distributing yards were lower than at any time after 1900. In some sections of the country, the average stocks carried in retail yards were estimated at 5% of normal.

During World War II, the great demand for lumber was for boxes in which to ship munitions, food and war supplies. The great demand in 1946 was for housing. In spite of encouragement by governmental agencies which dealt with housing, the supply was far short of the demand. (N. C. B.)

Great Britain, Commonwealth and Europe.—It was hoped that by the end of 1946 the grave shortage of timber supplies would be considerably eased, if not entirely overcome. There was, however, no improvement, and the gap between demand and production remained as large as ever. A number of factors contributed to this situation: in most of the producing countries it was not yet possible to get all the labour needed, either in the forests or in the sawmills. The shortage of houses in all European countries not only largely increased the demand for wood, but also prevented several producing countries, notably the U.S.S.R., from exporting their normal quota, as they needed the material to house their own people.

Great Britain's inability to export coal in any quantity undoubtedly affected its power to import timber. Both Sweden and Finland would have produced far more wood for Britain if only they had had adequate coal supplies to drive their sawmills to capacity. The British timber control continued in operation with full control of imports, prices and utilization. In Jan. 1946 the National Softwood Brokers, Ltd., began to operate as a medium of distribution between the government and the trade. Efforts were made to hand back larger parts of the industry to private enterprise as in prewar days, and it was hoped that their results might become still more apparent during 1947.

The over-all Canadian lumber production for 1946 was estimated at 2,600,000 standards, compared with 2,400,000 standards for 1945. The timber control in Canada remained in a modified form. Maximum price schedules were still in force inside the country, but a greater degree of freedom was granted to the export trade during 1946. Canada maintained large shipments of lumber, softwoods and hardwoods to Great Britain, and remained one of Britain's principal sources of supply.

Softwood.—It is estimated that Sweden produced about 1,000,000 standards during 1946, against some 1,450,000 standards in 1938; Finland cut 600,000 standards, against 1,300,000 standards in 1938. The figures for the U.S.S.R., Rumania, Poland and Yugoslavia were not known with sufficient accuracy for estimates to be given, but all undoubtedly produced considerable quantities of softwoods during 1946. Prices continued to show a hardening tendency, and no reduction was expected during 1947: rather the reverse.

Hardwood.—The hardwood supply position in general continued almost as difficult as the softwood in 1946. No important quantities of oak, ash or beech were exported by Russia, Poland, Rumania or Yugoslavia. It was, however, reported that sawmilling operations in the latter two countries were well under way at the end of the year, and a considerably increased volume of production was expected in 1947. Great Britain continued to derive the main part of its hardwood requirements from the U.S., Canada and the West African colonies, combined with an increased production of home-grown timber. Efforts were being made to increase the West African hardwood tonnage by all possible means.

Plywood.—Plywood remained scarce. Of the European countries, Finland resumed its export trade, although still handicapped for supplies of glue and other essential adjuncts. Czechoslovakia operated numerous factories, and planned new plants. No reliable statistics were available from the U.S.S.R., Poland or Rumania, but considerable quantities for home consumption were being manufactured in all three countries. Canada continued to increase its production, and was a large exporter to Great Britain. (See also FORESTS.) (B. L.)

Lutherans. The year 1946 may be marked in the future as an epochal year in the history of the Lutheran Church in the world. The extraordinary circumstances following World War II made it necessary, everywhere, for Lutherans to make an appraisal of the strength, relationships, tasks and resources of the church.

The imperative tasks which confronted Lutherans in the U.S. led that section of the Lutheran Church to recognize the necessity for closer relationships between independent bodies, and that led to a strengthening of their common co-operative agency, the National Lutheran council, to a degree which approached organic union. That agency, which gave such effective service to the men and women in the armed forces during World War II, was implemented for a projection of that service, in peacetime, to men and women who went from war to colleges and universities, or, by the thousands to hospitals for veterans. Likewise, this co-operative program was vastly expanded in the field of missions, home and foreign, and in the field of social service.

The National Lutheran council was designated as the agency through which a fund of \$10,000,000 was sought for 1946 and 1947, for relief and reconstruction in Europe, for a program integrated with the work of the World Council of Churches.

Further co-operation between Lutheran bodies in the U.S. was manifested in connection with the preparation and publication of a hymnal for the use of all Lutheran congregations, and the project of a graduate theological seminary, of university standard, received wide and favourable consideration.

The union of all Lutheran churches in the world in a federation for world service took definite form in a constitution for an organization to be known as the Lutheran World federation.

It is estimated that the membership of the Lutheran Church in the world in 1946 was more than 60,000,000 of whom 3,877,657 were reported as belonging to congregations in North America. Most of the European Lutherans live in Norway,

Sweden, Denmark, Finland and Germany. (See also CHURCH MEMBERSHIP.) (W. H. G.)

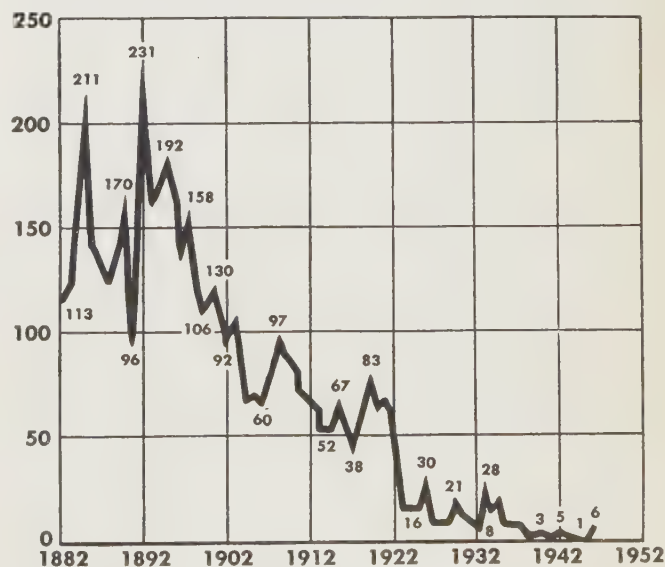
Luxembourg. A grand duchy situated between France, Germany and Belgium. Area, 999 sq.mi.; pop. (est. 1942) 301,000; chief city, Luxembourg (cap., 59,000); language, Luxembourgian (idiomatic) and (officially) French and German; religion, 98% Roman Catholic. Ruler from 1919: Grand Duchess Charlotte. The constitution of 1868, with some important changes in 1919, provides for democratic government through a popularly elected chamber of deputies of 55 members.

Economic reconstruction to repair the damages of war was Luxembourg's chief task in 1946. In April a pact was signed with Belgium and the Netherlands looking toward full economic union. In November a claim for a strip of German territory about 2½ mi. wide and totalling about 225 sq.mi. was presented to the Big Four Council of Foreign Ministers. Luxembourg's chief products, with figures for 1938 in metric tons, were: iron ore 5,140,632, pig iron 1,550,703 and steel 1,436,506.

(S. B. F.)

Lynching. As had been feared by close observers of inter-racial tensions, the lynching curve in the U.S. turned sharply upward in 1946, the first postwar year, just as it did in 1919. As against one victim of mob murder in 1945 and two the year before, Tuskegee institute recorded six in 1946, together with four additional borderline cases in which the evidence was not wholly conclusive. All the victims were Negroes and three incidents were involved, one each in Georgia, Mississippi and Louisiana.

Most horrifying of the three—a crime that shocked the nation profoundly—was the multiple lynching near Monroe, Walton county, Ga., in which on July 25 four persons, two of them women, were shot to death. The victims were Roger Malcolm, charged with the nonfatal stabbing of a white man ten days before, Malcolm's wife and her brother and sister-in-law, George Dorsey and wife. On the day of the lynching Malcolm was released from jail on a \$600 bond signed by J. L. Harrison, a farmer, who took the four in his car and started to his home where they were to be employed. Eight miles out of Monroe the car was stopped by some 25 unmasked, heavily-armed men who pulled Malcolm and Dorsey from the car. One of the women screamed and appealed to a member of the mob by name. Thereupon they too were seized and with their hus-



LYNCHINGS in the U.S. from 1882 to 1946, based on figures of the department of records and research, Tuskegee institute

bands were led a little way into the woods, where the four were riddled with bullets. Harrison insisted that he recognized none of the mob. For four months following the crime, a small army of federal investigators worked on the case, combing several counties and interviewing 2,500 people, but apparently without result. A federal grand jury of 23 men, two of them Negroes, then took it up, but after three weeks of hearings announced themselves unable to identify or indict anyone connected with the crime. The judge then recessed the jury, subject to recall should additional evidence come to light.

On July 28, at Lexington, Miss., Leon McTatie, tenant farmer just released from jail where he had been held on a charge of theft later found to be erroneous, was seized by a small group and beaten to death. Five men of the community, accused of the crime by the district attorney, were promptly arrested and indicted, but were acquitted when brought to trial.

In Minden, La., on Aug. 8 John C. Jones, oil worker who had been accused by a woman of trying to enter her house, was released from jail when the woman failed to file formal charges. He was immediately picked up on the street by a small group of men, taken out of town and beaten to death. Six men, including the chief of police and two deputy sheriffs, were indicted by the local federal grand jury on the charge of denying Jones his constitutional rights by "causing him to be released from jail and handed over to a mob." When brought to trial in federal court they too were acquitted.

Stirred by these and other outbreaks of interracial violence, U.S. Attorney General Tom C. Clark announced that he would seek additional legislation to strengthen the government's hand in dealing with such cases, and President Harry S. Truman in December appointed a committee of 15 to study existing federal civil rights laws and suggest measures needed to make them broader and more effective. (R. B. E.)

Macao: see PORTUGUESE COLONIAL EMPIRE.

MacArthur, Douglas (1880—), U.S. army officer, was born Jan. 26 in Little Rock barracks, Ark. (See *Encyclopædia Britannica*.)

Following Japan's attack on the Philippines he was renamed a full general by President Roosevelt, Dec. 19, 1941, and led Filipino and U.S. forces in the defense of the islands. Although heavily outnumbered in men and material, MacArthur slowed the Japanese advance and retired to the Bataan peninsula. He left the Philippines on Roosevelt's orders and reached Australia on March 17, 1942, to assume command of the United Nations' armies in the Southwest Pacific.

In opening the campaign in New Guinea in the fall of 1942, MacArthur took the offensive against the Japanese and never relinquished it throughout the remaining years of World War II, conquering New Guinea and liberating the Philippines. He was promoted to the rank of general of the army (Dec. 15, 1944).

After Hirohito's surrender broadcast (Aug. 14, 1945, U.S. time), President Truman appointed MacArthur supreme commander of Allied occupation forces in Japan. The general headed the Allied delegation that accepted the Japanese surrender, Sept. 2, 1945, aboard the battleship U.S.S. "Missouri" in Tokyo bay. He was not in favour of the Big Three's agreement to establish an Allied Control council for Japan, but he asserted (Dec. 30, 1945) that he would try to make the plan work regardless of its "merits or demerits."

The general's early reports on the results of the occupation policy were somewhat gloomy and marked with concern over the growth of the Communist party in Japan. Subsequently, they became more optimistic and on Dec. 31, 1946, he stated that Japan had made "major advances" toward establishing a

liberal social system and he praised Japanese leaders for their "exemplary approach to the realism of Japan's problems."

It was generally acknowledged that MacArthur's occupation policies were satisfactory to the state department and to President Truman.

Some British critics complained, however, that MacArthur was the advance agent of U.S. "imperialism" and that his control of Japan was virtually absolute.

McGill University. Under the royal charter which established McGill university (Montreal, Que.) in 1821 the governor general of Canada was appointed visitor on behalf of the crown. In May 1946 the university had the honour of welcoming as its new visitor the incoming governor general, Field Marshal Viscount Harold Alexander of Tunis, and later in the year of conferring the honorary degree upon Field Marshal Viscount Bernard Montgomery of Alamein.

During the year the veterans of World War II returned to the university in great numbers. From a normal enrolment of 3,000 the student body rose to 7,500 late in October. The university remained in almost continuous session throughout the year, admitting students three times, in January, the end of May and October. To meet the emergency an R.C.A.F. station 30 mi. outside the city was taken over and named Dawson college. Another R.C.A.F. station was acquired at Lachine, Que., where the Peterson residences provided quarters for married and single veterans who commuted for classes to the Montreal campus; several new student residences were constructed at Macdonald college. Other new buildings included the completion of the first cyclotron and radiation laboratory in Canada and the enlargement of the existing engineering building. Total gifts, grants and bequests received during the year reached a total of \$2,021,205. The expenditure was \$3,867,852 which was more than \$1,500,000 greater than the previous year.

(For statistics of endowment, enrolment, faculty, library volumes, etc., see also UNIVERSITIES AND COLLEGES.) (F. C. J.)

Machinery, Farm: see AGRICULTURE.

Machinery and Machine Tools. The value of machine tools shipped from builders' plants in the United States during 1946 totalled a little more than \$300,000,000. This brought the total for the ten years from 1937 through 1946 to more than \$5,459,000,000, a sum considerably greater than for any decade in the history of the industry. Shipments for the 1927-36 decade were only \$862,000,000.

The 1946 total was about 75% of the more than \$497,000,000 total for 1945, and only about 23% of the \$1,320,000,000 peak total attained in 1942. It is of interest to note that shipments by the United States machine tool industry during the five World War II years of 1941 through 1945 totalled more than \$4,179,000,000, almost 12% more than the 40-year total of \$3,649,000,000 produced from 1901 through 1940. Total shipments during the five World War I years of 1914 through 1918 were a little more than \$669,000,000, less than one-sixth of the 1941-45 total.

Values given are for nonportable power operated units, valued at \$350 or more each, used to shape parts by progressively removing metal in the form of chips. Machines for drilling, turning, boring, grinding, milling, threading, broaching, honing and similar operations are included. Not included are metal forming units—presses, forging machines and hammers, extruding machines, brakes and shears—for which comparable totals were not available.

New records were set during 1946 by makers of mechanical

presses in the United States. Shipments reached an all-time high of \$4,700,000 during the month of August. Also busy during 1946 were makers of hydraulic presses, heat-treating furnaces and materials handling equipment.

High production requirements in many metalworking plants led to the construction of a number of special-purpose machine tools by U.S. builders. Perhaps the most unusual of these was a 24-station transfer type machine designed to process cast iron refrigerator-compressor bodies in a predetermined machining cycle. At 80% efficiency, this machine produces 188 pieces per hour. Two compressor bodies are loaded on each work-holding fixture and duplicate operations are performed simultaneously. Milling, drilling, boring, reaming, chamfering and tapping operations are performed with 152 tools. All functions of the machine are hydraulically operated and electrically interlocked. The individual machine units must go through their complete cycles before the fixtures can be released and the transfer bar operated. Similarly, all fixtures in the machine must be transferred and clamped properly before the next machining cycle can be started.

Of equal interest to production engineers in mass-production plants was the development during 1946 of a precision pneumatic gauging instrument arranged for checking simultaneously bore diameters of automotive engine cylinder blocks. Designed for installation as an integral part of a production line, this unit checks diameter, taper and out-of-roundness of eight cylinder bores at four different points in each cylinder, and accurately classifies them to 0.0003 in. Hydraulically operated and electrically controlled, this unit can complete a gauging cycle on a cylinder block in less than 60 seconds.

For the most part, designs of general-purpose machine tools were frozen during World War II in order that quantity production of needed units could be achieved with less difficulty. Major design changes were deferred until the battle of production could be won. The year 1945 therefore was the first after the war started when machine tool builders could put design engineers to work on new units. Their work was evidenced by the number of new machines announced by U.S. machine tool builders during 1946.

Outstanding among these new machines was a line of powered headstocks and powered toolslides developed for turning, boring and facing operations on rotating workpieces. Developed as a result of functional analysis of the engine lathe, these units can be combined in a number of arrangements to facilitate application of single-point tools to the rotating work. The machine consists of two members—a simplified lathe headstock and base with drive motor, change gears and associated controls; and from one to three individually motor-driven toolslides mounted on swiveling bases. The toolslides have automatic feed cycle controls which provide rapid approach and return at 100 in. per min. and predetermined feed at rates of 0.5 to 13 in. per min. Some of the slides have automatic tool relief. Heads and slides can be mounted on a common base to perform consecutive operations controlled by one operator, or single-head units on compact bases and fitted with one or more slides can be grouped for servicing by one operator.

Of more conventional design, a dual-drive lathe introduced late in 1946 swings 15-in. over the bed ways and is powered with a 3-h.p. motor. There are 12 spindle speeds available, 8 in the low-speed range where the drive is through a gear train, and 4 in the high-speed range with direct belt drive from the motor to the spindle. Low speeds range from 28 to 445 r.p.m.; high speeds for use with carbide tools range from 540 to 1,800 r.p.m. A single lever controls all 12 speeds.

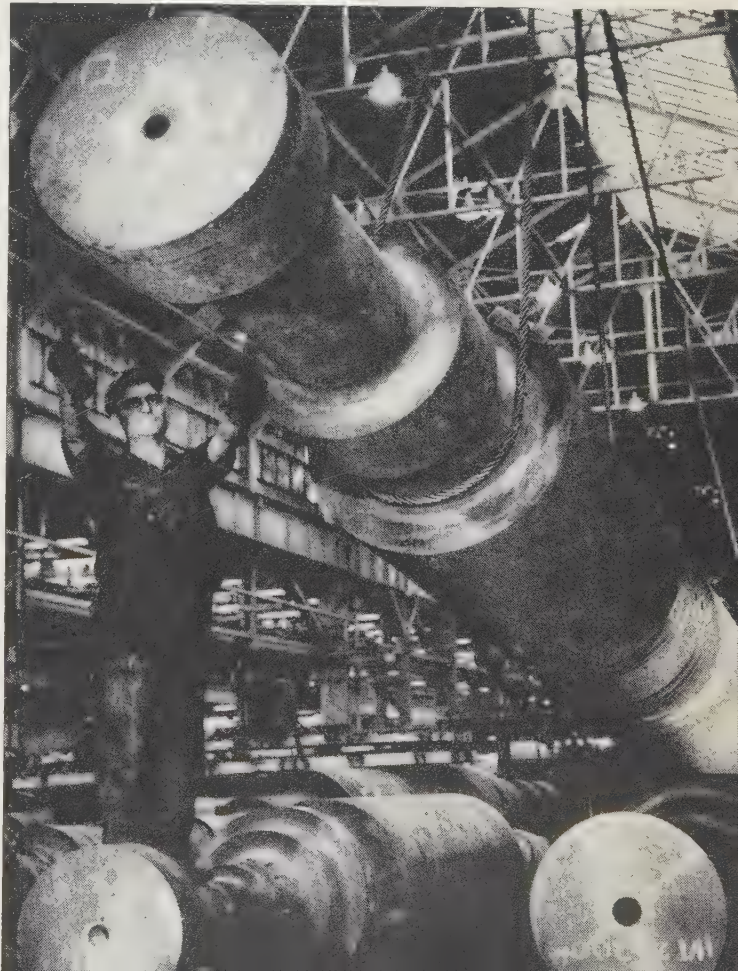
Cams were eliminated in a series of five-spindle automatic screw machines for operations on bar stock made available early

in 1946. Normal cam functions are performed by adjustable quadrant sectors and links that control feed strokes. Four independent cross slides, a separate cutoff slide, a longitudinal centre slide and two independent longitudinal slides provide for flexibility of tooling arrangements. An 18-speed transmission controls rate of feed of all tools. Spindle speed range is 130 to 1,414 r.p.m. in 24 steps. Depending on work requirements, drive is from a 10 or 15 h.p. motor.

Pre-selected changeable spindle speeds ranging from 50 to 5,000 r.p.m. were featured in a high-production hand screw machine also announced in 1946. Spindle bore will accommodate bar stock up to $\frac{7}{8}$ in. diameter. It has a power-feed ram turret and a hand-operated cutoff slide. A 3-h.p. variable-speed motor, complete with motor-generator set for converting alternating to direct current, is used to drive the machine. All electrical controls, including speed-control potentiometers, are mounted on an enclosed panel at the rear of the machine. This ten-station panel has six speed-control stations for the six sides of the turret, two stations for the front and rear tools on the cutoff slide, and two additional speed control stations for other operations such as forward or reverse speed for tap and die work. Return of a tool from the work position actuates a finger which automatically changes spindle speed to that required for the next operation in the pre-set cycle.

A new boring and turning mill for railway car wheels ranging from 33 to 40½ in. diameter made it possible to reduce time for boring and contour turning operations materially. Chucking method centres the wheel so rim thickness is balanced when machining operations have been completed. Four heads used include the boring and facing head, the rim turning head and two side heads. Automatic cycling is provided for all heads,

ROUGH FORGING of the shaft for a 100,000 kilowatt turbine generator under construction during 1946 at the General Electric plant at Schenectady, N.Y. The shaft, 75 ft. long when finished, was to operate at 3,600 r.p.m.



which have individual feed motors. The 100-h.p. main drive motor provides a table speed of 5 to 25 r.p.m. Both side heads have contour attachments so the taper and contour on the tread and flange of the wheel can be generated. This produces finer finishes and greater accuracy than was possible with the previously used plunge cut method.

Development of a two-element unit for measuring and correcting unbalance in crankshafts for automobile engines was another important 1946 announcement. Combining an electronically controlled balancing machine and a six-spindle drilling machine, the unit makes it possible to balance six-throw crankshafts to a high degree of accuracy with little possibility of human errors affecting the results. The two machines are interconnected electrically so the balancing unit measures correction to be applied at each of six points on the crankshaft and these measurements are transmitted to the drilling unit so stops can be set automatically. The crankshaft then is moved on a dolly from the balancer to the drill press and is transferred to a locating fixture. With the fixture closed, a pushbutton is operated to start the drilling cycle. Depth of each hole is controlled to within 0.003 in. of the setting predetermined by the balancing unit without attention from the operator. Average time per crankshaft is about two minutes. (B. C. B.)

Great Britain.—The British machine tool industry played an important part in the reconversion and export programs during 1946. The minister of supply established the Machine Tool Advisory council which, with its government, machine tool and independent representation, provided a permanent means of consultation.

The value of production of metalworking machine tools in Great Britain in 1935 was £6,500,000; by 1939 it was £16,000,000, and in 1942 reached a peak of £33,000,000. During World War II 385,000 or 82% of the new tools installed in British factories were British made. The peak output, which was achieved by shift working and widespread sub-contracting, and with a total labour force of about 50,000, indicated the inherent strength and flexibility of the industry. Production for 1945 was about £20,000,000. Order books were heavily loaded in 1946, the value of outstanding orders representing about 15 months' work at the existing production rate. Output was limited by the supply of skilled labour and particularly by the lack of castings and electric motors.

In 1932, due largely to Russian orders, exports reached about 75% of total production. In 1946 deliveries for export were expected to reach £8,000,000 or 40% of production.

A large surplus of government tools became available at the end of the war. These were offered in the first instance to home users, to stimulate and facilitate the re-equipment of industry. Up to Sept. 1946 63,000 machines had been sold at a total price of £17,200,000 and by far the greater part of these replaced older and less efficient machines or increased production facilities in British factories. Due to the heavy demand, new production was not endangered by the rapid release of the surplus.

Great technical progress was made under the stimulus of war and many types previously imported were developed and perfected, including small precision machines of the Swiss type for instrument manufacture, three-dimensional cam milling machines, large presses and high production automatic lathes. (See also AUTOMOBILE INDUSTRY.) (S. F. SD.)

Mackenzie King, William Lyon: see KING, WILLIAM LYON MACKENZIE.

McNarney, Joseph Taggart (1893—), U.S. army officer, was born Aug. 28 in Emporium, Pa. He was graduated from the U.S. Military

academy, West Point, N.Y. (1915), and served with the U.S. air forces in France, 1917–18. He was graduated in 1926 from the Command and General Staff school at Fort Leavenworth, Kan. He was a member of the Roberts commission that investigated the Pearl Harbor attack (Dec. 1941–Jan. 1942), and in March 1942 he was appointed deputy chief of staff. In May of the same year he was made a lieutenant general. McNarney left his desk job in Oct. 1944 to become deputy supreme Allied commander in the Mediterranean. Pres. Roosevelt named him (March 13, 1945) for promotion to the temporary rank of a full general. When Gen. Dwight Eisenhower was elevated to the post of chief of staff, McNarney succeeded him as commander of U.S. forces in Europe (Nov. 20) and concurrently of German occupation forces and U.S. representative on the control council. He said (Nov. 27, 1945) that he would adhere to a strict denazification policy.

McNarney warned (May 8, 1946) that the food crisis and Allied failure to administer Germany as an economic entity imperilled "all phases" of the occupation. On Dec. 4, he ordered abolition of the army's "hate-the-Germans" policy and directed occupation forces to help the reich rebuild its economy and regain political freedom. Three weeks later (Dec. 24), he announced an amnesty for more than 800,000 Germans in the U.S. zone who were facing prosecution under the denazification laws. McNarney, who was slated to become U.S. representative on the United Nations military staff committee, relinquished his post in Germany to Gen. Lucius D. Clay, Jan. 6, 1947.

McNutt, Paul Vories (1891—), U.S. politician and government official, was born July 19 in Franklin, Ind. Educated at Indiana university, Bloomington, Ind. (A.B., 1913), and at Harvard, Cambridge, Mass. (LL.B., 1916), he served on the faculty at Indiana university law school, 1917–25, and was dean of the law school, 1925–33. He became governor of Indiana in 1933. He was U.S. high commissioner to the Philippines, 1937–39, and was named first administrator of the Federal Security administration in 1939. On April 18, 1942, President Roosevelt made McNutt head of the War Manpower commission. In an effort to correct "wastage" of federal manpower and the pirating or hoarding of workers, Pres. Roosevelt on Dec. 5, 1942, vested in McNutt full authority to hire and distribute workers for civilian war industries and full control of the Selective Service system. In Dec. 1943 a new draft bill was enacted which deprived McNutt of his power over selective service. President Truman appointed him high commissioner to the Philippines on Sept. 6, 1945.

On June 14, 1946, McNutt was named the first U.S. ambassador to the Philippines and he took his post July 4 when the Philippines republic was formally established.

McReynolds, James Clark (1862–1946), U.S. jurist, was born on Feb. 3 at Elkton, Ky., and was educated at Vanderbilt university, Nashville, Tenn. (B.S., 1882), and at the University of Virginia, Charlottesville, Va. He was graduated from the law department of the latter school in 1884. In 1903, he became the U.S. assistant attorney general and a celebrated "trust buster." In this capacity, he handled the prosecution of Sherman act violations and presided over the dissolution of the tobacco and anthracite trusts. Appointed attorney general in 1913, his tenure was highlighted by the dissolution of the Pacific-Southern railroad merger and by the ruling that compelled the American Telephone and Telegraph company to relinquish its monopolistic control of wire communications. In 1914, he became an associate justice of the supreme court, and held this position until he retired on Feb. 1, 1941. As supreme court justice, he par-

anticipated in many celebrated cases. In 1929 he wrote the majority opinion in the case that preserved the five-cent fare in New York city, and in 1932 he dissented when the court ordered new trials for the seven Negroes in the Scottsboro case. In the years that followed, Justice McReynolds became famous as a court dissenter and as a sharp critic of Pres. Roosevelt's New Deal. A dissenter in the renowned gold-clause decision, which held that gold payment of private bonds could not be enforced, he denounced the majority opinion, describing it as a "repudiation of national obligation." At times the lone dissenter of the court, he attacked the Tennessee Valley authority project, holding it unconstitutional in the suit over a contract for transmission of energy. A staunch advocate for the "written constitution" and the "indestructible states," he waged a long and stubborn fight against an expanding federal program. He died at Wash., D.C., on Aug. 24.

Madagascar: see FRENCH COLONIAL EMPIRE.

Magazines and Periodicals: see NEWSPAPERS AND MAGAZINES.

Magnesium. Under pressure of extraordinary demand, magnesium production made a record that is an outstanding example of what can be accomplished when necessity drives. The progress of the industry in the United States is shown in the table.

Data of Magnesium Industry in the U.S., 1939-45

	1939	1940	1941	1942	1943	1944	1945
	(In thousands of short tons)						
Primary output	3.4	6.3	16.3	49.0	183.6	157.1	32.8
Secondary recovery	?	?	?	6.3	11.4	14.2	9.2
Sales, primary	5.3	6.4	15.5	47.4	170.3	146.6	43.5
Exports	2.1	0.8	1.5	4.0	35.6	21.0	0.5
World output (est.)	34.1	40.3	72.1	131.4	283.7	264.4	60.6

The 1945 output was made by four government-owned and three private plants but by the end of the year only the Dow Chemical company was operating.

In the course of only a few years magnesium shifted from a minor metal to a major one, with a plant capacity in the U.S. alone that totalled 293,000 tons. In 1939 uses of the metal were largely in the experimental stage. Some of the war uses were expected to be made the basis of later civilian uses, but the problem of disposal of surplus plant capacity of this magnitude was a difficult one. There were 13 government-owned plants, of which it had been recommended that 7 be disposed of for other uses, and 6 with an annual capacity of 106,000 tons, be sold or leased as operating plants, or held in stand-by condition.

Canada built up a small war production, amounting to 3,577 short tons in 1943, increasing to 5,290 tons in 1944 and dropping back to 3,726 tons in 1945. (G. A. Ro.)

Magnesium Compounds. Formerly produced from crude magnesite, magnesia is now derived from a variety of raw materials—magnesite, bruceite, dolomite, sea-water bitterns, raw sea water, dry-lake brines and well brines.

Other magnesium compounds, mostly the chloride, with smaller amounts of sulphate and precipitated carbonate, formerly from well brines, now come from the same sources as the magnesia output.

Production of the major types of magnesium compounds in the United States, in short tons, is shown in the table.

The increasing degree to which other sources supplemented crude magnesite in the production of magnesia is indicated by the ratio of the total magnesia output to that of crude; this ratio rose from 48% in 1939 to 88% in 1945. Most of the increased output of caustic calcined magnesia was used in the

Production of Magnesium Compounds in the U.S.

	Crude Magnesite	Caustic Calcined	Refractory	Total Magnesia	Other Compounds	Dead-burned Dolomite
	(short tons)					
1937	203,473	10,031	83,204	93,235	64,777	617,706
1938	97,000	7,400	38,738	46,138	70,733	366,626
1939	198,980	10,157	86,077	96,234	85,754	671,561
1940	333,166	16,261	140,668	156,929	108,266	867,909
1941	374,799	30,225	201,481	231,706	137,357	1,069,887
1942	497,368	41,889	273,661	315,550	296,885	1,229,357
1943	754,832	191,792	301,382	493,174	737,062	1,276,725
1944	561,450	139,243	278,490	417,733	608,151	1,290,790
1945	336,458	43,270	254,994	298,264	201,501	1,187,334

production of metal while refractory magnesia went into metallurgical furnaces, mostly steel, partly for expanding output and partly replacing imports.

Dead burned dolomite also went into the steel industry, supplementing magnesia in furnace bottoms.

Increases in production of magnesium compounds other than magnesia were mainly for the chloride, used in the production of metal. The cutback in the war demand for magnesium was reflected in the sharp decline in demand for caustic calcined magnesia and other magnesium compounds in 1944 and 1945.

(G. A. Ro.)

Maine. The extreme northeastern state of the United States, admitted as the 23rd state in 1820, and popularly known as the "Pine Tree state." Land area 31,040 sq.mi.; water area 2,175 sq.mi.; pop. (1940) 847,226; rural 504,169; urban 343,057. Capital, Augusta (19,360). Other cities: Portland (73,643); Lewiston (38,598); Bangor (29,822). The U.S. bureau of the census officially estimated the population of the state at 793,600 on July 1, 1944.

History.—Governor Horace A. Hildreth was re-elected in the September election for the 1947-48 term. Republicans retained control of the 151-member house and the 33-member senate. Five Republicans served in congress: Robert Hale (1st district); Margaret Chase Smith (2nd district); Frank Fellows (3rd district) in the house; Wallace H. White, Jr., and Owen Brewster in the senate. All congressional terms expiring in 1946 were filled by re-election of the incumbents (Hale, Smith, Fellows, Brewster). A sales tax-soldier's bonus measure enacted at a special session of the state legislature was defeated by referendum vote.

Education.—Teacher shortages forced about 100 Maine schools to remain closed in the fall of 1946. About 500 teachers were allowed to work on permits and sanctions, even though not fully qualified according to desirable standards. The net enrolment in the public schools for 1944-45 was 153,318, compared with 152,788 for 1943-44. There were 5,836 teaching positions (1944-45), compared with 5,703 for the year 1943-44. Harry V. Gilson was commissioner of education in 1946, resigning as of Dec. 31.

Social Insurance and Assistance, Public Welfare and Related Programs.—As of June 30, 1946, there was a balance in the Maine unemployment compensation fund of \$36,681,291, a decrease of \$259,060 from the first of the year, but larger than any previous June 30 balance.

Public assistance funds expended during the two fiscal years ending June 30, 1946, were as follows: old-age assistance (1946) \$5,438,756, (1945) \$5,134,189; aid to dependent children (1946) \$1,210,530, (1945) \$952,799; aid to blind (1946) \$299,969, (1945) \$293,772. November case loads in the above categories were: old-age assistance (Nov. 1946) 15,228, (Nov. 1945) 14,891; aid to dependent children (Nov. 1946) 4,854, (Nov. 1945) 3,921; aid to blind (Nov. 1946) 772, (Nov. 1945) 806.

Thirteen state institutions (correctional, insane hospitals, sanatoria) with their inmate populations as of Nov. 30, 1946, and appropriations for the 1946-47 fiscal year, were as follows:

Augusta state hospital, Augusta, 1,537 inmates, \$677,593; Bangor state hospital, Bangor, 1,173 inmates, \$544,000; Pownall state school, Pownall, 1,079 inmates, \$530,000; Central Maine sanatorium, Fairfield, 146 inmates, \$249,504; Northern Maine sanatorium, Presque Isle, 89 inmates, \$145,000; Western Maine sanatorium, Hebron, 98 inmates, \$180,000; Maine state prison, Thomaston, 373 inmates, \$215,000; Re-

formatory for Men, South Windham, 78 inmates, \$100,000; Reformatory for Women, Skowhegan, 120 inmates, \$120,000; School for Boys, South Portland, 130 inmates, \$125,000; School for Girls, Hallowell, 138 inmates, \$130,000; Maine School for the Deaf, Portland, 91 inmates, \$64,785; Military & Naval Children's Home, Bath, 40 inmates, \$27,020; the total inmate population was 5,092; the total appropriation was \$3,107,902.

Communications.—The total mileage of the state's highways as of June 30, 1946, was 21,958. Total income for the fiscal year ending June 30, 1946, was \$11,501,428 (of which 50% came from state gasoline tax); expenditures were \$10,384,113 (including bond interest of \$539,330, and bond retirement of \$1,761,600). Steam railroad mileage in the state (1946) was 2,778 mi. During 1946 (to Dec. 1) there were 259,975 motor vehicles licensed in the state, with 304,723 operators' licences issued in the same period.

Banking and Finance.—During 1946 the Maine banking department (Homer E. Robinson, commissioner) supervised 32 savings banks with 2 branches, 30 trust companies with 56 branches and agencies, 32 loan and building associations. The assets of savings banks, trust companies and building and loan associations of June 29, 1946, were \$534,472,254 with total deposits of \$457,515,051. Assets of the same institutions a year earlier were \$463,824,810. No state bank failed in Maine after 1933, and assets and deposits reached an all-time high mark in 1946. The 33 national banks in Maine reported to the comptroller of the currency total assets of \$263,084,000 as of June 30, 1946.

State receipts, expenditures and bonded debt for the fiscal year ending June 30, 1946, were respectively: \$37,757,518; \$35,700,261; and \$16,413,500. For the year ended June 30, 1945, they were respectively: \$42,101,841; \$31,489,219; and \$19,052,500. (In 1945 the controller included revenues and expenditures of the unemployment compensation fund and certain other funds which are not included in 1946 figures.)

Agriculture.—Production of the leading crops during 1945 and 1946 is given in Table I.

Table I.—Leading Agricultural Products of Maine, 1946 and 1945

Crop	1946 (est.)	1945	Average, 1935–44
Corn, bu.	407,000	429,000	594,000
Wheat, bu.	21,000	19,000	64,000
Oats, bu.	2,840,000	2,627,000	3,837,000
Barley, bu.	128,000	87,000	114,000
Buckwheat, bu.	120,000	93,000	813,000
Hay, short tons	844,000	935,000	813,000
Potatoes, bu.	77,745,000	54,549,000	45,788,000
Apples, bu.	704,000	132,000	648,000
Beans (dry), tons	2,450	1,650	4,250

Manufacturing.—The total value of manufactures (1939 census) was \$345,368,595. Total employment was 81,995 and wages paid \$82,026,503.

Table II.—Principal Industries of Maine, 1939 and 1937

Industry	1939	1937
Boat and shoe	\$46,162,403	\$42,568,005
Cotton mill	28,342,860	28,937,439
Woolen mill	36,118,681	28,409,949
Pulp and paper	25,370,932	28,890,516

Mineral Production.—The leading mineral products of Maine included slate, granite, clay (chiefly for bricks), sand, stone and gravel (the last

Table III.—Value of Principal Mineral Products of Maine, 1944, 1943

	1944	1943
Beryllium ore	\$ 257	\$ 169
Clay products . . . . .	...	120,000
Feldspar (crude)	47,892	41,652
Mica—sheet	40,803	63,845
Mica—scrap	1,602	5,862
Peat	80,732	60,033
Sand and gravel	710,047	733,503
Silica	203	840
Stone	332,736	409,780
Miscellaneous	932,131	1,284,761
Total (eliminating duplication)	\$2,146,000	\$2,720,000

three chiefly for highway construction), cement, lime, feldspar, mica and peat. Maine also produced tourmalines and other semiprecious stones. (E. F. D.)

Maize: see CORN.

Makin, Norman John Oswald (1889–), Australian statesman, was born March 31, at Petersham, New South Wales. He left school at an early age and worked as delivery boy, bookseller and pattern-maker. He joined the Labour party, was elected in 1919 to the Australian house of representatives, was speaker of the house from 1929 to 1932 and became president of the Labour party in 1936. Makin, who was a member of the Advisory War council in 1940, was appointed minister of the navy and munitions in John Curtin's cabinet, Oct. 1941. He was given the additional portfolio of minister of aircraft production in 1945.

Makin headed the Australian delegation that attended the United Nations Security council sessions in London. On Jan. 15, 1946, he voiced the opinion that the atomic bomb should be placed at the disposition of the Security council's projected po-

lice force. He was elected president of the Security council under the alphabetical rotation plan on Jan. 17, 1946.

Malaya, British: see MALAYAN UNION AND SINGAPORE.

Malayan Union and Singapore. In 1946 the Straits settlements, Federated Malay states and Unfederated Malay states of British Malaya were organized into two political divisions, the Malayan union and Singapore. The Malayan union includes the Federated and Unfederated Malay States and three of the former Straits Settlements, Penang, Labuan and Malacca. The Federated Malay States were four in number: Perak, Selangor, Negri Sembilan and Pahang. The Unfederated Malay States included Johore, Kedah, Kelantan, Trengganu and Perlis. Each of these states continues to have its own native ruler with powers restricted to matters of the Mohammedan religion. The new organization extends the principle of federation to the formerly Unfederated States. A governor appointed by the British crown is the chief executive of the Malayan union. He is assisted by an executive council and by a central advisory council of Malay rulers. The legislative council of the Malayan union is the law-making body in matters of concern to all of the states. Members of all three councils are appointed by the governor. In local state affairs, administrative and legislative power is vested in a state council appointed by the British resident. The native rulers and the Malay advisory council, appointed by the ruler, may legislate on matters of religion only. The rulers enjoy their position by hereditary right. Legislation passed by these native councils is subject to the approval of the governor of the Malayan union.

Singapore, formerly a part of the Straits Settlements, was made a crown colony. The Cocos-Keeling Islands and Christmas Island are a part of the crown colony of Singapore. Executive powers are vested in a British-appointed governor. The governor appoints an executive council and a legislative council.

The revised government of British Malaya includes a change in the rules of citizenship. Formerly a person born in a Malay state was a citizen of that state. Persons born in the Straits Settlements were British subjects though not British citizens. With the change in government all persons born in Malaya are citizens of the Malayan union. Governor-General of Malayan union and Singapore (1946): Malcolm MacDonald. Governor Malayan union: Sir Edward Gent; governor Singapore: F. C. Gimson.

People.—In 1941 the Straits Settlements had a population of 1,435,895 of whom 315,629 were Malays, 18,101 Europeans, 13,540 Eurasians, 927,003 Chinese and 148,851 Indians. Out of a population of more than 4,000,000 in the Malayan union, there were more than 1,700,000 Chinese.

Trade and Communications.—Statistics for the Malayan union and Singapore are given in terms of the dollar (equivalent to 47.51 U.S. cents in 1941) established as the unit of currency in 1938 and in pounds sterling. In 1940 imports in the Straits Settlements were valued at £96,146 and exports at £131,257. Imports in the Federated Malay States were £17,577,610 and exports (including re-exports) £50,432,246. Imports in the Unfederated Malay States were £57,275,959 and exports £138,214,062. The United States department of commerce reported that imports from British Malaya for the first nine months of 1946 were \$72,429. Exports of rubber from Singapore and the Malayan union in Aug. 1946 amounted to 76,649 long tons.

In 1940 the Straits Settlements had 1,073 mi. of metalled roads and 133 mi. of gravel roads, natural roads and hill paths. The Federated Malay States had 3,108 mi. of metalled roads and 198 mi. of unmetalled roads. The Unfederated Malay States had a total road mileage of 2,047.

A railroad connects the city of Singapore with Bahru, the southernmost city on the peninsula. Malacca, a city on the coast, is connected by railroad with the city of Negri Sembilan in the interior. A third railroad runs from Parit Buntar in Krian to Prai in Province Wellesley. Telephone and telegraph communication exists throughout the Malayan union and Singapore.

Education.—Enrolment in the government English and vernacular schools in the Straits Settlements in 1940 was 38,604, in the grant-in-aid schools 44,474. English schools in the Federated Malay States had an enrolment (1940) of 19,505, vernacular and registered schools 121,865.

Finance.—In 1940 revenue in the Straits Settlements was £5,736,803 and expenditures £6,926,656; in the Federated Malay States revenue was £11,493,060, expenditures £9,166,203.

Agriculture and Mineral Production.—Of the 5,000,000 ac. under cultivation in 1940, 3,297,000 ac. were devoted to rubber and production totalled 540,000 tons, approximately 40% of world production. Almost 70% was produced on large plantations (more than 100 ac.) and approximately 75% of these were European-owned. About 727,000 ac. were devoted to rice cultivation. The rice crop is not sufficient to meet local demands. Copra, oil palm products and pineapples are exported in considerable quantities.

Out of a total mineral production of £13,700,000 in 1939, tin ore was by far the most important, accounting for £10,900,000. In 1940 Malaya produced 33.2% of the world's output. The smelting of tin is an important industry. In addition to the tin ore mined in Malaya, much of the tin ore produced in neighbouring countries is smelted there. In 1939 production of other minerals included 1,940,000 tons of iron ore, 84,400 tons of bauxite, 31,500 tons of manganese, 174,300 tons of phosphates and 514 tons of tungsten.

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Malta: see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

Manchuria. A large area including the three northeastern provinces of China (Fengtien, Kirin and Heilungkiang), bounded N. and E. by soviet Siberia, W. by soviet Siberia, Outer Mongolia and China, S.E. by Korea. Area 503,143 sq.mi.; population (1940) 43,233,954, excluding area of 1,338 sq.mi. and population of 1,225,570 in the Kwantung Leased territory, now a part of Manchuria. Population (1939) 39,454,026, including 37,581,000 Manchurians, 1,162,000 Koreans, 642,300 Japanese and 67,700 of other nationalities.

Largest cities (1940) were Mukden (1,135,801), Harbin (661,984), Changchun (called Hsinking by the Japanese) (554,202), Antung (315,242) and Fushun (269,919). The principal religions of Manchuria at the end of 1938, in the order of number of believers, were Buddhism, Taoism, Lamaism, Mohammedanism and Christianity.

History and Government.—Japanese control over Manchuria was ended and the state of Manchoukuo eliminated upon Japan's unconditional surrender on Aug. 14, 1945. Five days earlier, soviet military forces had entered Manchuria and by the end of August occupied a large part of the country. Under the terms of the Cairo declaration of 1943, it was agreed that Manchuria would revert to Chinese sovereignty. A Sino-Soviet treaty, signed in Moscow on the day Japan surrendered, recog-

CHINESE who fled Manchuria during the Japanese occupation, clamber aboard a train heading back toward Mukden, in 1946



nized the sovereignty of the Chinese National government over Manchuria. The treaty also gave the soviet union economic concessions in Manchuria, and provided for joint ownership of the Chinese Changchun railway and joint use of Port Arthur as a naval base. In addition it established Dairen as a free port with parts of the harbour to be assigned to the soviet union, but with China to administer the port.

The soviet union agreed originally to withdraw its forces from Manchuria by Dec. 3, 1945, but this date was later extended to March 3, 1946. Soviet troops were withdrawn from Manchuria during the early part of 1946, except for the southern tip of the Kwantung peninsula, including Port Arthur and Dairen, which at the end of 1946 was still soviet controlled. However, Chinese Communist forces entered Manchuria from North China at about the time of the withdrawal of the soviet troops, and hostilities between Chinese Nationalist and Chinese Communist troops began. By Dec. 1946 the Chinese National government held the entire southern coast line, except Port Arthur and Dairen, and a salient extending inland to a point between Changchun and Harbin. Chinese Communist forces held most of the rest of Manchuria.

Education.—In 1939 there were 15,877 primary schools with 1,589,169 pupils and 37,639 teachers; 238 middle schools with 54,768 students and 2,768 teachers; 40 normal schools with 8,014 students and 520 teachers; and 13 institutions of higher education with 3,820 students.

Finance.—Monetary inflation became severe in Manchuria during 1946. The Manchoukuan yuan, Japanese puppet currency, was circulating in addition to soviet occupation roubles and new Manchurian notes issued by both Chinese National and Chinese Communist authorities.

Trade and Communications.—Manchuria had virtually no external trade in 1946. In 1939 Manchuria had total exports in Manchoukuan yuan of 835,000,000 and imports of 1,800,000,000 yuan. (In 1939 the Manchoukuo yuan = 23.65 U.S. cents.) There were about 6,710 mi. of railways in 1940 and about 30,000 mi. of highways, of which 13,000 mi. were suitable for traffic.

Agriculture.—Manchuria is a food surplus area. The chief food crops are millet, kaoliang, maize and soybeans. 1946 crops were above average owing to favourable weather conditions. In 1940, the country produced 16,100,000 tons of cereals, 4,200,000 of soybeans, 2,100,000 of potatoes, and 75,000 bales of raw cotton. There were 1,683,000 cattle, 2,000,000 sheep, 1,250,000 goats and 2,000,000 horses in 1937. Rice production in 1946 was estimated at 15,000,000 bushels, about one-third of the prewar average.

Industry.—Under Japanese domination, Manchuria was developed into a strong industrial area to supplement Japanese war industry. As a result of military hostilities between Chinese Communist and Nationalist forces and removal of industrial equipment by soviet forces, the Manchurian economy during 1946 was chaotic. A survey by Ambassador Edwin W. Pauley of losses to Manchurian industry

because of removals and damage revealed that the estimated reduction of capacity during 1946 was 71% in the electric power industry, 50% to 100% in phases of the iron and steel industry, 80% in the metal-working industry, 75% in nonferrous mining, 65% in liquid fuels and lubricants, 50% in the cement industry, 50% in the chemicals industry, 75% in the textile industry, and 30% in the paper and pulp industry. Estimated annual industrial capacity in short tons at the end of 1946 included: iron ore, more than 2,000,000; pig iron, less than 500,000; ingot steel, about 650,000; rolled steel, about 300,000; coal, less than 3,000,000; cement, more than 1,000,000. (S. Nk.)

Mandated Pacific Islands: see PACIFIC ISLANDS, MANDATED.

Mandates. The mandates system as such came to a close with the last League of Nations assembly in April 1946, although its smooth supercession by the United Nations trusteeship system and council, incorporating the additional idea of social and economic partnership with the people concerned, was delayed. When the general assembly met in London, the voluntary agreements between the nations concerned and the United Nations, without which the trusteeship council could not be created, were not forthcoming, although several of the states administering mandated territories declared their intention of negotiating such agreements.

This intention was reiterated at the final League of Nations assembly in April. Great Britain, France, Belgium, Australia and New Zealand were all taking steps to bring their mandated territories under the new system. A different line was taken by the Union of South Africa, which claimed that South-West Africa, already administered under the mandate as an integral part of the Union, should be internationally recognized as such. For the meantime, however, all mandatory states stressed the fact that their territories would continue to be administered in the spirit and the letter of the League mandates. Trans-Jordan was recognized by Great Britain as an independent kingdom in March 1946 and a treaty of alliance signed between the two countries; Emir Abdullah ibn Hussein was proclaimed king on May 25.

Mandated Territories

Territory	Area (Sq. Mi.)	Date of Mandate	Mandatory Power	Former Title	Former Administration
SOUTH-WEST AFRICA, including Caprivi Zipfel, formerly part of Bechuanaland protectorate	323,060	Dec. 17, 1920	Union of South Africa	German South-West Africa	German empire
TOGO, comprising:					
(1) Togoland; i.e., western section, excluding the seaboard	13,040	July 20, 1922	Great Britain	Togo	German empire
(2) Togo; i.e., eastern section and seaboard	20,000		France		
CAMEROONS, comprising:					
(1) Cameroons adjoining Nigeria	34,081	July 20, 1922	Great Britain	Kamerun	German empire
(2) Cameroun adjoining French Equatorial Africa	166,200		France		
TANGANYIKA	360,000	July 20, 1922	Great Britain	German East Africa	German empire
RUANDA-URUNDI	21,200		Belgium		
PALESTINE	10,100	Sept. 29, 1923	Great Britain	Palestine	Turkish empire
NEW GUINEA, TERRITORY OF, comprising:					
(1) Northeastern New Guinea (i.e., the northern section of southeast New Guinea)	93,000	Dec. 17, 1920	Commonwealth of Australia	Kaiser Wilhelm's land	German empire
(2) Bismarck Archipelago (New Britain, New Ireland, the Admiralty Isles, etc.)				Bismarck Archipelago	
(3) Certain of the Solomon Islands (Bougainville, Buka, etc.)				German Solomon Islands	
WESTERN SAMOA, comprising Savaii, Upolu, etc.	1,153	Dec. 17, 1920	New Zealand	German Samoan Islands	German empire
NAURU	8	Dec. 17, 1920	British empire—Great Britain, New Zealand and Australia the present administrator	Nauru	German empire
PACIFIC ISLANDS NORTH OF THE EQUATOR, comprising:					
(1) Marianas or Ladrone Islands (except Guam)	811	Dec. 17, 1920	Japan (under U.S. administration)	No change	German empire
(2) Caroline Islands, comprising the Eastern Carolines and Western Carolines, together with Yap Island and Palau					
(3) Marshall Islands					

Appropriate agreements for transfer had been reached or the policy of the administering power outlined by October, on the eve of the second half of the first general assembly in New York. The future of the Pacific mandates which were allotted to Japan was bound up with the whole far east settlement, which was a matter for the peace conference taking place in 1947. During the second half of the general assembly United Nations trusteeship was fully discussed by its fourth committee. The claims of the Union of South Africa for the annexation of South-West Africa were strongly opposed, and Great Britain was criticized for failing to submit a draft agreement for Palestine. Finally, the assembly recommended that the Union of South Africa should transfer South-West Africa to the trusteeship system. The five trusteeship agreements were adopted which enabled the Trusteeship council to be set up, consisting, according to the charter, of these five trusteeship states and three permanent members of the Security council, together with Mexico and Iraq (at one time itself under a mandate) elected by the assembly. (See also NEW GUINEA.) (M. Fe.)

Manganese. Wartime gaps in the world production table were largely filled during 1946, but there were still insufficient data to permit an estimate of the world total in 1943, 1944 or 1945. However, it is to be noted that reported outputs in 1945 were on the whole very close to the total from the same countries in 1943.

Table I.—World Production of Manganese Ore, 1939–45

	(In thousands of short tons)						
	1939	1940	1941	1942	1943	1944	1945
Brazil	284.7	345.5	482.2	337.5	303.8	162.0	267.7
Chile	13.8	12.8	39.5	78.6	125.8	79.9	?
Cuba	112.9	132.2	277.1	274.8	343.0	284.3	218.3
Gold Coast	427.8	488.3	549.9	761.7	589.0	565.0	?
India	946.0	973.2	880.3	848.1	666.8	?	?
South Africa	462.6	454.2	491.5	434.8	241.5	117.8	105
U.S.S.R.	?	3,086	2,638	2,010	?	508	2,480
United States	32.8	44.9	87.8	190.7	205.2	247.6	182.3
Total	5,704	6,103	5,800	5,300	?	?	?

United States.—Manganese production during World War II was a repetition of the experience of World War I. Output was materially increased above the peacetime level, but reached only a small fraction of the demand, as shown in Table II.

Table II.—Data of Manganese Industry in the U.S., 1940–45

	(In thousands of short tons)						
	1939	1940	1941	1942	1943	1944	1945
Mine shipments . . .	32.8	44.9	87.8	190.7	205.2	247.6	182.3
Metallurgical ore . .	20.8	30.4	73.9	178.0	195.1	241.2	174.3
Battery ore	8.7	10.4	11.4	12.4	10.0	6.2	8.0
Imports	702.4	1,435.9	1,714.6	1,583.0	1,511.6	1,315.7	1,311.3
Brazil	47.8	188.4	353.9	326.5	373.4	197.4	242.3
Cuba	118.6	146.3	272.6	156.3	211.8	467.1	293.6
Gold Coast	272.1	276.6	222.8	189.2	216.8	160.0	208.7
India	100.3	212.2	433.3	600.8	462.9	346.8	210.5
South Africa	3.8	199.1	306.6	234.2	127.7	41.4	62.0
U.S.S.R.	151.5	349.2	32.7	17.8	4.6	?	151.3
Consumption	?	?	1,310.5	1,481.7	1,588.3	1,593.1	1,485.9

In the first three quarters of 1946 shipments totalled 107,700 tons, imports 1,187,835 tons and consumption 810,161 tons. Shipments and consumption were both well below the 1945 rate, but imports increased slightly. Consumers' and producers' stocks increased from 513,063 tons at Dec. 31, 1945, to 700,048 tons at Sept. 30, 1946, while Metals Reserve company stocks declined from 1,119,158 tons to 1,086,136 tons, totals of 1,632,221 tons and 1,786,184 tons respectively, or a net surplus of 475,374 tons of production plus imports, as compared with consumption during the period. (G. A. Ro.)

Manitoba. Central province of Canada and geographic centre of North America; established July 15, 1870; area 246,512 sq.mi. (26,789 sq.mi. water); pop. (1946 census) 718,699. Capital, Winnipeg, incorporated in 1873 (224,091). Other cities are, St. Boniface (21,320), centre of western culture for Canadians of French origin, Brandon (17,147), Portage la Prairie (7,545), and Flin Flon (municipal district) (7,522),

mining and smelting centre of the north.

History.—The 21st legislative assembly was led in 1946 by a coalition executive council under the premiership of Stewart Sinclair Garson. The government party comprises members of the Liberal-Progressive, Progressive-Conservative and Social Credit groups. During the life of the assembly the three armed services were to be represented by their elected representatives. In February the executive council was increased by two additional cabinet ministers, C. Rhodes Smith to the portfolio of labour and C. E. Greenlay to that of provincial secretary.

Education.—Enrolment in public schools in 1945 totalled 117,790. Correspondence students numbered 2,204, teachers 4,353, with the public schools of the province expending \$10,775,667 for the period. University enrolment increased to a historic peak of 6,919, in part represented by attendance of veterans under rehabilitation educational grants. A larger school unit was established by vote in the Dauphin area and this experimental administrative organization was operating for the school year 1946–47. St. Andrews college, the first Ukrainian college in Canada, established classes in the fall of 1946. A new residential normal school for teacher training was created in Tuxedo with an enrolment of 450.

Health and Welfare.—The health plan inaugurated in 1945 resulted in the creation of 12 health units, 2 medical nursing units approved and 3 hospital districts approved by the rate-payers concerned. Those at Altona and Carman hospitals were in operation. The commission of the international health division and the medical sciences division of the Rockefeller foundation at the request of the government and university reported upon personnel and training required to meet the needs of the Manitoba Health Services act. The Kellogg foundation granted \$40,000 to assist in training of personnel under the plan. Pre-marital blood tests by law were made effective from Oct. 1.

Communication.—Manitoba is served by main and branch lines of the Canadian National and Canadian Pacific railways. Hudson's Bay railway from The Pas to Churchill provides transportation to Manitoba's ocean port. Stevenson's airport is the centre for Trans-Canada Air Lines and aviation centre for the region. All-weather provincial highways totalled 8,826 mi. in 1946. The government-owned telephone system, with 101,975 subscriber stations (including Winnipeg with 71,384) operated two radio stations—Winnipeg and Brandon. Four privately-owned stations were in operation—two in Winnipeg, one in St. Boniface (a French-speaking station) and one serving the northern areas at Flin Flon. St. Boniface and one Winnipeg station were additions of 1946.

Finance.—Government revenue for the fiscal year ending April 30, 1945, totalled \$22,268,320 with expenditures of \$19,054,253; liquor profits from the government liquor commission represented income profit of \$4,380,110. Debt was reduced during the year by \$5,822,077. In 1945 the 169 units of local government, other than the four cities, collected \$10,674,500.

Agriculture.—The gross agricultural production for 1946 (estimated) totalled \$249,443,000, an increase and record, created by both increased volume and prices. Wheat production increased from \$48,600,000 for 45,000,000 bu. in 1945 to \$74,970,000 for 63,000,000 bu. for 1946. Sugar beet acreage and production in the Red river valley continued satisfactory with 11,600 ac. seeded and 82,000 tons produced in 1946.

Manufacturing, Minerals, Fisheries, Furs.—Manufactures for 1946 were estimated at \$320,000,000 (gross); minerals (1946 est.) \$17,300,000; fisheries (1946 est.) 34,244,100 lb. with value to fishermen of \$4,034,248 and market value \$5,343,570; furs (1945–1946), wild catch \$5,145,706, farms \$1,280,010, processed in Winnipeg \$2,566,325, exported from Manitoba (including other provinces) \$11,262,707. (J. L. J.)

Manufacturers, National Association of: see SOCIETIES AND ASSOCIATIONS.

Manuilsky, Dmitry Zacharovich (1883–), Ukrainian statesman, studied at Petrograd university. Upon the outbreak of the revolution in 1917 he joined the Bolsheviks, was made a member of the Central committee of the Communist party and in 1924 was appointed to the Comintern (third international). Manuilsky fought in World War II and was decorated with the Order of Lenin in 1943. He was appointed foreign commissar for the Ukraine Soviet republic in 1944 and represented that state at the United Nations conference in San Francisco the following year. In 1946 he was appointed chairman of the Ukrainian delegation to the U.N. general assembly.

At the London sessions of the U.N. Security council (Jan.–Feb. 1946) he supported Andrei Vishinsky in the latter's demands for an investigation of the Indonesian situation and implied that the Dutch and British opposed the probe because of their oil interests in Indonesia.

Manuilsky, who attended the 21-nations peace conference in Paris, announced Aug. 25, 1946, that he would file charges before the Security council that Greece was endangering the peace in the Balkans. After heated discussion in the Security council at Lake Success, N.Y., as to whether he should be heard, the council finally permitted him to present his case.

Mao Tse-Tung (1893–), Chinese Communist leader, was born in the village of Shao Shan, Hunan province. He joined Sun Yat-sen's revolutionary army in 1911, entered the Hunan Normal school (receiving his degree in 1918) and attended lectures at the Peiping university. Mao joined the Communist party in 1920 and two years later was secretary of the party's branch in Hunan province. He became political commissar for the Chinese Red 4th army in 1928 and was elected chairman of the first All-China congress of soviets in Dec. 1931.

Mao's influence grew with the successes of the Chinese Communist forces against Chiang Kai-shek's armies in the early 1930s. Later Chiang tried to break up Communist control of a large part of northwest China, but his demands in 1943 for dissolution of the Chinese Communist armies and political organizations were rejected by Mao.

After the surrender of Japan in the late summer of 1945 Mao and Chiang began personal negotiations; they failed to agree on military and administrative unity, however, and civil war between the two factions broke out. Mao charged (June 24, 1946) that U.S. aid to Chiang's government was the "fundamental cause of the outbreak and propagation of the civil war." He demanded that the U.S. immediately halt lend-lease to Chiang and withdraw all its forces from China.

Maple Products. The 1946 maple season in the U.S. was better than the year 1945 but still below any other year on record. Syrup production was estimated by

Maple Trees Tapped, Sugar and Syrup Production by States, 1946 and 1945
(In Thousands)

State	Trees tapped		Sugar made (lb.)		Syrup Made (gal.)	
	1946	1945	1946	1945	1946	1945
Vermont	3,298	3,111	256	147	607	351
New York	2,686	2,202	67	22	411	280
Ohio	532	560	0	1	80	136
Michigan	502	474	2	3	63	82
Pennsylvania	291	285	11	18	45	53
Wisconsin	210	226	0	1	28	23
New Hampshire	207	199	12	9	36	25
Massachusetts	154	157	12	20	38	22
Maine	87	92	7	6	10	9
Maryland	33	30	5	10	10	10

the U.S. department of agriculture at 1,354,000 gal. compared with 991,000 gal. in 1945 and an average of 2,625,000 gal. for 1935–44. Sugar production was 337,000 lb. or 42% more than the 251,000 lb. of 1945 but 48% less than the average of 643,000 lb., 1935–44. The poor output was caused by the warm weather in February and March that made a short sap season. In Ohio the season was only 13 days. The quality of the crop was poor. The number of trees tapped was 8,004,000 compared with 7,336,000 in 1945 and an average of 10,442,000 in 1935–44.

(J. C. Ms.)

Marble: see STONE.

Margarine (OLEOMARGARINE). The production of margarine in the U.S. declined in 1946 to about 515,000,000 lb. compared with 591,000,000 lb. in 1945 and a prewar average of 303,000,000 lb., 1935–39. Manufacturers' quotas of fats and oils for use in margarine were less in the first half of the year. The average per capita civilian consumption was estimated at about 3.5 lb. in 1946 compared with 4 lb. in 1945. During World War II when lard was scarce consumption of margarine increased steadily from the prewar average of less than 3 lb. per capita. The military and relief needs declined in 1946. U.S. armed forces used only small amounts but exports were considerable to Great Britain for use by the armed forces. The termination of price ceilings in October was followed by immediate price advances from 19 cents to 25.5 cents per pound wholesale. The supply of vegetable oils began to increase about midyear, particularly coconut oil. The use of the latter in margarine was prohibited during World War II to conserve glycerine for military uses.

The federal tax was not considered a retarding factor in the use of margarine in competition with butter. While butter was scarce margarine consumption increased slowly. Improvements in the manufacture of cooking fats of several types were expected to offer greater competition to margarine than butter alone. Changes in cooking practices, notably the use of the pressure cooker, were expected to have an effect on the use of margarine.

(J. C. Ms.)

Marianas Islands: see MANDATES.

Marine Biology. Details of several wartime technical researches and discoveries were released through appropriate channels during 1946. From the newly established hydrographic office of the U.S. navy a new "Drowned Archipelago" was described between Hawaii and the Marianas.¹ From tens of thousands of echo-soundings by cruising navy vessels, a subsea area in the western Pacific was mapped. There were charted approximately 160 submerged flat-topped peaks subtended from an extensive ocean-floor plateau. Because of the peculiar configuration of these, in contradistinction to the physical configuration of the present surface atolls of the region, the concept was advanced that these mountains—once volcanic—emerged from an ancient sea and were eroded for an indefinite period of time. Subsequently—perhaps 500,000,000 years ago—the area was submerged by the simultaneous sinking of the floor and the upwelling of the sea water.

The director of scientific research of the British admiralty² released the results of the application of new techniques used in forecasting the force and direction of ocean waves and swells generated in storm areas. An analyzer of new design, involving the recording of both pressure fluctuations below the surface and an inverted echo-sounder for surface waves, made it possible to detect and compute the velocity of the low-long swells dis-

¹ *Science News Letter*, June 8, 1946.

² See *Nature*, Feb. 9, 1946, vol. 157, no. 3980.

patched from any given storm area.

At Lowestoft (Suffolk, England), the Fisheries laboratory³ was reopened in Sept. 1945 after being closed during the war. Extensive plans were drawn for fisheries work in the waters about the British Isles and in the Arctic.

According to the people's commissar of the fishing industry in the U.S.S.R.,⁴ the Japanese management of the fishing industry of southern Sakhalin and the Kuril Islands was to be replaced and expanded so that the fish yield from these and adjacent areas of Kamchatka might be greatly increased. The industry would not only be rehabilitated but substantially reconstructed; the building of ten new canning and cold storage plants was started in the northern Kurils and southern Sakhalin regions. In a postwar emergency, since fish constitutes the most important single animal food for the Japanese, the fisheries division, through the national resources section⁵ under Allied Powers, initiated a program for providing the Japanese fisheries fleet with fuel oil and equipment and rigidly prescribed an area about the islands where fishing might be permitted. A limited area was also stipulated about the Bonin Islands for whaling, but no landings were to be permitted there.

The Swedish Marine Biological commission⁶ started a three-months' survey of the bottom-muds of the Mediterranean sea. The state-owned research ship "Skagerack" was used as a floating laboratory. The operations were carried on in the vicinity of Algiers and Malta. Data gathered was expected to throw light upon climatic and volcanic catastrophes of past ages, as well as reveal the story of the supposed ancient transatlantic plateaus over which animals and plants might have migrated.

Another Swedish oceanographic expedition using the 1,100-ton training ship "Albatross," was commissioned for a deep-sea exploration lasting 15 months and circumnavigating the globe. The expedition contemplated studies within the equatorial counter-current of the seas, with special attention to areas about the Puerto Rico deep (9,000 m.) and the Philippine deep (10,500 m.). Experiments at the Krusadai Biological station (South India)⁷ indicated curious adaptive and growth features expressed by the native salt-water milkfish *Chanos chanos*. After a brief adaptive period, fishes placed in fresh water showed a remarkable acceleration in growth, some as much as two feet in length in a single year. Its high market value as a food fish and its capacity to grow rapidly prompted the suggestion that it might be suited to profitable culture in the fresh-water ponds of India.

While the mechanisms of sex-reversal in the vertebrates are generally understood to repose in the relative interbalance between estrogens and androgens, what the factors are that induce certain commercially important prawns (shrimp) to undergo such reversals in their individual life histories have not yet been elucidated. Reviewing their observations concerning the life history of *Pandalus borealis*, a North Atlantic prawn, two Norwegian investigators⁸ brought to light some remarkable discoveries.

Prawns that lived to the age of one and one-half years were either males, which spawn for the first time at that age, or they were transitional nonsexed individuals which later transform into females. However, after the males reached the age of two years and had spawned twice, they gradually passed through a transitional stage and finally underwent complete sex-reversal and became mature females. These produced eggs for the first time at the age of three and one-half years. This curious fact

perhaps explains in part the fact that in commercial catches the males outnumber the females in the ratio of about ten to one.

Quite a different interest attaches to a report of the discovery that the *Penaeid* prawns⁹—a commercial warm-water marine form—contrary to all other decapods, do not carry their fertilized eggs attached to the abdomen, but shed them immediately into the sea waters. The pelagic eggs then hatch into nauplii and thus become widely distributed throughout the sea.

An experiment, on a small scale, applying fertilizers to an open sea loch was reported from the University of Edinburgh in Scotland.¹⁰ Additions of calculated amounts of sodium nitrate and phosphate in the waters in Loch Craiglin, a small arm of Loch Sween, induced extremely heavy settlement of the common mussel as well as an acceleration in fish growth.

Details of the development of the silver zeolite briquettes, used by aviators and sailors to provide drinking water from sea water during the war, were released by two research investigators.¹¹ This discovery was among the most useful to come out of the exigencies of the war.

Waters of the Antarctic¹² continued to engage the minds of the scientists and the layman. Using the 20,000-ton whale factory ship, "The Empire Victory," accompanied by smaller and faster whale catchers, British seamen returned to England from the prawn-teeming, plankton-cluttered Antarctic waters—the feeding grounds of the finback whale—with a loot of 40,000 tons of whale oil, in addition to quantities of compressed flesh and chopped bones salvaged from the bodies of 1,600 finbacks. Early December witnessed the start of a four-months' Antarctic expedition of the U.S. navy,¹³ under the direction of Rear Adm. Richard E. Byrd. It was stated that much of the scientific data gathered on a former trip was to be reviewed and new observations concerning the Antarctic region ascertained. (See also OCEANOGRAPHY; ZOOLOGY.)

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Marine Corps. Established Nov. 10, 1775, by resolution of the first continental congress, the marine corps is an integral part of the naval establishment, comprising normally 20% of its total strength. Enlistments are entirely voluntary and officers are procured from graduates of the naval academy at Annapolis, Md., the naval reserve officer training corps and selected enlisted men.

The commandant of the marine corps in 1946 was Gen. Alexander Archer Vandegrift, who with administrative and operational staff was stationed at headquarters in the navy department, Washington, D.C.

Units of the marine corps organized reserve are maintained in major cities, and in 1946 totalled 17 ground units and 25 air units. Headquarters for the air reserve are at Glenview, Ill. Authorized strength of the organized reserve was placed at 33,262.

During 1946 four of the wartime divisions were deactivated as the corps was reduced to its authorized peacetime strength of

³ *Nature*, April 13, 1946, vol. 157, no. 3989.

⁴ Reported; *Information Bull.*, vol. VI, no. 11, Wash. D.C., Jan. 31, 1946.

⁵ *Science*, July 12, 1946, p. 357.

⁶ Abstracted from the Swedish-International Press Bureau. See *Science*, July 5, 1946, vol. 104, no. 2688, p. 13.

⁷ Released and reported in *Nature*, March 23, 1946, 179, no. 3986.

⁸ Report on Norwegian Fisheries and Marine Investigations, vol. 8, 2, 1945; released by the Director of Fisheries (Bergen, 1945).

⁹ *Nature*, July 20, 1946, vol. 158, no. 4003.

¹⁰ See *Nature*, vol. 158, no. 158, no. 4008, Aug. 10, 1946.

¹¹ *J. Soc. Chem. Ind.* 64, 305; 1945; and *ibid.* 65, 28; 1946.

¹² *Life*, Oct. 1946, pp. 123-126.

¹³ Popular announcement from secretary of navy.



CHINESE CHILDREN accepting candy from a U.S. marine who was stationed in Tientsin during 1946

100,000 and 8,200 officers and warrant officers. All personnel inducted under selective service and all reserves were discharged or assigned inactive duty by Dec. 1946. Demobilization of the women's reserve was completed by Sept. 1, except for 300 women retained for 10 months at headquarters.

The 2d division remained in occupation of Kyushu until June and had returned to its base at Camp Lejeune, N.C., by Aug. 1946.

Marine forces in north China were reduced during the year, all units of the 3rd corps being relieved and disbanded except the 1st division, reinforced.

Units of this division were stationed at Tientsin, Peiping, Tsingtao and Chinwangtao and small liaison teams attempted to prevent the spread of hostilities between Chinese nationalist and communist forces.

The 1st provisional brigade was formed in January, took part in Caribbean manoeuvres with the fleet and was absorbed by the returning 2nd division in August. In the same month the 3rd brigade was activated for duty with the Pacific fleet marine force.

Marine troop-training units were formed with the Atlantic and Pacific fleets, consisting of specialized instruction staffs for the training of army, navy and marine units in landing operations.

In November enlisted ratings were standardized to include only the following: private, private first class, corporal, sergeant, staff sergeant, technical sergeant and master sergeant. Officer ranks remained the same.

(A. A. V.)

Marine Insurance: see INSURANCE.

Market Gardening: see VEGETABLES.

Marriage and Divorce.

Throughout the civilized world the year of 1946 was characterized by organized efforts to conserve family life. Under the auspices of the Swedish National Association for Sexual Education an international conference on problems of sex education, family planning and marriage counselling was convened in Stockholm. Delegates from seven countries attended. Denmark reported a dearth of family and marriage counselling agencies although considerable research was taking place on human fertility. In England about 57 clinics of the Family Planning association were operating as were several mothers' clinics. The Marriage Guidance council, under the direction of Dr. David Mace, was offering a greatly expanded family guidance service. From Finland came a report that little sex or marriage education was being given. Delegates from the Netherlands indicated that World War II had halted all work in marriage and family guidance, but that a National Association for Sexual Reform had been formed with its objectives including sex education and the establishment of centres on family planning, sexual problems and marital difficulties. Although the inroads of war into Norway had closed all clinics of the National Association for Maternal Hygiene, new clinics were functioning in several cities. These clinics had made provision for prenatal and infant care. In Sweden the National Association for Sexual Education, which had expanded its activities, was maintaining clinics in Göteborg, Malmö and Stockholm. The association was publishing its own books and pamphlets and conducting a comprehensive program in sex education and family relations. Delegates from the United States reported that several national organizations were supporting the establishment of family problem consultation centres and marriage counselling services. The international conference expressed a desire to find ways of assisting countries whose work

in sex and family education had been discontinued by war. A committee was appointed to study the possibilities of organizing an international association of the various groups and agencies interested in the fields of sex education, planned parenthood and marriage counselling.

In Canada the government announced that grounds for divorce, permitted only for adultery, would not be extended. The Canadian Youth commission reported a survey that showed English-speaking Canadians approved, French-speaking Canadians disapproved, of greater freedom of social contacts between young men and women. The men's physical education section of the Ontario Educational association asked the Royal Commission on Education to put courses in sex education in the secondary schools. By the proclamation of the governor a divorce court was established in Prince Edward Island.

England was beset by many postwar problems. It was reported that the rise to 25,000 divorce cases in 1945 and an arrearage of 43,000 divorces sought by persons in the armed forces had so clogged the machinery of the courts that participants were facing a delay of 3-4 yr. in securing divorces. Concern was expressed in many quarters that such delays would lead to many irregular unions with the probability that illegitimate children and other grave social problems would follow. In the house of commons it was declared that 40% of girls marrying under the age of 20 yr. were pregnant on their wedding day and that one-quarter of all first babies born to married couples were conceived outside of marriage. The attorney general suggested that one way to attack the problem was to provide young people with social education in the responsibilities and duties of citizenship and marriage. He also proposed that better houses, freedom from anxiety of unemployment and better recreational facilities would conduce to happier family life. The general assembly of the Presbyterian Church of England, issuing its first ruling on divorce in nearly three centuries, instructed its ministers to officiate at weddings of divorced persons only when satisfied that such persons were morally innocent in the divorce, had expressed penitence and been admitted, or readmitted, to the Christian church. In a resolution the assembly expressed belief that divorce was contrary to biblical teaching. The need for marriage counselling centres was widespread and through the influence of the Marriage Guidance council more than 100 counselling services were operating. Marriage counselling facilities for Roman Catholics were being set up.

The divorce rate in Germany was estimated as ten times greater than the rate before World War II. In Poland new legislation was passed requiring a premarital physical examination and providing that no divorce could be granted until the presiding judge had tried to effect a reconciliation. Under auspices of the Christian council, "home-life weeks" for the strengthening of family life were held in the principal cities of South Africa.

South America was also taking steps to stabilize family life. In Argentina a broad program of parent education was getting under way with the establishment of associations resembling the parent-teacher associations of the United States; a premarital physical examination was also being required. The Assistance league established a school for brides in São Paulo, Brazil, to offer courses in personal and social hygiene, nutrition and child care. In Paraguay the law required a premarital physical examination of both sexes. The Consultorio de Educacion Familiar Popular Gratuito of Peru was offering courses in home economics which also dealt with problems of marital adjustment.

The United States, shaken by a rate of one divorce for every three marriages in 1945, resigned itself to the similar ratio in 1946. In Los Angeles the number of divorce actions filed during the first half of the year exceeded the number of marriage li-

cences issued. Comparing duration of marriages in Los Angeles county before divorce for the years 1933 and 1945, the American Institute of Family Relations found that the average duration in 1933 was 9.3 yr., with only 6.1 yr. in 1945. The trend toward increasing divorce rates was evident throughout the land with some urban areas reporting nearly as many divorces as marriages. Some authorities predicted that another decade might see one divorce for every two marriages. In spite of an unrelieved and acute housing shortage, so severe it was estimated that one-third of all newlyweds had to begin their marriages in the homes of relatives, more than 1,500,000 marriages took place in 1946. Cost of living advanced during the year with a sharp increase noted when price controls were removed. Labour unrest, with its strain on family budgets, continued to be present.

Many soldiers returning home brought foreign brides with them. Wives went overseas to join husbands who were in armies of occupation. Reconversion, proceeding at a rapid pace and attended by shifts of workers to other areas, aggravated the housing shortage. Unequal sex ratios, especially apparent in cities, made it difficult for many women to find husbands. More than 1,000,000 veterans were receiving educational and vocational training. Colleges, faced with overwhelming enrolments, gave veterans first preference. Since many veterans had married, college grounds were dotted with trailer camps and other improvised housing.

It was apparent that concerted action was necessary if family stability was to be achieved. Plans went forward for a national conference on family life which would analyze the problems of marriage and the family. Church federations in many cities began to organize centres for marital counselling. The Committee on Marriage, the Family and the Home, of the Central Conference of American Rabbis urged rabbis to require a waiting period of five days between the application for a marriage licence and the performance of the ceremony, to require the couple to obtain and exchange medical health reports, not to marry individuals who were imbecilic, insane or afflicted with communicable tuberculosis or infectious venereal disease and to insist that couples have premarital conferences with the rabbis and have studied some standard manual on marriage. More colleges than ever before were offering courses in marriage and the family and about one-third of the more important institutions claimed to give practical preparation for marriage; but less than 10% of the students were enrolled in such courses. Public-opinion polls showed that a great majority of persons polled favoured the teaching of courses in sex education and marriage in secondary schools. Outstanding educational experts said that U.S. schools were failing worse in fitting their pupils for personal and family responsibilities than in any other way. Many high school systems were offering courses, in some cases experimentally, in sex education and marriage with a few schools in Minnesota giving education in family living beginning with pupils of kindergarten age and carrying through the senior high school. Several states, notably Utah, were holding family-life institutes and vigorously campaigning for adult education to promote more successful marriage and family stability.

Among the national and regional conferences dealing with family life held during the year were the National and Pennsylvania Conferences on Family Relations, the Annual Conference on the Conservation of Marriage and the Family at the University of North Carolina, the Marriage and Family Life Council of Miami and South Florida and the Annual Institute on Marriage and Home Adjustment of The Pennsylvania State college. (See also CENSUS DATA, 1946.) (C. R. A.)

Europe.—France took steps to reduce infant mortality by the *Ordonnance* No. 45-2720 of Nov. 2, 1945. Its preamble explained that to arrest and reverse the alarming rise of infant

mortality between 1938 and 1945 the health of pregnant women must be protected by immediate and rigorous measures. One of these, amending article 63, *code civil*, was the introduction of the health certificate, to be produced to the registrar before marriage. The certificate would show that a medical practitioner had examined the man and woman within two months before marriage. Any warning of contagious or chronic diseases, dangerous to the marriage partner or descendants, was to remain the secret of doctor and patient. A registrar marrying a man and woman without a certificate was liable to a fine up to 100 francs (84 cents).

In Germany and elsewhere in formerly German-occupied territory the demise of the national socialist regime ended racial discrimination in marriage law. For Germany proper Control Council law No. 16, dated March 1, 1946, repealed the German law of July 6, 1938, and restored on the whole the marriage sections of the 1900 German civil code. Aggrieved spouses, their children or the public prosecutor might bring a hardship action within two years of the passing of the Control Council law; the court had power to remove economic or personal hardship inflicted under the 1938 statute or by a judgment that was wholly or predominantly based on racial, political or religious discrimination. Annulled or divorced marriages could not be restored.

Changes of political regimes in eastern Europe produced something like a revolution of the marriage law in that region. The Hungarian decree of Aug. 2, 1945, extended divorce in two respects. After two years of married life both spouses might jointly apply to the court for divorce. If consent were withheld, even the party guilty of desertion might make the application, provided that husband and wife had not lived together for five years. The law also provided for divorce under this head, if an earlier divorce petition on another ground had been dismissed. Neither party could be declared guilty in the judgment. Poland, Yugoslavia and Bulgaria made civil marriage compulsory and retained the church wedding as an optional ceremony (Polish decree of Nov. 7, 1945; Yugoslav law of April 9, 1946, which also perpetuated local customs; Bulgarian law of May 12, 1945). Husband and wife were given equal status. The wife might choose her family name and her profession or trade and was to contribute to the household and education of children. Property of spouses remained separate. Nullity and divorce followed lines generally accepted elsewhere, but with important additional grounds in Poland and Yugoslavia, such as dishonourable behaviour and infamous occupation. Poland also provided for divorce in case of venereal disease and sexual impotence arising after marriage and the maligning of one spouse by the other. In Yugoslavia divorce could be obtained by consent, and in its absence on petition proving temperamental incompatibility, lasting disagreement or irremovable hostility. Poland did not go so far as this, but an introductory law provided for two temporary grounds of divorce to make a clean sweep after World War II and its consequences. Quisling activity during the German occupation was a ground for divorce, and for three years divorce by consent was to be pronounced by courts, provided that the marriage had lasted three years.

(O. C. G.)

Marshall, George Catlett (1880—), U.S. army chief of staff, was born at Uniontown, Pa., on Dec. 31. Commissioned second lieutenant of infantry Feb. 2, 1901, after completing his studies at Virginia Military institute, Lexington, Va., and the Army Staff college, he advanced through the grades to brigadier general in 1936. He was with the U.S. expeditionary forces in France in 1917. He was stationed in China, 1924–27. Gen. Marshall was made chief of staff on Sept. 1, 1939, the day Hitler invaded Poland; he was also appointed to the rank of full general. Tactful and

sagacious, he displayed a rare talent for harmonizing diverse points of view and for retaining everyone's good will. He directed and co-ordinated the enormous task of building up the U.S. army after enactment of the Selective Service bill. When war came, Dec. 7, 1941, his army consisted of only 1,500,000 men. By the close of the war in Europe in May 1945, it had grown to 8,300,000, of which more than 4,000,000 were overseas. Marshall was promoted, Dec. 15, 1944, to the new five-star rank of general of the army.

In the army report on Pearl Harbor, made public Aug. 29, 1945, he was charged with "failure in his relations with the Hawaiian department." However, both President Truman and Secretary of War Henry Stimson took issue with this charge, and Stimson asserted that Marshall had acted with his "usual great skill, energy and efficiency." In his biennial report, issued Oct. 9, Marshall maintained that the only adequate defense a nation can have is to maintain the "power of attack" and urged establishment of a strong citizen army "to greatly strengthen the hand of the U.S. in securing a genuine organization to handle international differences." He also advocated a merger of the armed services (Oct. 18). Marshall relinquished his post as chief of staff to Gen. Dwight D. Eisenhower, Nov. 20. A week later (Nov. 27), he was named ambassador to China, replacing Maj. Gen. Patrick Hurley.

After 13 months of ceaseless negotiations with both warring factions in China, Marshall returned to Washington. In a "personal statement" issued Jan. 7, 1947, he flayed "extremist elements" in both Chiang Kai-shek's government and in the Chinese Communist party for frustrating "time and again" his efforts to end the civil war in China. A few hours after this statement was delivered, President Truman announced Marshall's appointment as secretary of state, succeeding James Byrnes, who resigned for reasons of health.

Marshall Islands: see MANDATES.

Martinique: see FRENCH COLONIAL EMPIRE.

Marx, Wilhelm (1863–1946), German statesman, was born on Jan. 15 in Cologne. He studied jurisprudence at the University of Bonn and subsequently became a county judge and senate president of the Berlin court chamber. A former chancellor of Germany (1923–24, 1926–28) and Centre party leader, he was indicted for fraud by the Nazi regime, but the charges were dropped and Marx was allowed to slip into obscurity. In 1945 he was discovered by the U.S. occupation forces, living in Neustadt. He was, he said: "bewildered by events." He died at Bonn, Germany, on Aug. 5. (See *Encyclopædia Britannica*.)

Maryland. Maryland, long known as the "Old Line state," also as the "Free state," lies on the Atlantic seaboard between Pennsylvania on the north and Virginia on the south. The total area is 10,577 sq.mi., of which 690 are water. Population (1940) 1,821,244; urban, 1,080,351; rural 740,893; white, 1,518,481 (foreign born, 81,715); nonwhite, 302,763. On July 1, 1945, the bureau of the census estimated the civilian population of the state at 2,125,419. Capital, Annapolis (pop. 1940, 13,069); other cities: Baltimore (859,100), Cumberland (39,483), Hagerstown (32,491), Frederick (15,802) and Salisbury (13,313).

History.—William Preston Lane, Jr., Democrat, was elected governor in 1946 for a four-year term, to begin on Jan. 8, 1947. The general assembly meets regularly in odd-numbered years. Herbert R. O'Connor, Democrat, former governor, was elected to the United States senate in 1946, succeeding George L. Radcliffe, Democrat. The term of his colleague, Millard E. Tydings,

Democrat, was to expire in 1950.

Communication.—

During the fiscal year ended June 30, 1946, the state roads commission expended \$14,280,634. The total mileage of roads in the state highway system was 4,496.38; in the county systems, 11,141.54; total, 15,637.92. At the close of the year the total mileage of line-haul steam railroads was 1,362; of switching and terminal companies, 115; of electric railways (interurban), 65.24. The state aviation commission reported 34 commercial airports licensed on Nov. 30, 1946; 8 military airports; 1,339 registered pilots; 730 recorded personal planes. As of Nov. 30, 1946, there were 274,003 telephone subscribers; total number of instruments, 467,885.

Education.—In 1945-46 there were in the state (including Baltimore whose schools are separately administered) 915 public elementary and occupational schools, with a total enrolment of 201,872 and a teaching staff of 5,223 (excluding 610 pupils taught by 21 teachers on the staffs of the elementary schools at the four state teachers' colleges). There were 217 secondary and vocational schools, with an enrolment of 94,984 and a teaching staff of 3,852. In the elementary schools about one pupil in five was a Negro; in the higher schools about 2 students in 13 were Negroes.

The Catholic school enrolment for the entire state was 47,792 white and 2,134 Negro with a total of 49,926. The enrolment in non-Catholic private schools was 7,530 white and 76 Negro, with the total 7,606. The state superintendent of schools in 1946 was Dr. Thomas G. Pullen, Jr., whose four-year term of office was to expire in 1948.

Social Insurance and Assistance, Public Welfare and Related Programs.—During June 1946, old-age assistance was extended to 11,546 persons (cost, fiscal year ended June 30, 1946, \$3,898,134); 454 needy blind persons were assisted (cost fiscal year, \$161,943); 3,822 families received assistance for the care of dependent children (cost fiscal year, \$1,489,060). Unemployment compensation benefits paid during the fiscal year 1945-46 amounted to \$25,146,443.

Correctional institutions and the number of inmates on Oct. 16, 1946, were as follows: Maryland penitentiary, 1,193; Maryland house of correction, 1,310; Maryland reformatory for males, 615; Maryland reformatory for women, 183 (77 white, 106 Negro). Four institutions were maintained for juvenile delinquents, white and Negro; total number of inmates, 647.

Banking and Finance.—As of June 30, 1946, the state bank commissioner reported 106 state banks and trust companies with total deposits of \$889,839,653 and total resources of \$956,086,932 and ten mutual savings institutions with deposits of \$372,429,219 and resources of \$414,704,832. On the same date there were 64 national banks in the state with deposits of \$739,429,000 and resources of \$788,966,000. The resources of all banking institutions, state and national, in Maryland on June 30, 1946, totalled \$2,159,757,764. State appropriations for the year ended June 30, 1946, were \$65,717,404; expenditures, \$64,313,002; gross debt, \$20,902,000; net debt, \$18,712,644; general fund surplus, \$11,932,469.

Agriculture.—The farm value of the principal crops for the crop year 1946 was \$114,938,000 compared with \$88,620,000 for 1945. During the first 8 months of 1946, livestock and livestock products brought a total of \$66,906,000, as compared with \$70,589,000 during the like period of 1945.

Table I.—Leading Agricultural Products of Maryland, 1946 and 1945

	1946	1945
Barley, bu.	2,174,000	1,885,000
Corn, bu.	17,328,000	17,057,000
Oats, bu.	1,254,000	1,110,000
Wheat, bu.	7,320,000	6,771,000
Hay, tons	631,000	630,000
Tobacco, lb.	40,500,000	18,375,000
Potatoes, bu.	2,244,000	1,915,000
Tomatoes, market, bu.	975,000	832,000
Tomatoes, processing, tons	139,200	119,100

Manufacturing.—As of Sept. 15, 1946, the Maryland commissioner of labour and statistics estimated the number of manufacturing establishments at 3,700 employing 246,935 persons—average weekly payroll, \$11,425,000, average weekly wage, \$46.27, average hourly wage, \$1.12, and average

hours worked per week 41.4. Nonmanufacturing employment was 298,943 with average payroll of \$10,875,000. Combined employment was 545,878 with aggregate payroll of \$22,300,000.

Mineral Production.—The latest figures available in 1946 on mineral production are shown in Table II.

Table II.—Leading Mineral Products of Maryland, 1945 and 1944

	1945	1944
Bituminous coal (net tons)	1,779,231	1,875,804
Fire clay (net tons)	58,034	81,605

Oysters.—The commercial catch of oysters in Maryland waters during the season 1945-46 totalled 2,399,111 bu. compared with 2,436,113 bu. during the 1944-45 season. (J. S. A.)

Massachusetts. A north Atlantic state of the U.S.A., admitted to the union on Feb. 6, 1788. Popularly known as the "Bay state." Area, 8,257 sq.mi., including 350 sq.mi. of water; population (census 1940) 4,316,721; (1946 est.) 4,567,621, of which approximately 88% was urban, 12% rural. The capital is Boston (pop. 770,816). Other cities of 100,000 or more inhabitants are Worcester 198,741; Springfield 159,896; Fall River 115,062; Cambridge 111,124; New Bedford 110,341; Somerville 102,177; Lowell, 101,229; and Lynn 105,153.

History.—In 1946 Gov. Maurice J. Tobin (Dem.) completed the term for which he had been elected in Nov. 1944. Other constitutional officers serving in 1946 were: lieutenant governor, Robert F. Bradford (Rep.); secretary of state, Frederick W. Cook (Rep.); treasurer, John E. Hurley (Dem.); attorney-general, Clarence Barnes (Rep.); auditor, Thomas J. Buckley (Dem.).

During the legislative session several notable measures were adopted, including the establishment of a Fair Employment Practice commission to prevent discrimination against workers, the extension of the minimum wage law, the increasing of benefits for unemployed workers and workers injured on the job, the establishment of a college for veterans and the liberalizing of pension allowances for persons retired from public service.

The elections of Nov. 1946 resulted as follows: governor, Robert F. Bradford (Rep.); lieutenant governor, Arthur W. Coolidge (Rep.); secretary of state, Frederic W. Cook (Rep.); attorney-general, Clarence Barnes (Rep.); state treasurer, Laurence M. Curtis (Rep.); auditor, Thomas J. Buckley (Dem.).

Education.—In 1946 there were 1,771 public elementary schools with 362,616 pupils and 13,418 teachers; 177 junior high schools with 85,755 pupils and 3,883 teachers; 276 senior high schools with 138,562 pupils and 6,542 teachers. There were 10 teachers' colleges operated by the state, with a total enrolment of 1,952 students and 186 instructors. Total cost of public education in Massachusetts was \$77,245,537.30, of which the commonwealth contributed approximately 9%. Among the institutions of higher learning were: Harvard university (1636), Holy Cross college (1843), Boston college (1863), Wellesley, Williams, Tufts, Massachusetts Institute of Technology, Boston university, Clark university and Springfield Y.M.C.A. college.

Social Insurance and Assistance, Public Welfare and Related Programs.—For 1946 the estimated total of public welfare expenditures by cities and towns (with federal and state aid) was \$61,436,381. Of this amount \$46,054,314 was spent for old age assistance; contributions to this total were: federal 38.7%, state 36.3%, local 25%. There was \$8,496,579 spent as aid to dependent children; contributions: federal 28.2%, state 33.3%, local 38.5%. There was \$6,885,488 spent on general relief; contributions: state 23.6%, local 76.4%. The average monthly case load was: old age assistance 79,856 persons, aid to dependent children 8,159 families, general relief 13,675 cases.

During 1946 the commonwealth spent \$3,344,564 to maintain correctional institutions, including the state prison (520 inmates), prison colony (768), reformatory for men (877), reformatory for women (477), state farm (1,918). The first step in a move to vacate the century-old Charlestown state prison was taken through an appropriation of \$200,000 for construction of the wall to enclose a new prison in Bridgewater.

Other outstanding developments of 1946 included the acquiring, for \$1, of the \$21,000,000 facilities at Camp Myles Standish to serve as a hospital for mentally-retarded children and the establishment of a state-operated system of blood banks to serve emergency needs in every section of Massachusetts.

Banking and Finance.—Revenue receipts of the commonwealth for the fiscal year ending June 30, 1946, were \$159,862,131.14. Governmental cost for the same period was \$175,396,516.62. Net direct debt was

\$25,751,300. Revenue receipts for the first 6 mo. of the fiscal year (July-Dec., 1946) indicated an increase to a record high of \$162,000,000. However, expenditures were also expected to reach a new record, and it was estimated that unless new sources were tapped, revenues would fall \$25,000,000 short. A commission was appointed to study the problem of new taxes, with a view to relieving the commonwealth and local communities.

Particular emphasis was being placed upon the need of increasing state aid to cities and towns for educational purposes. Famous for pioneering in many fields of public education, Massachusetts had fallen to 44th place among the states in terms of state aid for local schools. Gov. Tobin initiated steps to improve this situation, and it was understood that his successor was likewise pledged to use the taxing power of the commonwealth to increase funds available for public schooling in Massachusetts, without increasing the burden on local real estate.

Assessed valuations in the state totalled \$6,250,000,000, and the average local tax rate on real estate was \$35.79 per \$1,000, highest on record. In 1946 Massachusetts citizens paid an aggregate of approximately \$1,500,000,000 in local, state and federal taxes (including real estate, income, excise and others).



GOV. ROBERT F. BRADFORD of Massachusetts, elected on the Republican ticket Nov. 5, 1946

Table I.—Financial Report Covering the Year 1946

Savings banks	190
Co-operative banks	176
Trust companies	64
Credit unions	458
National banks	121
Federal Savings and Loan institutions	26
Total number of all banks in the state	1,035
Total assets of all banks in the state	\$8,777,928,911.27
Total assets, Federal Savings & Loan Assns.	214,050,952.00
Total number of depositors in all banking institutions in the state	4,440,549*

*Does not include depositors of national banks.

Agriculture.—Total acreage harvested in Massachusetts during 1946 was 457,900 ac. The total value of 1946 crops was \$57,446,000, or 29% more than the crop value of 1945.

Table II.—Principal Agricultural Products of Massachusetts, 1946 and 1945

Crops	Production	
	1946	1945
Corn, bu.	1,634,000	1,677,000
Cranberries, bbl.	550,000	478,000
Apples, bu.	1,784,000	410,000
Hay, tons	650,000	662,000
Potatoes, bu.	3,498,000	2,899,000
Tobacco, lb.	10,789,000	8,172,000
Onions, bags	624,000	410,000
Oats, bu.	259,000	196,000
Asparagus, crates	136,000	144,000

Manufacturing.—In 1946 there were 1,799 local unions in the commonwealth with a total membership of 515,370 (374,498 males, 140,872 females), out of a total industrial employment of 1,430,000 persons. Based upon the first 9 mo., pay rolls for 1946 were estimated at \$12,100,000,000, not including public service groups, farm workers and others not covered by social security. In 1946 the division of unemployment security paid out \$42,857,363 to jobless workers, and \$68,663,916 to returned veterans seeking work—a total of \$111,521,279.

Table III.—Value of Principal Products Manufactured in Massachusetts in 1946

Products	Estimated Value
Woollen and worsted goods	\$ 534,000,000
Electrical machinery, etc.	415,000,000
Cotton goods	359,000,000
Boots and shoes (other than rubber)	325,000,000
Clothing	216,000,000
Foundry and machine shop products	188,000,000
Rubber goods	175,000,000
Printing and publishing	149,000,000
Paper and wood pulp	144,000,000
Bakery products	143,000,000
Leather	132,000,000
Boots and shoes, stock and findings	130,000,000
Shipbuilding	86,000,000
All other industries	2,204,000,000
Total value	\$5,200,000,000

(M. J. To.)

Massachusetts Institute of Technology.

The year 1946 was one of transition from wartime research to the peacetime education of a student body of outstanding maturity and capacity. To fulfill its obligation to readmit all its former students on leave of absence for military service and to help alleviate the postwar educational challenge as shown by about 75,000 inquiries concerning admission to M.I.T. after V-J day, the institute enrolled 5,100 students in Sept. 1946, an increase of 70% over the normal prewar student body of 3,000. Of the total student body, 1,300 were graduate students, of whom many were selected army and navy officers sent for special training. Three-fifths of the 1946 student body were veterans.

To provide adequate academic facilities for the abnormally large student body, the institute occupied all the space devoted to war projects, with the result that its plant was greater by 500,000 sq.ft. than that available before the war. Its educational effectiveness had been extended by several significant developments, including the completion of plans for the Charles Hayden Memorial library; the establishment of two new centres of research—the research laboratory of electronics and the laboratory for nuclear science and engineering; the construction of a new gas turbine laboratory; and the launching of a new department of food technology. Government and industry continued to sponsor research at M.I.T. on an extensive scale. Of its over-all budget of \$11,000,000, the institute's research budget for 1946 was of the order of \$5,000,000.

(For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (K. T. C.)

Mathematics. By the end of 1946 mathematical research had returned to a normal level in most countries, although publication had not been resumed in Germany and Japan. Attendance at mathematical meetings and the volume of publication both increased materially. The first international conferences of any size after 1939 were the Sixth International Congress for Applied Mechanics, held in Paris in Sept. 1946, and the Conference on the Problems of Mathematics held in Princeton, N.J., in December as part of the bicentennial celebration of Princeton university. The American Mathematical society's annual colloquium lectures were delivered by Hassler Whitney (*Topology of Smooth Manifolds*).

International communications had not improved enough for all mathematical publications for the war years to have reached all countries, but a reasonably large sample was available in the United States and Great Britain. The first publications received from Japan showed that, during the five years in which Japan had been cut off from the rest of the world, mathematics had developed along lines parallel to its development elsewhere; several results had been discovered independently by investigators in Japan and in the west.

Few advanced mathematical books were published, although many were in preparation. C. Chevalley's *Theory of Lie Groups* contained much original material. H. Cramér's *Mathematical Methods of Statistics* seemed destined to be the standard reference book on the subject for some years to come.

During the war many novel computing machines were constructed. Details of some of the outstanding ones were released to the public in 1946. The E.N.I.A.C. (initials of "electronic numerical integrator and computer"), at the University of Pennsylvania, is a high-speed machine using electronic apparatus. The somewhat slower, but perhaps more versatile, automatic sequence controlled calculator at Harvard university uses International Business Machines equipment. Such machines perform single additions or multiplications on numbers of ten or more

digits in times ranging from a small fraction of a second to a few seconds, and will solve in a few hours problems which would take a manual computer months. They are of particular importance for applied mathematics. A new and powerful differential analyzer at Massachusetts Institute of Technology should also be mentioned.

Among investigations which attracted particular attention in 1946 were the theory of compressible fluids, under intensive study by many mathematicians. Another problem in hydrodynamics, that of the stability of a flow, was attacked with success by C. C. Lin. In the theory of the area of a curved surface, developments of the year served to emphasize the fact that different definitions lead to remarkably different results above the elementary level. A problem concerned with the topological characterization of the sphere was solved by R. H. Bing. Connections between topology and the theory of groups were developed, particularly by S. Eilenberg and S. MacLane. Other contributions to algebra which attracted attention were made by R. Brauer, E. Artin, I. S. Cohen and N. Jacobson. Number theory continued to be active; K. Mahler and others in Great Britain worked on the geometry of numbers and Diophantine approximation, while U. Linnik in the U.S.S.R. made further advances in analytic number theory. The American Mathematical society's Cole prize in the theory of numbers was awarded to H. B. Mann for his solution in 1942 of the problem of the density of the sum of two sets of positive integers. A new approach to N. Wiener's general Tauberian theorems was given by A. Beurling. The first significant contribution to the mean convergence of series of orthogonal polynomials was given by H. Pollard.

BIBLIOGRAPHY.—A complete bibliography of papers in pure and applied mathematics is given in the abstracting journal *Mathematical Reviews*, vols. 7 and 8 (1946 and 1947). (R. P. Bo.)

Maurice and Laura Falk Foundation, The: see SOCIETIES AND ASSOCIATIONS.

Mauritania: see FRENCH COLONIAL EMPIRE.

Mauritius: see BRITISH EAST AFRICA.

Meat. The production of all meats in the United States in 1946 was estimated by the United States department of agriculture at 21,900,000,000 lb. compared with 22,081,000,000 lb. in 1945 and the five-year average of 16,182,000,000 lb., 1935-39. Production in 1946 was the lowest from 1942 because of the lower production of pork. The civilian consumers had a larger supply than a year earlier, however, as a result of the larger supplies moving after the end of price control and the advance in livestock prices. Meat output during the first half of the year was about the same as in the first half of 1945. Military requirements were smaller, but larger amounts were purchased for export for relief and sale. In May the movement of livestock to market slowed as farmers were waiting the end of price control. At times receipts of live animals were at record low numbers at the principal stock yards. In July and August, when price control lapsed, the receiving yards were crowded. Some animals were marketed in unfinished condition in order to meet the higher prices that followed de-control. This caused a slight decline in receipts in September and meat production dropped to a low level.

Total meat production was estimated at 161 lb. per capita in 1946 compared with 163 lb. in 1945 and the record of 178 lb. in 1944. Exports were estimated at 1,300,000,000 lb. in 1946 which was more than was shipped in 1945 but only about half of the high record shipments of 2,531,000,000 lb. in 1943. The meat production of 1946 was below 1945 for beef, veal and mutton but slightly larger for pork. Veal declined about 14%, beef 13% and lamb and mutton 5% while pork gained 3%.

The commercial meat stocks were the lowest on record in September because of the reduced September production and heavy consumption. The average civilian consumption was estimated at 145 lb. per capita for 1946 compared with 137.7 lb. in 1945, 148.4 lb. in 1944, 136.7 lb. in 1943 and a prewar average of 125.6 lb., 1935-39. The demand for meat continued high until late fall when employment was reduced somewhat by strikes.

Military purchases were estimated at 750,000,000 lb. compared with 3,600,000,000 lb. purchased in 1945. Exports and other shipments were about 1,200,000,000 lb. compared with 1,400,000,000 in 1945. The government stopped purchasing meat for export on Sept. 30. Purchases for relief by the United Nations Relief and Rehabilitation administration declined to the end of the year when this organization terminated its activities.

Prices of meat animals increased beyond all records beginning in July 1946, from 206% of the base (1909-14) in Aug. 1945 to 294% in November. Hogs, cattle, calves and lambs made new high records in July and August, then dropped again when control was restored in September, only to jump again in October to higher levels than had been reached in August. The price of beef cattle to producers averaged \$14.10 per 100 lb. in June, then rose to \$17 in August, dropped to \$15.20 in September and reached a peak of \$18.10 in October followed by a slight decline to the end of the year. Retail prices of beef followed a similar series of changes. The top price at Chicago for a few loads of steers in late August was \$30.25 per 100 lb. compared with the previous high record of \$21.50 in Dec. 1919. Hogs, which had been stable at around \$14 per 100 lb. through 1945 and up to June 1946, advanced to \$20.80 per 100 lb. in August, declined to \$15.70 in September and then made a record of \$23 for October which was followed by a slight decline. Veal and mutton followed the same general trend.

The pork supply of 1946 was the result of a larger fall pig crop in 1945 than a year earlier which increased the market supply in early 1946. The spring pig crop in 1946 showed a slight increase over the previous year but the fall pig crop of 1946 declined because of the high prices of feed in the spring. This would be reflected in smaller marketings in the winter of 1947. Large feed supplies from the record crop of 1946 encouraged feeding to heavier weights, however, which would increase the supply of pork for early 1947. The United States department of agriculture asked farmers for a larger spring pig crop in 1947 than in 1946.

The number of cattle on farms declined in 1945 from 81,909,000 head to 79,791,000 head on Jan. 1, 1946. This was a small decline and was checked during the year. The number of cattle on feed on Jan. 1, 1946, was 5% below a year earlier and by April the number being fed in the corn belt was estimated to be 15% less than in 1945. With the increase in prices and good crop prospects the movement of cattle to feed-lots increased in July and August more than 64% above the previous year. While prices of feeder cattle were high, feed supplies were abundant and profits were stimulating to feeding.

Sheep and lamb production declined after 1942 and the 1946 lamb crop was 26,000,000 head, the smallest after 1927. Lamb feeding was maintained at near the record of 6,979,000 head in 1943 with 6,724,000 head fed in 1946. (See also BACON; CAT-

U.S. Meat Production, 1946, 1945 and 10-year Average
(In millions of pounds, dressed weight)

	Average 1935-39	1946*	1945
Beef	6,936	8,700	10,157
Veal	1,038	1,400	1,635
Lamb and Mutton	871	1,000	1,053
Pork	7,337	10,200	10,046
Total	16,182	21,300	22,891

*Preliminary estimate.

TL; HOGS; LIVESTOCK; POULTRY; PRICE ADMINISTRATION, OFFICE OF; SHEEP.)
(J. C. Ms.)

Medals: *see* DECORATIONS, MEDALS AND BADGES—MILITARY, NAVAL AND CIVIL.

Mediation Board, National: *see* NATIONAL MEDIATION BOARD.

Medical Association, American: *see* AMERICAN MEDICAL ASSOCIATION.

Medical Rehabilitation of Disabled Veterans.

Steady progress was being made in the development and achievement of medical rehabilitation for war-disabled veterans. The impetus provided by World War II continued in the effort to rehabilitate every sick, injured and disabled veteran for purposeful living and a normal life compatible with his abilities and disabilities. The finer concepts for restoration and re-socialization of these men who had earned their recovery even before they received their disability in combat were conceived as part of an integrated program in which medical rehabilitation brought to bear every possible therapeutic means to treat the whole man, to engender a desire to get well, to enhance his morale and confidence and to guide his vocational abilities toward economic independence.

In order that veterans might receive medical care second to none in the world, liaison was established between the Veterans' administration and the leading medical schools and centres throughout the country. From these medical schools, deans' committees were established for each hospital, and prominent physiatrists were appointed to serve as consultants in physical medicine to Veterans' administration hospitals. The medical rehabilitation service continued to develop through decentralized branch areas with supervision over the rehabilitation program in every hospital within their respective areas.

Physical medicine was expanded in accordance with principles established by the Baruch Committee on Physical Medicine to include all newer techniques and modern apparatus in this specialized field. The preventive, diagnostic and therapeutic phases of physical therapy were supplemented by the broad application of rehabilitative therapy—thus truly emphasizing the third phase of medicine.

Corrective physical rehabilitation was inaugurated and established as a new service for the prevention of deconditioning phenomena in hospitalized veterans; thus there was prevention of muscle atrophy, with all exercise scientifically guided and increased proportionately according to the patient's physical tolerance.

Occupational therapy became a broadened field, concerned not only with diversional exercise in order to prevent unhealthy introspection, but geared toward functional activity to restore usefulness, to provide suitable handicrafts and arts and to co-ordinate with scientific procedures designed to aid recovery for vocational ends.

An innovation was the establishment of educational retraining and prevocational shop retraining as parts of the component services to the veteran. The former embraced a form of medical rehabilitation which utilized educational courses as therapy to stimulate, motivate and activate the minds of veterans through activities designed to raise their educational levels, develop occupational skills and to promote new academic interests, therefore accelerating the veteran's return to useful, normal living. The latter was executed as a therapeutic utilization at the prevocational level of projects of industrial, agricultural or trade nature, into which the veteran entered to explore the possibilities and determine the feasibilities of continuing such

activities as a post-hospital vocation with economic possibilities, or as a field for further training following his discharge from the hospital.

A program of aural rehabilitation was initiated to aid the deafened and hard-of-hearing veteran so that he might profit by all strides made in this field by research and clinical experience during World War II. It was estimated that there were about 36,000 veterans with ear casualties from World War II who were service-connected for their disability which was incurred by the blast of explosives, the din of battle and systemic or auditory infection. It was shown that the hard-of-hearing veteran frequently did not do well in his vocational rehabilitation training. Therefore, it was apparent that expert guidance and intensive rehabilitation were essential for these men.

Rehabilitation for the blind and partially blind veteran continued to develop in the nine blind centres which had been established for complete evaluation of visual defects and the study of personality problems of these veterans to help them in readjustment and to aid them in the recovery of economic usefulness.

Further progressive development was recorded in the rehabilitation of veterans with spinal cord injuries. Six centres were established for these men. More than 1,000 of these paralyzed veterans were given the most modern rehabilitative therapy so as to enable them to become ambulatory, care for their daily needs and engage in remunerative occupations. Selected groups of these veterans were flown by air to medical and scientific meetings to demonstrate their achievements, thus serving to educate civilian physicians and agencies in the newer aspects of this field.

In all general medical and surgical hospitals the countless disabilities resulting from medical and surgical conditions were evaluated and proper measures taken for complete rehabilitation. The neuropsychiatric hospitals stressed mental as well as physical rehabilitation. Mentally ill veterans with native abilities, former training and commercial, industrial and academic experience were prepared for their eventual return to society. In the tuberculosis hospitals, veterans were guided through tedious days and months of convalescence; they were advised, furnished with basic instruction and eventually placed in appropriate occupations so as not to break down in a few months. A former problem, wherein these veterans became disgusted, careless and finally reckless of their own welfare, that of their family and of their community, thus was solved. The tuberculous veteran was protected from reactivation of the disease and other workers and their families were protected from exposure to active disease.

(P. R. Hy.)

Medicine. New uses for new antibiotic drugs, like penicillin and streptomycin, and new discoveries in the field of atomic energy were the apex of medical interest in 1946.

Atomic energy experts believe that developments in atomic physics advanced cancer research by 20 years. Organic substances like carbon and hydrogen as well as inorganic substances like calcium and iodine can be made radioactive through the use of the cyclotron. These radioactive compounds can be traced through the body. Even antibodies against infection can be attached to isotopes and traced to the point of ultimate deposit in the body. This technique can help, moreover, in determining how cancer tissue develops from normal tissue. Radioactive iodine when taken into the body goes directly into the thyroid gland. By the use of this technique, tumours and excessive activity of the thyroid gland were treated successfully.

When sodium salt is made radioactive, the atoms are tagged. These are known as radioactive isotopes and can be traced throughout the system. Doctors injected people with disturb-

ances of the circulation with radioactive sodium and followed it through the body. Thus they were able to show whether or not any of the blood vessels were partially or totally blocked. By this technique they were able to find out in cases of amputation of the limb because of blocking of the blood vessels the point at which to operate. In many instances they were able to operate below the knee joint instead of above it.

Radioactive phosphorus can be administered without harm to human beings and is used to reduce the production of white blood cells in conditions like leukaemia and Hodgkin's disease as well as excessive production of red blood cells in conditions like polycythaemia. Radioactive phosphorus was used in solution as a direct application to warts, moles and other small tumours of the skin. Doctors report that application of a small amount to such tumours for three or four days caused the tumours to fall off.

Other radioactive substances may perhaps go directly to cancer cells in other portions of the body and act upon them. (See also CANCER.)

Antibiotic Drugs.—The antibiotic drugs were found useful in treating successfully a great variety of diseases formerly uncontrollable. The sulfonamide drugs were used to treat a variety of conditions such as pneumonia, meningitis, gonorrhoea and various pus infections. Such sulfonamides as promizole and diasone were used with benefit in leprosy. Penicillin was successfully used in controlling many conditions but especially offered new hope for the control of syphilis. Streptomycin was practically specific against tularaemia and extended investigations were being made to find out just how it could be used against tuberculosis.

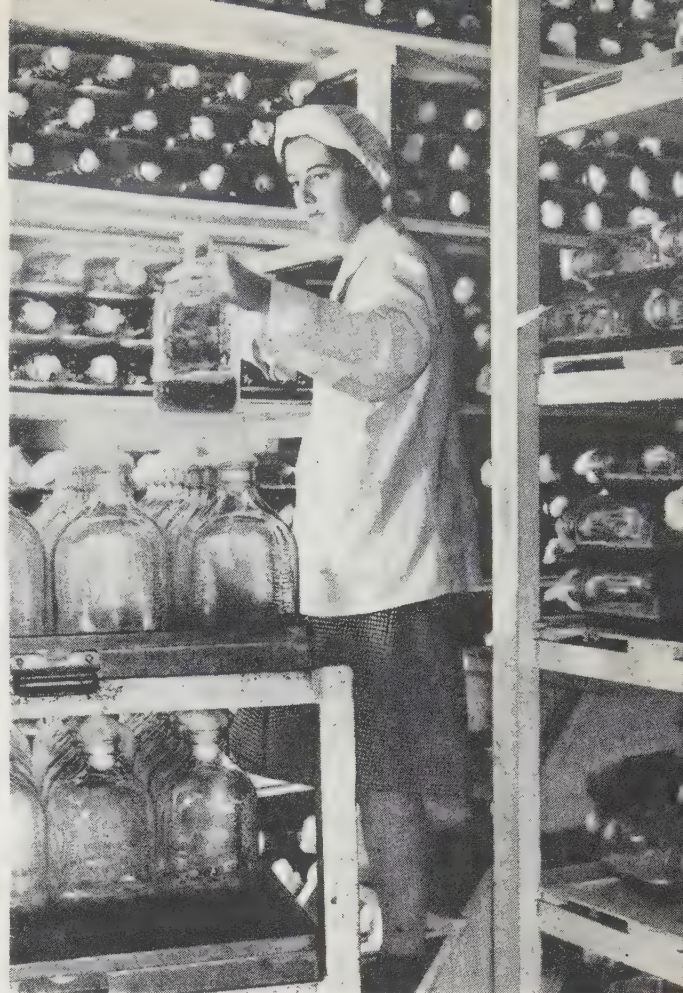
New techniques for using penicillin involved incorporation of the drug in lozenges to be kept in the mouth for infections of the throat and in sprays, known as aerosols, which were especially effective for infections of the lungs.

Tablets of penicillin were developed which could be taken by mouth in doses of 50,000 and 100,000 units. About three times the dosage is required when the drug is taken by mouth instead of by injection.

Folic Acid or the L. Casei Factor.—Newest among the substances of a vitamin character was folic acid, called L. casei factor. Disturbances of the blood because of improper development of red blood cells as well as some skin diseases and conditions of the nervous system of the type that appear in pellagra were found to be due, at least in part, to a deficiency of this material in the body. The material is derived from yeast. Some of the conditions, like pernicious anaemia which was relieved by large doses of liver extract, also would yield to this new vitamin substance. (See also VITAMINS.)

Curare.—During the year 1946 extensive experimentation with curare, the South American arrow poison, and with a purified extract called intocostin showed that this drug could be used to control activity of nerves that made muscles spastic. Its special use was as an inoculation before anaesthesia so that the muscles relaxed much more easily and permitted the use of much less of the anaesthetic. A second use is for the treatment of various forms of spastic paralysis, including particularly soldiers who had had an injury of the spinal cord and also children born with brain haemorrhages which produced spasticity.

Blood Derivatives.—As World War II ended, experts summarized the advances in the use of blood and blood derivatives as follows: the war demonstrated the importance of whole blood transfusion in repairing the results of haemorrhage and in overcoming the damage done by shock. When a large amount of blood is lost, replacement with plasma means that there will be anaemia, which is avoided when whole blood is used. Whole blood can be stored for three or four weeks by mixing with acid



STREPTOMYCIN being prepared in the research laboratories of Merck and Company, Rahway, N.J., during 1946. After incubation and maximum growth, the bacterial cultures in these bottles are removed and the medium containing streptomycin is harvested

citrate dextrose and a small amount of glucose. Second important product is resuspended red blood cells, useful whenever there is a deficiency of red cells and particularly in leukaemia and various forms of anaemia. Research endeavoured to find a substance for use in resuspending the red cells, which live in salt solution about five days but possibly much longer in corn syrup.

Plasma can be preserved dry and is reconstituted with water for use. Its special value is to substitute for whole blood in haemorrhage, to replace fluid lost in burns and to replace protein lost from the blood such as occurs in nephrosis and in other conditions. From the plasma certain fractions are developed which also have value. These include substances important to coagulation of the blood like fibrin foam, thrombin and fibrin film. One fraction was found useful against haemophilia and was being studied for that disease.

Gamma globulin was used as a preventive of measles and infectious inflammation of the liver but failed in preventing mumps, chickenpox or infantile paralysis. Studies were to be made on other infections.

Preparations were obtained which were useful in determining the classification of the blood in relation to its typing.

The albumin from the blood when reconstituted with fluid was used in the treatment of shock and in cases in which there was a lack of blood proteins. The albumin is preferable to the whole plasma because it contains less salt, and salt aggravates certain forms of dropsy or oedema. Other globulins are the alpha and beta globulins, which are related to the presence in the circulation of fat as well as some of the glandular principles. On these there was continuing research.

Antihistamine drugs.—French investigators produced a sub-

stance which acted against histamine, a chemical that is released into the blood and the other cells when there are manifestations of sensitivity to various protein substances as occurs in allergic conditions like urticaria, hay fever and asthma. In the United States improvements were made on the French preparation known as antergan, and two products were distributed called benadryl and pyribenzamine. Physicians found these preparations well nigh specific against urticaria and food sensitivities and exceedingly useful in many cases of hay fever and asthma. Some cases were reported in which the use of benadryl made the user somewhat sleepy.

Fertility Control by Recording Temperature.—Doctors know that the body temperature varies according to many factors. A record of the temperature every hour shows there are definite fluctuations during a 24-hour period which follow a pattern. Records made on many hundreds of women show that the temperature drops from 24 to 36 hours before the onset of the period and reaches a low level during the first day or two after the beginning of the period. This low level continues during the entire period and up to the time when the ovary gives off the egg cell. Typically a sharp drop in the temperature occurs just before the time when the ovary acts, rises again promptly and remains at a level until 24 to 48 hours before the beginning of menstruation in the following period, when it drops again. This enables the woman who takes her temperature in the morning before arising at the same time every day and keeps a careful record to determine the time of ovulation. Conception with subsequent pregnancy is most likely in the three-day period following ovulation. In the majority of women who became pregnant while under study pregnancy followed sex contact during the period of temperature rise following the drop before ovulation and immediately after the temperature reached its upper plateau. This narrows the fertile period to approximately three days.

Influenza Vaccines.—Continued studies with vaccines against influenza developed in war research indicated the possibility of immunizing people against the viruses known to cause influenza A and influenza B and the Australian virus. Since the serious symptoms of epidemic influenza are related to initial infection by the virus with subsequent infection by germs of the streptococcus type, inoculation against influenzal virus and control of streptococci by the use of the antibiotic drugs would seem to indicate the possibility of adequate control of epidemic influenza in future outbreaks. People sensitive to egg have reactions following injection of the vaccine since the virus is cultivated on fertile eggs.

Glandular Studies.—Investigators reported that the use of the female sex hormone stilboestrol can stop the growth of cells in cancer of the prostate and that similarly use of the male sex hormone testosterone was effective in early cases of cancer of the female breast.

Bogomolets Serum.—Much publicity was given to the Bogomolets ACS or anticytotoxic serum. U.S. controlled studies proved that the serum is without value in cancer and that it cannot prolong life. British physicians proved that the serum was not effective in treating arthritis. Some experimental evidence indicated its value in stimulating broken bones and tissues to heal more rapidly.

Protein and Amino Acids.—Concentrated protein substances, consisting of individual amino acids which are the constituents of protein, were undergoing active investigation in many clinics. These protein mixtures are made from casein or meat digested by acids or enzymes. They are used in surgery before and after operations to overcome the danger of loss of protein in surgical patients. They are used in medicine in the treatment of ulcerative colitis and various forms of gastro-intestinal disturbances

in which there may be total or partial starvation because of difficulties of digestion.

One of these proteins, known as methionine, was found especially useful in cases of cirrhosis or hardening of the liver in which there is inability of the tissues to supply the necessary methionine for the health and growth of the body.

Prevention of Congenital Defects.—Well established by research was the danger of German measles to prospective mothers during the first three months of pregnancy. Apparently the virus can get through the placenta or afterbirth and damage the growing cells of the child. This damage results in such conditions as congenital cataracts and blindness as well as other defects of the eye, incomplete formation of the heart and similar deformities. Specialists considered the desirability of prevention of childbirth when the mother had German measles during the first three months of pregnancy.

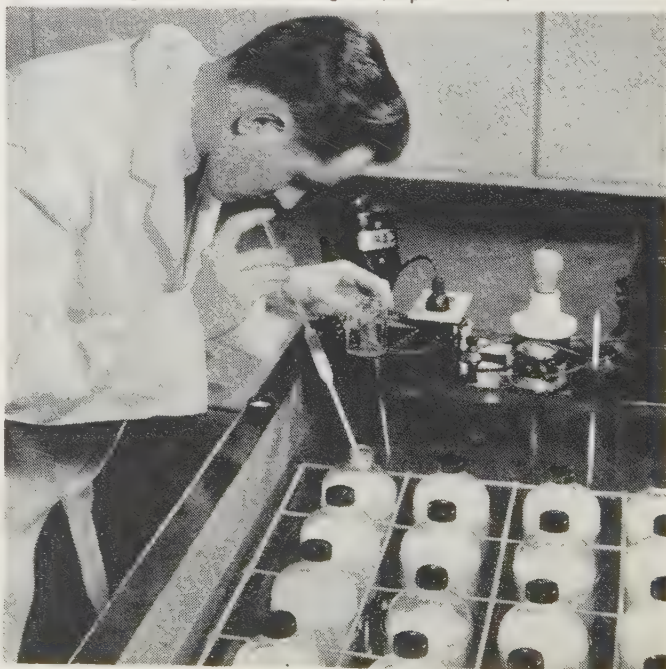
Heparin and Dicoumarol.—Two drugs known as heparin and dicoumarol have the power to prevent clotting of the blood. They were being used to prevent deaths of patients who formerly might have died of clots of the blood after surgical operations. The drugs were used also in connection with the use of the antibiotic drugs to prevent the formation of clots when there are infections of the blood vessels or heart.

BAL, Nitrogen Mustards and DFP.—The British developed a product called BAL or British anti-lewisite as an antidote of poisons by use of this war gas. This antidote was used in medical practice as a treatment for arsenical and mercury poisoning and was especially valuable in reactions to arsenic used in the treatment of syphilis. BAL was also found to be useful in preventing reactions from gold salts injected in the treatment of arthritis.

Among studies on mustard gases came products called nitrogen mustard which are useful in destroying excessive white blood cells in cases like Hodgkin's disease and lymphatic leucemia.

A product known as DFP or diisopropyl fluorophosphate has an effect on transmission of the nerve impulses and was being used in cases of myasthenia in which it apparently increases muscle strength. Its successful use was also reported in the treatment of glaucoma for decreasing excessive tension in the

LABORATORY WORKER bending over a tray of bottles at one stage in the process of producing dried amino acids which, during 1946, were effectively used in treating starvation cases among the people of Europe



eye which destroys eyesight in this disease.

Surgery.—Most sensational surgery was the operation performed on the blood vessels and the heart in cases in which babies were born with unsatisfactory development so that the blood did not pass properly through the lung and thus failed to secure the necessary amount of oxygen. Surgeons in Johns Hopkins university, Baltimore, Md., developed an operative procedure for transplanting the blood vessels successfully. As the year closed, other surgeons worked out a technique for transplanting blood vessels carrying blood to the lung directly to the aorta, or large blood vessel passing from the heart. Necessary for this procedure was the invention of special clamping devices to permit the flow of blood to the rest of the body during the operation and at the same time to restrict the flow to such a small stream that patients would not die from haemorrhage during the operation.

Much attention was given also to an operation on the vagus nerve called vagotomy for the prevention and treatment of peptic ulcer.

Artificial eyes prepared from plastic materials were developed and a technique found for sealing them in the eye socket with tantalum wire. (See also SURGERY.)

Neuropsychiatry.—Increased attention to neuropsychiatric medicine resulted from the discharge of a tremendous number of men before their acceptance by the army or during their military service because of nervous breakdowns. An eminent psychiatrist said that many young men were still tied to their mothers' apron strings and that "Mom" failed to teach her children independence of thought and action. He said that mother-attachment caused 350,000 U.S. boys either to evade military service, attempt to do so or to become psychiatric cases after a few months of training. Special organizations in this field developed programs and techniques for meeting the needs of the situation during the years following the war. (See also PSYCHIATRY.)

Social Medicine.—After hearings extending several months, the congress of the United States failed to consider the legislation that proposed a nation-wide system of compulsory sickness insurance. The congress passed, however, the hospitalization and health centre bill which provided for the building of additional hospitals and health centres where the need could be shown and where communities would be able to administer such institutions successfully. The congress increased appropriations for public health activities carried out through the Federal Security agency. The congress failed to pass the National Science Foundation bill which would greatly have extended opportunities for research in science. It also failed to consider any of the measures providing vast funds for research against cancer. In an address by Senator Robert Taft late in Dec. 1946 he promised promotion of federal legislation to aid the states in caring for the indigent and medically indigent and in encouraging voluntary sickness and hospitalization insurance. He said he would urge also the passage of a national science foundation bill which would place the authority in a board of 50 scientists. (See also ALLERGY; ANAESTHESIA; BACTERIOLOGY; BIOCHEMISTRY; BIRTH CONTROL; CHEMISTRY; CHEMOTHERAPY; DIETETICS; DRUGS AND DRUG TRAFFIC; ENDOCRINOLOGY; EPIDEMICS AND PUBLIC HEALTH CONTROL; HOSPITALS; INDUSTRIAL HEALTH; MUNITIONS OF WAR; NERVOUS SYSTEM; PHYSIOLOGY; TUBERCULOSIS; UROLOGY; VENEREAL DISEASES; VETERINARY MEDICINE; X-RAY AND RADIOLOGY. Also see articles on specific diseases.)

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Mediterranean, British Possessions in the.

These comprise Cyprus, Gibraltar and the Maltese islands, of which the accompanying table gives certain statistics (see also BRITISH EMPIRE).

Gibraltar.—At the beginning of 1946 Gibraltar was still faced with the task of completing the repatriation of its civilian inhabitants. The total number evacuated during World War II, on grounds of military security, was about 16,700; some of the evacuees went to Jamaica and others to Madeira, but the majority were settled in London where suitable arrangements were made for them. At a later stage of the war (as a consequence of the flying bomb attacks on London) they had to be removed to safer but less comfortable quarters in Northern Ireland. By the middle of Jan. 1946 some 12,000 persons in all had been permitted to return to Gibraltar. Of those still awaiting repatriation, nearly 3,000 remained in Northern Ireland; by Oct. 1946 the figure stood at approximately 2,050. The problem of further repatriation presented many difficulties; its final accomplishment depended on progress made with local housing schemes, in default of which further additions to the already overcrowded local community could not be absorbed.

There was some dissatisfaction among evacuees whose return to their homes was delayed. Late in the year the Gibraltar government signed a contract with a British firm for the construction of 472 flats at a cost of about £1,700,000. The general political situation in the colony remained quiet. Considerable progress was made in restoring health and educational services to their peacetime footing. Lt. Gen. Sir Ralph Eastwood (appointed in Feb. 1944) held the post of the governor of Gibraltar throughout the year.

Malta.—The appointment of a civilian governor, which was announced in May 1946 after the resignation of Lt. Gen. Sir Edmond Schreiber on grounds of health, marked a departure from the long-established practice by which Malta was regarded as one of the "fortress" territories of the British colonial empire where officers of high military rank were regularly appointed to the governorship.

The choice of the British government for the governorship fell upon F.C.R. Douglas, a former chairman of the finance committee of the London County council and of the estimates committee of the British house of commons. Mr. Douglas assumed office on July 10. In making the appointment, the government had regard, as was explained by their spokesman in the house of lords, to the "acutely pressing problems connected with constitutional changes and financial and

British Possessions in the Mediterranean

Territory and Area (in sq. mi.)	Population	Principal Products (in short tons)	Imports and Exports	Road, Rail and Shipping	Revenue and Expenditure	Education, elementary and secondary
	(1938)			(1938)	(1944)	(1944)
Gibraltar, 2	20,339	—	free port; no statistics kept	shpg. cleared 13,748,978 net tons	rev. £532,067 exp. £433,348	Infants' schools 2; elem. schools 5; sec. schools 1; scholars (total) 1,604
	(1938)	(1939)	(1944)	(1939)	(1944-45)	(1944)
Malta, 122 (including Gozo) .	268,668	potatoes 34,650 wheat 8,260 barley 4,850 cotton (1944) 340 lb.	imp. £5,270,318 exp. £308,807	rds., Malta 267 mi. Gozo 68 mi. Shpg. entered (1944) 1,166,006 net tons	rev. £3,379,903 exp. £3,693,034	elem. schools 94, scholars 35,000; sec. schools 5, scholars 1,360; private schools 60, scholars 10,000
	(1944)	(1944)	(1943)	(1943)	(1945, est.)	(1945)
Cyprus 3,572	424,656	wheat 32,181 potatoes 31,706 barley 22,357 wines 3,149,748 gal.	imp. £2,611,910 exp. £2,077,000 re-exp. £111,000	rds. 1,852 mi. rly. 71 mi. shpg. entered and cleared (1944) 474,126 net tons	rev. £2,833,477 exp. £3,394,075	elem. schools: Greek 474, Turkish 203, Maronite 5, Armenian (in- dependent) 7. Sec. schools: Greek 21, Turkish 2, Christian 4

economic adjustment" with which the colony was confronted; it was considered that these abnormal conditions could best be handled by a governor with previous experience in the field of civil and financial administration.

Malta was faced with two major problems throughout the year: first, the repair of the very extensive damage suffered through enemy action during World War II; and second, the elaboration of a new constitution, on "self-governing" lines, in pursuance of the pledge given by the British government in 1943. Progress was made in both directions. A free grant of £10,000,000 from the British exchequer for purposes of restoration of war damage had been approved in 1942. The amount proved wholly insufficient; and it was officially announced in July 1946 (after the situation had been investigated by a financial expert sent out from England) that the British parliament would be invited to provide a further sum of £20,000,000 for the same purpose. It was explained that the special object of grant was to ensure that the new constitution, then in process of formation, should not be unduly handicapped from the outset by financial burdens arising out of the war. A Maltese national assembly, charged with the task of framing the new constitution, had been set up in Jan. 1945 and had appointed a constitutional committee from among its members to work out the details of the plan. In the spring of 1946 a constitutional commissioner (Sir Harold MacMichael) was sent out from England to assist the local delegates in their task. On his return to England in Sept., he was able to report that agreements had been reached by the committee and had been endorsed by the national assembly. It was announced in Dec. that a parliamentary paper would shortly be published containing the report of the constitutional commissioner and the proposals of the British government in regard to the new constitution.

The government of Malta encountered many difficulties in dealing with immediate postwar conditions in the island. The problem of employment, aggravated by the prospect of discharges of personnel from the admiralty dockyard, caused serious anxiety and became the subject of much local criticism of the authorities. In Sept. 1946 all the elected representatives of the Labour party resigned from the council of government as a gesture of dissatisfaction with the economic situation and the alleged inadequacy of the measures taken to cope with it.

Cyprus.—The general political situation in Cyprus underwent no great change during the year 1946. The legislative council remained in abeyance (it had been suspended in 1931, as a result of serious disturbances in the island), and in its place an advisory council, containing a majority of unofficial members, continued to function. On Oct. 23 it was announced that a consultative assembly was to be called together in the island to consider the framing of proposals for constitutional reform, including the re-establishment of a central legislature. The other events of the year were concerned with economic rather than with political development. The economic needs of Cyprus, more especially in the matter of irrigation, had already received active attention from the British government. In 1945 a special development commissioner (Sir Douglas Harris) was sent to the colony with a view to drawing up a ten-year program of development. His report was submitted in Aug. 1945 and a continuation report was presented in May 1946 by a local committee under the chairmanship of the colonial secretary. Sir D. Harris' comprehensive plans contemplated increased expenditure, spread over a ten-year period, of more than £4,500,000 (capital expenditure £2,700,000; recurring expenditure £1,800,000). The services to which it was proposed to allocate the money were education, irrigation, medical, forests, agriculture and antimalarial work. The continuation report envisaged further expenditure of some £1,250,000 to be allocated to such services as roads, village development and holiday resorts. Sir Charles Woolley (appointed 1941) held the post of governor of Cyprus during the greater part of the year. His transfer to the governorship of British Guiana was announced in Oct. 1946. Lord Reginald Winstler was appointed as his successor. (J. Sg.)

Meek, Donald (1880-1946), British character actor, was born on July 14 in Glasgow, Scotland. As a young boy he toured Australia in *Little Lord Fauntleroy* and at the age of 14 became an acrobat. He relinquished this profession in favour of the stage after he was hospitalized by a

serious accident which occurred while he was performing in a human pyramid stunt. He subsequently appeared on the stage with promising success, but interrupted his career to fight in the Spanish-American War. He later made his debut on Broadway (1913), but when World War I started he joined the Canadian Highlanders.

Following the war, he went on a tour of South Africa, India and Australia and returned to Broadway. In 1928, he was first seen in motion pictures where he made fame as a character actor with his portrayals of the confused and ineffectual average man—the Mr. Milquetoast of the screen. A veteran of 58 years on the stage and screen, he played in more than 800 roles and appeared in more than 100 films. He died in Hollywood, Calif., on Nov. 18.

Merchant Marine: see SHIPPING, MERCHANT MARINE.

Mercury. Production of the more important countries is shown in the accompanying table, so far as data were received in 1946.

United States.—Mercury production almost trebled in volume during World War II, increasing from 708 short tons in 1939 to 1,973 tons in 1943, but with the passing of the peak of war demand, dropped back to 1,169 tons in 1945. Imports dropped from 1,817 tons in 1943 to 743 tons in 1944, but with the relaxation of war controls, the growing civilian demand and the declining domestic output raised imports to 2,608 tons in 1945.

Consumption declined from 2,071 tons in 1943 to 1,630 tons in 1944, but rose to 2,428 tons in 1945—17% greater than the peak year of war demand. In the first half of 1946 production dropped still further, to 477 tons, imports to 222 tons and consumption to 585 tons. The relatively heavy consumption of the first nine months of 1945, greater than the full year 1944, was due to the development of a new type of dry battery using mercury as an active ingredient, and military demand for the time being put this use at the top of the list of mercury consumption.

Canada.—At the expiration of the Metals Reserve contract for the purchase of the Canadian output, production was dis-

World Production of Mercury, 1939-45

	1939	1940	1941	1942	1943	1944	1945
Canada	0.2	77	268	518	845	368	—
Chile	?	?	50	86	97	45	?
China	187	129	248	180	130	114	?
Czechoslovakia	101	98	?	?	?	?	?
Italy	2,552	3,467	3,578	2,884	2,280	1,330	1,520
Mexico	280	443	879	1,233	1,076	989	625
Spain	1,365	1,984	3,286	2,747	1,815	2,620	1,523
South Africa	—	?	8	22	45	45	32
United States	708	1,436	1,707	1,932	1,973	1,432	1,169
Total	5,510	7,980	10,450	9,880	8,740	7,220	5,130

continued for the time being, with the expectation of resuming after accumulated stocks had been sold.

(G. A. Ro.)

Merit System: *see* CIVIL SERVICE.

Mesotrons: *see* PHYSICS.

Metallurgy. During the war years the emphasis was on production, rather than on methods, and new developments in metallurgical procedure were generally not attempted unless they promised to lead to the solution of a vexing production problem. Hence, many of the advances accomplished were concerned with matters that for security reasons could not be made public at the time. In 1946, with World War II over and the veil of secrecy lifted, many new and striking developments in metallurgical detail were revealed, but relatively little about changes in fundamental process metallurgy.

Investigators sent into enemy countries after the close of the war were reporting their findings with respect to metallurgical developments during the war years. While some of the methods reported could be adapted for use in peacetime industry, much of the work done was concerned with the best utilization of low-grade materials or substitutes, made necessary by the shortage of raw materials.

Although many of the new processes and products would be adapted to peacetime industry, others would disappear, having been useful only for the time or need for which they were devised. The same comment applies to many types of new equipment; some could be used directly; others could be adapted to similar peacetime uses; but some would be of about as much use as a worn-out obsolete bomber—not because of any lack in their suitability for the use for which they were designed, but because that use no longer existed.

Aluminum.—A new aluminum alloy containing beryllium, along with copper or copper and cobalt, was reported to develop high strength in castings made by sand, centrifugal or lost-wax methods, and to have unusual oxidation-corrosion resistance.

Germanium.—A gold-germanium eutectic (12% Ge, melting point 673°F.) can be used as solder in repair work. It was said to be harder than ordinary gold alloys and to have good wearing qualities.

Lead.—In Canada and Australia advances were made in blast furnace operation, particularly in the widening of the furnace. Changes were also made in bosh design, including a double set of tuyères. One interesting new feature resulted directly from manpower shortage; lead pigs piled in ears for inter-plant movement usually were shifted so much that repiling was necessary before the usual forked truck could be used for unloading; the new procedure was to cast the metal in 10-ton blocks, for handling by crane.

In World War II, lead had furnished more than ammunition. Storage batteries for submarines and mechanized land equipment were a major item. An almost fantastic procedure was the laying of an armoured lead pipe under the English channel, through which the gasoline supply for the invasion of Europe was pumped from Britain to the Normandy beach. Also the gasoline itself had been treated with lead tetraethyl to improve its performance in plane and truck engines. Lead protective shields played a significant part in handling the radioactive materials going into the construction of the atomic bomb.

Stainless Steel.—The addition of antimony to 18-8 and plain chromium stainless steels reduces corrosion by hydrochloric, sulphuric and acetic acids.

Tungsten.—Bearings of tungsten carbide, used on a precision grinder, showed exceedingly low wear.

Continuous Casting.—An innovation in nonferrous technology was the substitution of rolling by a process of continuous

casting, in which liquid metal is converted into unlimited lengths of rod or other shape of constant cross section. The method is particularly applicable to brass, copper, aluminum and magnesium, and had been used to a limited extent with steel. The same procedure had been applied to sheet and strip, but only to a minor degree.

Electron Microscopy.—Marked advances were made in the simplification of equipment, while at the same time the magnifying power and resolution were greatly increased.

Radiography.—The scope of X-ray radiography was extended to 12 in. of metal by the use of a new 2,000,000 volt X-ray machine.

X-ray diffraction methods were successfully applied in the nondestructive testing of the bonding of an electrodeposited metal to the base metal, the investigation of electrodeposited alloys, and in studying the diffusion of indium plating into lead in aircraft bearings.

Welding.—A new system of welding was introduced in which the usual welding rod is replaced by powdered metal and flux, fed into the flame through the tip of the torch. (*See also* ATOMIC ENERGY.)

(G. A. Ro.)

Metal Prices and Production: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Meteorology. Perhaps most significant for the future of the science, both theoretical and applied, was the progress represented in the growing accumulation of valuable meteorological data of the atmosphere as a whole and the acquisition of many competent young scientists with training and experience during 1939-45 for research and service in this field. Added also was the increased support and incentive given by businessmen, industrialists and people in general who had become thoroughly "weather conscious" and no longer looked upon it as something unforeseeable and incalculable in their daily plans but rather insisted upon taking the weather elements into account among the calculated risks in their operating plans. They knew that weather was one of the important factors in military planning during World War II and that weather reports and forecasts had been used with great success for this purpose. It was indispensable to successful co-ordination of the complicated operations of the several military arms on land, at sea and in the air.

A few prominent scientists, more imaginative than others, even talked seriously during 1946 about the possibilities of modifying weather conditions locally to serve public welfare. They visualized something more extensive than the very limited measures of weather "control" already in use in the artificial heating of the air in orchards to protect the trees and fruit from freezing and the clearing of fog from airports by artificial coalescence of fog droplets or by evaporation through artificial heating. Among the most publicized was the proposal to prevent the heavy damage that hurricanes often cause by destroying or deflecting the storm whenever large population centres lie in its path. The plan would be to detect the atmospheric conditions conducive to formation of hurricanes and to dissipate the potential energy responsible for their formation while still in the incipient stages. The idea in one form or another had often been suggested, some advocates believing that the hurricane could be destroyed by gunfire while others would use bombs or large-scale bonfires to release the potential energy here and there locally, perhaps as thunderstorms, and thus prevent its being concentrated into a severe hurricane. Prior to 1945 scientists had calculated that the idea was impracticable because of the magnitude of the forces responsible for formation of tropical cyclones or hurricanes, and the broad

geographical extent of such storms; but with the possibilities of atomic energy and its enormous production of heat, the need to review the question was recognized and further studies were begun. A noteworthy aspect of the problem was the importance of proceeding with care if practical tests were undertaken, to avoid the artificial formation of hurricanes or an increase instead of a decrease in intensity of a storm already formed.

In the imaginary realm of large-scale weather control the shelter belt schemes of the droughty 1930s whereby the planting of trees on the U.S. prairies was to bring rain to the "dust bowl" had been generally discounted, as meteorologists predicted, although they readily agreed with agricultural and hydrologic engineers that reforestation would result in retention of moisture by the soil and reduction of excessive and harmful run-off of water from rainfall and snow melt. But perhaps of more immediate practical application in the production of weather to order on a very limited scale was the possibility reported in a technical paper by Dr. Irving Langmuir, Nobel prize winner in 1932. Presented at the annual meeting of the American Association for Advancement of Science in Boston, Mass., in Dec., the paper described experiments in the artificial production of snow and incidental dissolution of clouds by a method based on use of solid carbon dioxide ("dry ice") sprinkled on the clouds from aeroplanes flown above. Under favourable and probably quite limited circumstances the process might be used to dispel clouds over an airport, or to deposit snow for winter sports and water supply, the latter especially in mountain regions where winter snowfall must be utilized for irrigation purposes during the ensuing dry season. The method had not only produced snow and cleared the air locally but also had disclosed certain physical reactions in the precipitation of snow important in meteorological theory and research. It was significant that many meteorologists looked at these possibilities with less skepticism in 1946 than ever before.

Typical of the vigorous attack on the problems of meteorology in general was the research project organized by the U.S. weather bureau late in 1945 and 1946 to develop mathematical methods of meteorological analysis and weather forecasting. The project centred around use of electronic computing devices designed during World War II in somewhat different forms in England and the United States. Under leadership of a selected group of meteorologists, mathematicians and physicists with the financial support of the office of naval research and collaboration of other research organizations the project was inaugurated at the Institute for Advanced Study at Princeton, N.J. This was not the only research directed toward mathematical solution of meteorological problems. There had been much work in this direction in England, the U.S.S.R. and other institutions in the United States, notably at the Massachusetts Institute of Technology, Cambridge, Mass., with the support of the army air forces, but the principal difficulties still remained. No device or technique had been developed to compute with exactness the complex physical interactions in the atmosphere that go to make up the weather. Besides this general attack on the problems of meteorology, some of the more or less discrete aspects of atmospheric processes were under investigation by the research staffs of several universities, among them the University of Chicago, Chicago, Ill., and the M.I.T., where general circulation patterns and their role in weather prediction were being studied; New York university, New York, N.Y., where vertical motion in the atmosphere and its relation to cyclogenesis were under investigation, also a simplified method for short-range forecasting; and the University of California at Los Angeles, Calif., where research efforts were directed toward analysis of wave motion in the atmosphere and study of radiation, temperature inversions and turbulence as related to

formation and dissipation of low stratus clouds.

In Canada as in the United States the experimental use and further adaptation of radar to detect and track severe storms was continued through 1946 and steps were taken to install apparatus for this purpose in several important localities. Ft. Worth, Texas, and Wichita, Kan., and possibly another place about 300 mi. farther north were among the proposed sites, the three stations to give a line of observations by which to watch the formation and movement of severe thunderstorms and possibly tornadoes, thereby to warn aircraft pilots and others concerned of the approach of such storms. The observations might also enable meteorologists to foresee the concentration of heavy rainfall in valleys where flash floods occur. They believed that radar could be developed as an instrument to observe and perhaps measure a number of meteorological conditions of importance in analysis and weather forecasting.

Another and somewhat different approach to the problems resulting from severe local storms was made in the thunderstorm research project authorized by congress and conducted by the weather bureau largely through the collaboration of the army air forces. It was the most comprehensive field study of thunderstorms ever undertaken. A close network of 56 observing stations was organized in the vicinity of Orlando, Fla., and aeroplanes, gliders and radiosonde balloons equipped with special automatic recorders were flown through the storms at planned intervals to determine conditions at various stages of storm development and at different heights. Control and co-ordination of the piloted aircraft were maintained by radar observations and direct radio communications. Intensive observations were obtained by these methods in about 45 thunderstorms during the summer months, and about 30 of these were selected for detailed analysis which was in progress by the end of 1946. Similar observations and analysis of the more complex thunderstorms of the frontal types that occur in higher latitudes were scheduled for the following summer at an A.A.F. base in Ohio.

In the field of meteorological observations and instruments, therefore, there was some progress also in installation of rawinsonde stations at 30 airport weather bureau offices. These with similar stations at several military bases gave fairly complete coverage of the United States for upper air data from the ground to altitudes of 50,000 or 75,000 ft. for use in air navigation and weather forecasting for all purposes. The feature of the rawinsonde that distinguishes it from the radiosonde used for many years is the provision for measuring winds aloft in cloudy weather when the balloon is obscured from view. The drift of the balloon with the wind is determined by radiogoniometry instead of visually as used in the pilot balloon and theodolite method. The rawinsonde also serves to measure the pressure, temperature and humidity of the atmosphere at different altitudes in the same way as the radiosonde. Another aid to air navigation is the recently developed ceilometer which measures the altitude of bases of clouds. Recording ceilometers were installed at more than 100 airport weather bureau offices during 1946. Greater accuracy in reporting cloud ceilings by use of ceilometers promised immediate results in the move to increase safety in air transportation, part of the general air safety campaign, which Civil Aeronautics authorities vigorously renewed as result of numerous aircraft accidents toward the close of 1946.

In hope of extending their knowledge of the atmosphere and its meteorological machinery, scientists watched closely the results of high rocket experiments by the government. Modified V-2s pushed to altitudes somewhat above 100 mi. into regions of the atmosphere never before reached by man-made machine. But meteorologists needed to develop better recording equipment that could withstand the rigours of rocket flight before they

could expect results of practical value in their work. Another technical advance that meteorologists watched with eager interest was the service trials of facsimile communications. Conclusions were that further development would be necessary before a suitable facsimile method was ready to meet the practical requirements for radio and wire transmission of the daily weather map. Successful facsimile transmission would greatly reduce the duplication incident to routine preparation of weather maps at three or six hour intervals at hundreds of weather stations which now have to make identical manuscript entries and analyses from the collected reports of several hundred observers. Facsimile would distribute the map quickly and enable the meteorologist to give more attention to local forecasting and to practical applications of his weather information. But estimates were that development would take five years or more.

Outstanding in their importance to everyday services, especially for aviation, were the several international conferences called during 1946 for the purpose of adopting standard methods for observing and reporting the weather and standard codes and procedures for international exchange of reports and forecasts. In Feb. an extraordinary conference of the directors of the International Meteorological organization (I.M.O.) convened in London. More than 40 nations participated in reorganizing this world-wide body which had carried on co-operation in meteorology from 1878, except for interruptions of war. In the London conference new technical commissions were organized, interim administrative machinery re-established and plans started for the regular conference of directors to be held in Washington in Sept. 1947, following meetings of the technical commissions in Toronto, Ont., in Aug. British empire meteorologists held a five-day conference in London in March. Other international meetings pertaining to meteorological services were convened by the Provisional International Civil Aeronautics organization (P.I.C.A.O.) with I.M.O. representatives attending, in Dublin, Eire, in March, Paris in April (European regional), Washington, D.C., in Aug. (for Caribbean), in Cairo in Sept. and Oct. (near east regional), London in Sept. (to plan continuation of North Atlantic weather patrol vessels) and in Montreal, Que., in Nov. The International Meteorological committee, interim executive body of the I.M.O., met in Paris in July to authorize certain immediate plans of the technical commissions.

In most countries there was evidence of increased emphasis on applied meteorology. In Britain hourly broadcasts carried the specialized advices of the forecaster direct to aircraft pilots. In the United States special services in addition to the general weather service to the public were given by the weather bureau through its airways and flight advisory weather services, the hurricane warning service, the horticultural frost warning service, the forest fire weather warning service, the climatological service with its machine tabulation unit and 60,000,000 punched card library, the hydrometeorological studies and river and flood forecasting service. International co-operation in meteorology was continued in the training of Latin-American students and in the establishment of an arctic weather station at Thule, Greenland, jointly with Denmark; in plans for rehabilitation of the Philippine weather service and in the temporary maintenance of weather stations at numerous overseas points pending resumption of services by the nations concerned. In the general movement to extend the services of applied meteorology the American Meteorological society carried on a program for development of the private practice of meteorology in individual fields of business and industry beyond the scope of government services. A new group organized the Amateur Weathermen of America to promote an interest in meteorology among the youth of the country and others to whom the science appeals as a hobby or avocation.

The Weather of 1946.—In the so-called temperate zone wherein lie the British Isles and most of Canada and the United States and where weather is the result of a rapid succession of high and low pressure systems, it is common talk and belief that the weather is usually unusual. And in some respects the weather of 1946 was in fact unusual in many parts of the world. Average temperatures for the year continued mostly above normal if preliminary reports were indicative. In the United States the year opened with the northern and western half of the country snow-covered but with temperatures during the first few days above normal everywhere except for a narrow strip bordering the Mississippi valley. The departures were as much as 12° F. above normal in Idaho, Nevada and Utah. Rising temperatures carried the departures to 15° F. above normal in parts of Nebraska and South Dakota in the averages for the first week. In Baltimore, Md., Philadelphia, Pa., and Washington, D.C., 65° F. or slightly higher occurred on Jan. 6 and 7. Although there were occasional cold spells during the month, for example -27° F. in North Dakota on Jan. 15 and in northern New York state on Jan. 20, and a few snowstorms in some sections, the average temperature for Jan. was above normal throughout the country (12° F. above normal in Montana) except for a strip along the Mexican border and a portion of northern California. Rainfall also was above normal, in some places 2.5 times normal, in the Gulf states and Tennessee, but it was mostly below normal in other parts of the United States. In Mississippi total rainfall for the month reached 12 in. in some localities.

Unseasonable tornadoes occurred in Texas, Mississippi and Arkansas on January 4 and 6 causing 38 deaths, more than 600 injured and property losses estimated to be in excess of \$6,000,000. Floods occurred in the rivers of Georgia, Kentucky and Tennessee, with heavy damage to property; also in Iowa, Minnesota and Wisconsin where all previous records for winter flooding in these states were broken.

In Feb. the weather was closer to typical winter conditions although monthly averages of temperature again ranged up to 10° F. above normal. Unusually heavy snowfall, in some places more than 2 ft. in depth, was reported not only in New Jersey and New England but also across the Atlantic in southern England and northern France. Traffic was interrupted and in some places much damage caused by accumulations of ice on trees and telephone wires. Over most of the United States east of the Rockies unseasonably warm weather continued through March. Record high temperatures were reported in many places with thermometers showing 85° F. in Boston, Mass., and other eastern localities, 90° F. in Kansas and 100° F. in southern Texas during the last few days of the month. In South Dakota the average was 20° above normal for the last week of March. Peach trees bloomed in the Ohio valley in mid-March and the season was generally two or three weeks earlier than usual. Ice in the Great Lakes melted and opened the season for navigation before the usual dates. Lake Erie opened March 21 and other lakes April 1 except Superior, which opened April 16.

In the British Isles April, for the fourth successive year, was considerably above the average in temperature with new all-time high records

TORNADO which hit southern Michigan, including Detroit and adjacent sections of Canada, on June 17, 1946, causing deaths and property damage



reported in some places for the first part of the month. It was exceptionally sunny and warm in daytime but cool at night. An unprecedented monthly range was established, 80° F. to 25° F., the highest at Greenwich on April 4, the lowest at Farnborough on April 11. Aberdeen ranged from 72° F. on April 2 to 38° F. on April 5. In most of Canada and the United States also, April was abnormally warm. The maxima above normal were reported in a belt about 100 mi. wide extending from the Texas panhandle northward, the maximum departure isopleth being

about 8° F. above normal. High temperatures near 100° F. occurred in southwestern United States and near 95° F. in northern California. In contrast temperatures went below freezing the last week in April in the upper Mississippi valley. In parts of the valley unusually heavy rain was recorded, the heaviest at Seminole, Okla., with 12.1 in. in 12 hours. Many sections had 3 to 4 in. within 24 hours. As a result rivers rose to flood stages in Arkansas, Kansas, Oklahoma and Missouri. Flood and local storm damage including losses from tornadoes and thunderstorms was estimated to be in excess of \$5,000,000, an impressive though not unusual total for April.

*Table I.—Monthly and Annual Mean Temperature in °F., 1946 in U.S. Cities

Cities	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual dep.†	High- est	Low- est
Albuquerque	24	40	48	61	64	78	78	75	71	56	42	40	57.4	+2.2	98	12
52 yr. avg.	34	39	46	54	63	72	76	75	68	60	44	35	55.2			
Bismarck	12	12	38	51	51	65	74	67	58	41	28	16	42.7	+1.6	104	-23
69 yr. avg.	8	12	25	43	55	64	70	68	58	45	28	16	41.1			
Charleston	51	54	63	66	73	78	81	80	76	68	64	55	67.3	+1.1	96	32
47 yr. avg.	50	52	57	65	73	79	81	81	77	68	58	52	66.0			
Chicago	27	29	47	51	57	68	75	70	66	59	42	32	51.8	+3.4	94	-3
50 yr. avg.	22	25	35	47	58	68	73	72	65	53	38	27	48.4			
Denver	34	38	46	56	52	69	69	72	59	49	37	40	51.8	+1.4	96	5
74 yr. avg.	31	33	39	48	57	67	73	71	63	51	41	33	50.4			
Helena	28	31	40	48	50	59	69	66	55	39	27	26	44.9	+1.1	98	-16
67 yr. avg.	21	24	33	44	52	60	68	66	56	46	33	25	43.8			
Houston	52	58	66	72	76	80	83	84	79	73	63	59	70.3	+1.2	97	34
66 yr. avg.	54	56	63	69	75	81	83	83	79	71	62	55	69.1			
Knoxville	40	44	58	62	67	74	79	74	70	60	54	44	60.5	+1.9	94	14
75 yr. avg.	39	42	49	58	67	75	77	76	71	59	48	40	58.6			
Los Angeles	58	55	57	62	61	69	72	72	73	65	59	56	63.2	+0.2	95	38
68 yr. avg.	56	56	58	60	63	66	71	71	70	66	62	57	63.0			
Memphis	41	47	59	66	67	77	81	78	73	64	56	49	63.2	+1.4	98	11
75 yr. avg.	41	44	53	62	70	78	81	80	74	63	52	44	61.8			
Miami	68	69	71	73	78	79	80	82	80	77	75	72	75.4	+0.2	89	45
48 yr. avg.	68	68	71	74	77	80	82	82	81	78	73	69	75.2			
Mobile	52	55	64	70	74	79	82	82	77	71	65	59	68.9	+1.4	96	26
74 yr. avg.	52	55	60	67	74	80	82	81	78	69	59	53	67.5			
New York	34	31	50	50	61	69	74	71	70	62	50	39	55.0	+2.5	92	5
74 yr. avg.	31	31	39	49	60	69	74	73	67	56	45	36	52.4			
Norfolk	43	45	56	58	68	74	76	75	73	65	58	48	61.6	+1.9	96	22
75 yr. avg.	42	42	49	57	67	75	79	77	72	62	52	43	59.7			
North Platte	32	37	45	57	55	70	77	72	65	50	36	33	52.3	+2.8	104	5
71 yr. avg.	24	28	37	49	59	69	75	73	64	52	37	28	49.5			
Oklahoma City	39	48	57	65	66	77	84	83	73	65	35	46	61.4	+1.3	107	17
55 yr. avg.	38	40	50	60	68	77	81	81	74	62	50	40	60.1			
Phoenix	51	54	62	74	77	88	90	90	85	68	56	56	69.3	-1.0	111	30
50 yr. avg.	52	56	61	68	76	85	90	89	83	71	60	53	70.3			
Portland, Me.	20	19	40	52	62	65	65	64	61	51	41	27	45.1	-0.8	95	-18
67 yr. avg.	23	24	33	43	53	63	68	67	60	50	39	27	45.9			
Portland, Ore.	43	45	48	53	61	62	69	68	63	52	45	44	54.3	+1.2	103	28
46 yr. avg.	39	42	47	52	57	62	67	67	62	54	47	41	53.1			
San Francisco	51	51	53	55	56	59	60	58	63	60	55	51	56.0	-0.5	91	39
75 yr. avg.	50	53	54	56	57	59	59	59	61	61	57	52	56.5			
Sault Ste. Marie	16	12	35	36	47	57	63	62	56	49	34	20	40.6	+2.6	87	-18
53 yr. avg.	12	11	21	37	48	56	63	61	54	43	30	19	38.0			
Washington, D.C.	37	39	54	56	66	73	77	73	71	62	53	42	58.5	+2.7	96	13
75 yr. avg.	35	35	44	54	64	73	77	75	69	58	46	37	55.8			

Table II.—Monthly and Annual Rainfall, in Inches, 1946 in U.S. Cities

Cities	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual dep.†
Albuquerque	0.3	0.3	1.0	0.3	0.3	0.1	2.3	1.5	0.6	1.0	0.5	0.1	8.3	-0.2
Bismarck	0.1	0.4	1.3	1.0	2.0	3.0	2.1	1.1	2.2	2.0	0.2	0.5	15.9	-0.5
Charleston	3.6	3.0	3.8	2.8	4.5	4.9	10.4	4.9	3.3	2.6	4.3	0.6	48.9	+2.2
Chicago	1.9	0.9	3.6	1.3	3.5	5.2	2.5	1.9	2.0	2.8	3.1	2.4	31.4	-1.4
Denver	0.5	0.2	0.3	1.3	1.7	0.9	2.2	1.2	0.9	0.8	3.2	0.1	13.3	-0.8
Helena	0.2	0.2	0.6	0.3	2.4	1.3	1.4	0.5	2.5	1.3	0.9	0.9	12.4	-0.3
Houston	6.3	2.8	2.0	3.2	15.0	9.4	5.4	1.2	7.8	2.2	10.8	3.0	69.0	+22.0
Knoxville	8.8	5.0	3.6	4.1	6.4	3.9	3.1	0.9	2.0	4.0	3.5	4.4	49.9	+1.8
Los Angeles	0.1	1.5	3.7	0.4	0.1	T	T	0.0	0.1	0.9	6.0	3.5	16.2	+0.7
Memphis	8.9	4.7	3.5	4.9	4.8	4.1	1.7	1.2	1.6	2.7	5.5	3.9	47.4	-0.3
Miami	0.4	1.7	2.2	0.6	6.7	4.1	3.6	3.7	4.6	3.2	6.4	1.8	38.7	-20.2
Mobile	5.8	4.6	15.0	1.1	8.6	7.4	12.5	5.4	8.4	0.1	3.3	3.6	75.6	+13.8
New York	1.8	1.7	3.3	1.3	5.9	4.9	4.5	3.5	2.4	0.8	1.3	2.5	33.9	-9.0
Norfolk	3.3	3.7	1.6	3.4	6.5	4.6	7.2	3.5	5.9	1.3	3.6	1.3	45.9	+0.6
North Platte	0.1	0.1	2.3	0.6	3.6	2.3	1.1	1.1	2.2	5.8	1.3	0.2	20.7	+2.6
Oklahoma City	3.3	1.9	2.6	2.1	6.9	3.8	0.2	2.4	1.7	1.2	1.2	1.7	29.1	-2.6
Phoenix	1.2	0.1	0.1	0.4	0.0	0.0	2.6	2.0	2.9	0.1	0.6	0.5	9.9	+2.0
Portland, Me.	3.7	2.6	1.1	2.7	3.5	1.7	2.2	8.3	2.9	1.5	2.1	4.5	36.8	-5.4
Portland, Ore.	5.5	5.7	5.7	0.9	1.2	2.0	1.0	0.3	1.4	5.0	7.2	6.0	41.9	+0.3
San Francisco	1.8	2.0	2.3	0.1	0.4	0.1	0.1	T	0.1	0.2	2.7	2.8	12.3	-9.9
Sault Ste. Marie	2.6	1.4	1.3	1.3	3.9	2.5	1.1	4.2	3.1	2.3	4.2	2.9	30.8	+0.9
Washington, D.C.	1.5	2.8	1.8	1.9	6.7	2.4	3.8	4.2	4.0	2.5	1.1	2.1	34.7	-7.4

T denotes a trace of precipitation, that is, less than 0.01 inch.

Table III.—Duration of Sunshine, in Hours, 1946, in U.S. Cities

Cities	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual dep.†
Albuquerque	209	254	253	297	356	376	325	287	282	276	199	221	3334.9	-75
Chicago	132	141	201	283	243	279	358	319	296	214	141	148	2754.2	+114
Denver	205	239	247	287	221	314	310	270	290	228	185	190	2986.0	+20
Helena	160	183	222	294	246	275	353	322	228	163	149	134	2730.3	+67
Houston	156	139	248	196	201	236	215	236	100	151	283	124	2285.1	-485
Los Angeles	272	254	253	266	184	339	342	234	314	212	256	185	3110.6	-105
Memphis	140	176	177	250	217	299	281	280	188	244	139	140	2529.6	-280
Miami	212	218	236	302	213	206	227	255	203	234	200	172	2676.5	-260
New York	145	187	275	283	268	259	295	233	246	219	174	177	2760.3	+77
Phoenix	225	247	286	312	417	417	350	308	312	269	234	201	3578.0	-180
Portland, Ore.	89	53	144	208	272	198	285	293	195	100	92	60	1988.2	-167
San Francisco	221	166	212	294	294	347	302	442	282	283	162	119	3122.3	+185
Sault Ste. Marie	57	155	253	228	258	293	343	235	167	156	63	51	2259.0	+134
Washington, D.C.	134	189	224	242	251	267	329	286	272	242	185	152	2773.0	+205

*Tables I, II and III are illustrative of variations in temperature, rainfall and sunshine in the United States during 1946 and not the absolute extremes. Other places not listed in the tables may have had larger ranges in these weather elements.

†Column headed "Annual dep." shows the departure from normal in the yearly figure. The normal is the average value of the element over a long period of years. In the table of temperatures the second line under each city shows the monthly normals for convenience in comparing with the average monthly figure for the year 1946.

In the British Isles, excepting southeastern England, the month of May was relatively dry and sunny although 3° to 5° below the average temperature. In North America, likewise, May was somewhat cooler than usual, 4° F. cooler in Nebraska, Kansas and Missouri, except in the far western states and in a narrow strip along the Gulf and Atlantic coasts. Between May 8 and May 13 new records for low temperatures at that time of year were recorded in parts of the north central states. The 32° F. isotherm was carried southward almost to Texas. Duluth, Minn., had freezing temperatures and continuous snow with 50 m.p.h. winds on May 31. In most of the country it was unseasonably wet as well as cool and many field crops were retarded. A serious flood occurred in Pennsylvania, especially in tributaries of the Susquehanna where many previous high records were exceeded two to four ft. In the United States hail storms and tornadoes are numerous during spring and summer, and more than 110 such storms occurred in May 1946 causing at least 15 deaths and destroying property valued at \$10,000,000.

June weather was less unusual. In the British Isles it was typically wet and cool with many gray days. In the United States monthly temperatures were less than 2° F. above the average excepting a small part of New Mexico where it was 4° F. warmer than average. Precipitation also was closer to the average figures than usual except for small areas in Wyoming, the Great Lakes states and Alabama, where rainfall was about twice the average quantity, and a large area in the southwest where there was even less rain than usual, many stations reporting none whatever during the month. Severe local storms again were numerous. More than 125 were reported, most of them thunderstorms with wind squalls and hail. There were ten tornadoes. Total damage by severe storms was estimated at more than \$8,000,000.

Typical summer weather is more variable locally than winter weather. Generalizations about summer weather are often misleading. Although the year as a whole was the warmest since 1871 in Washington, D.C., residents recall July and Aug. 1946 as two of the most pleasant summer months ever experienced there. Some referred to it as a "California summer" and the comparison was not wholly inept. But agriculturalists in nearby Maryland, New Jersey and parts of New England remember it as the worst season in history for several vegetable crops, because the cool damp weather along the coast was conducive to blight. In contrast it was very hot in Iowa, Montana and other western states with temperatures up to 105° F. and even higher

areas were covered by the eastern half of an anticyclone, a condition somewhat analogous to that usually found in southern California in summer with bright sunny days and cool nights and with the winds from a northerly direction bringing relatively dry air in place of hot and humid southerly winds with the sultry weather typical of the eastern states in summer. To the senses the weather was more comfortable than the meteorological statistics suggest. In July average temperatures for the month were about 1° F. higher than usual but dew points and relative humidity were mostly subnormal and there were fewer days with maxima above 90° F. Sensible temperatures were therefore relatively low. In Aug. anticyclones brought cold air from the Canadian arctic and temperatures averaged 2° F. to 6° F. below normal in the Great Lakes area and most of the east and southeast throughout the month. For the summer months as a whole the temperatures averaged 2° F. to 4° F. below normal in the north central, eastern and southeastern states. But in the far western states there were complaints of high temperatures near 100° F. and in Kansas, Missouri and Nebraska thunderstorms gave heavy rains amounting to 7 in. in 24 hours in some places and produced flash floods in the tributaries of the Missouri river, but damage from flash flooding was not as extensive as in several years past. In Australia the continued dry weather aggravated the disastrous results of the record-breaking drought of 1944-45.

The mild summer weather of Aug. in most of eastern United States continued until the second half of Sept., when conditions were reversed for a week, the east getting temperatures averaging from normal up to 12° above and the west 3° to 6° below normal for a week, bringing freezing weather and snow in parts of the mountain states, but in the last week of Sept. hot weather with maxima up to 100° returned to the interior valleys of California and the south and southwest portions of the great basin. The heaviest rains during the month occurred in the Carolinas on Sept. 19 and 20, associated with a hurricane. This was one of the relatively weak tropical cyclones that touched the United States during 1946. A second hurricane crossed Georgia and the Carolinas the second week in Oct. bringing heavy rainfall but only fresh winds and little damage. Another hurricane moved across Florida on Nov. 1 and 2 causing heavy rains in the south Atlantic states and flood waters in the Okeechobee section, but compared with the typical hurricane season the tropical storms of 1946 were both few and relatively weak. The records of severe local storms show that 65 were reported from various parts of the United States during Aug., 34 with heavy hail and 4 tornadoes. There were 13 deaths resulting directly from these severe storms and total property losses estimated about \$4,000,000. In Sept. 35 severe local storms were reported. They caused property damage estimated at \$2,000,000.

In England the long unbroken period of unsettled and disagreeable weather from June through Sept. led to comparisons with similar conditions in previous outstanding years but the records show that 1879 was both wetter and cooler in the vicinity of London than 1946. The summer weather in both years was well characterized as "boisterous, chilly and wet" throughout the British Isles, and 1946 brought phenomenally long periods of unsettled weather in southern England beginning in May. With Oct. came improvement, although not for long. The first few days of bright weather were followed by unusually dry conditions most of the month but cloudy and cool on the whole, and Nov. saw the return of wet and stormy weather. Several localities in England reported new high records of rainfall for Nov. and in many places the total for the month was twice the long time average. Toward the end of the year strong gales came to the English channel and contiguous sections. They caused heavy damage to shipping along the English and French coasts, especially in the port of Le Havre.

In the eastern half of Canada and the United States Oct. and Nov. brought a long period of good weather. Whereas the summer had been relatively cool, the autumn turned unusually warm and gave the year on the whole a remarkably equable climate in these regions that commonly see highly variable weather. Oct. averaged 3° to 6° above normal temperatures in the eastern half of the United States and as much as 3° below normal in the western half. Precipitation was comparatively heavy in the semiarid parts of Nevada and Utah where rainfall was four times the average and in sections of the Carolinas where it was twice the average amount. In the east Nov. continued mild and pleasant with temperatures for the autumn averaging 4° higher than normal and in some places 6°, and the weather remained good most of the time right up to the last few days of Dec., when snowstorms, low clouds and icing brought air transportation holiday traffic practically to a stop. Over the western half of the United States Nov. temperatures in most places were below normal (4° below normal in Montana). In southern California a disturbance with tropical history gave more than 5 in. of rain in 24

Table IV.—Monthly Rainfall, in Inches, in Cities of the World, 1946

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
London	1.39	2.26	1.17	1.91	3.46	2.78	3.11	3.74	3.46	1.30	4.06	
Edinburgh	1.81	1.58	1.54	1.40	1.89	1.65	3.05	3.59	3.02	0.86		
Luebeck	2.93	3.13	1.67	1.59	1.08							
Stockholm	0.71	1.91	0.39	1.10	2.02	2.85	0.67	3.54	5.14	1.08		
Brussels	3.14	5.87	2.13	1.73	2.82	3.04	2.49	3.70	2.29	2.41		
Lisbon	4.06	1.14	3.52	4.45	4.68	3.23	0.00	1.06				
Valetta (Malta)	3.75	0.81	0.77	0.34	0.02	0.01	0.01	0.10	0.02	2.66		
Cairo	9.01	0.01	0.01	0.00	0.38	0.00	0.00	0.00	0.00	0.00		
Baghdad	1.77	1.03	1.29	0.19	0.57	0.00	0.00	0.00	0.00	0.01		
Aden	0.02	0.03	0.09	0.00	0.02	0.00	0.05	0.11	0.50			
Salisbury (Rhodesia)	11.68	5.53	2.96	0.23	0.01	0.02	0.00					
Capetown	0.55	0.26	1.16	2.27	3.07	1.66	3.23	3.26	5.04	0.98		
Colombo (Ceylon)	0.36	1.90	5.11	12.82	6.63	6.33	4.49					
Toronto	2.6	3.3	1.3	1.0	5.2	2.1	3.7	1.9	1.6			
Winnipeg	0.6	0.6	1.0	0.6	0.6	2.6	1.5	2.1	3.2			
Victoria (B.C.)	4.4	2.8	2.3	1.5	0.6	2.3	0.4	0.4	0.4			
Hobart	0.55	3.17	10.05	2.27	0.92	2.63	3.68	6.32				
Wellington (N.Z.)	1.48	1.62	5.52	4.89	6.09	5.56	2.23	5.30	3.92	5.40		

Table V.—Monthly Mean Temperature in °F. in Cities of the World, 1946

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
London	38.5	44.0	41.7	51.1	52.5	57.7	63.3	60.7	58.5	51.6	47.5	
Edinburgh	37.7	40.5	41.3	47.8	48.2	54.3	59.1	56.0	54.3	46.7		
Luebeck	30.5	35.5	36.6	49.5	55.5							
Stockholm	28.6	23.9	30.7	43.5	50.0	58.3	66.0	60.8	55.0	42.1		
Brussels	32.8	41.2	42.0	53.2	56.5	58.3	64.7	61.4	60.1	50.2		
Lisbon	52.2	56.5	56.0	59.7	60.0	66.0	72.6	69.1				
Valetta (Malta)	55.3	54.5	56.4	61.5	67.1	73.7	77.9	82.1	79.2	72.1		
Cairo	55.5	57.7	63.2	70.0	78.1	82.5	84.4	84.9	82.2	75.5		
Baghdad	48.5	52.7	61.6	70.7	82.2	70.8	93.7	94.5	88.9	75.5		
Aden	78.8	78.9	80.7	85.8	89.3	89.5	88.5	83.3	87.5			
Salisbury (Rhodesia)	69.7	69.1		65.7	61.1	56.1	56.0					
Capetown	69.3	70.5	67.5	64.1	59.7	55.5	53.6	57.3	57.1	61.9		
Colombo (Ceylon)	78.6	81.1	81.2	82.0	83.6	82.2	82.1					
Toronto	26	22	43	44	54	65	70	66	63			
Winnipeg	1	1	30	44	50	61	68	64	54			
Victoria (B.C.)	42	43	44	48	56	57	60	61	58			
Hobart	61.3	61.7	60.5	53.3	50.5	45.7	47.5	46.7				
Wellington (N.Z.)	60.3	61.3	59.0	56.3	52.9	48.3	48.9	44.5	51.1	52.2		

hours on Nov. 13 and 14 and caused seasonably dry river beds to fill and overflow their banks. In Colorado the heaviest snowfall in 33 years resulted from slow-moving storms on Nov. 3 and 4 and again on Nov. 8 and 9. With an average depth of two or three ft. and drifts ten ft. deep in some of the streets of Denver, traffic was paralyzed and many persons marooned.

The first widespread cold wave of the season in central and southern United States carried freezing temperatures as far south as central Texas for a brief period the first of Dec., but the air soon turned warm and average temperatures for the second week were above seasonal expectancy throughout the country except along the boundary of Georgia and Florida. In parts of Iowa and Missouri it was 21° warmer than normal. But a new cold air mass out of the Canadian arctic moved southward and overspread the central states in mid-Dec. It carried zero temperatures to the northern plains states and pushed the freezing isotherm almost to the Gulf of Mexico on Dec. 20. Nevertheless weather for the week ending Dec. 24 was warmer than average (9° warmer in Nebraska) throughout the country except for a belt along the Gulf coast and Allegheny mountains. Here it ranged from normal to 3° below normal. Another cold wave engulfed the plains states in freezing weather by the end of Dec. and carried freezing weather south to the Rio Grande. In Missouri thermometers fell from the middle 70°s on the afternoon of Dec. 27 to several degrees below zero on the morning of Dec. 30.

Accompanying the snowfall and bad weather which halted air traffic in New England and the east on Dec. 28 there was a remarkable temperature contrast between Virginia and southern New England. With Washington, D.C., enjoying tropical air at 75° F. that afternoon, New England temperatures were close to 0°, giving a temperature gradient of about 70° F. in a distance of only 300 mi. As the year closed another snow and sleet storm gripped northern Texas, Oklahoma, Missouri, Kentucky, Tennessee and Virginia and caused icing at flying levels. Air travel was interrupted and ice deposits on power and telephone lines caused failures in these services. But despite these cold weather manifestations temperatures for the United States during Dec. again averaged above normal. It was 6° warmer than usual over most of the country and 8° in Colorado, New Mexico and Wyoming. (See also DISASTERS; FLOODS AND FLOOD CONTROL.)

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Methodist Church.

This church was in the midst of the four-year program of its "Crusade for Christ," which was launched by the general conference of 1944. The first-year objective, the raising of \$25,000,000 for relief, rehabilitation and advance was highly successful. The

amount pledged was \$27,777,673, and up to Dec. 13, 1946, the receipts were \$26,839,696. Goals for 1946 were evangelism and church school (alias Sunday school) enrolment. Prior to Oct. 15 the year's accessions to Methodist churches¹ numbered 910,447. At the same time the church schools reported a gain of 401,712, thus sharply reversing the declines of the previous decade. The number of churches newly organized or rehabilitated was 728.

In 1946 the benevolent work of the Methodist Church was maintained by gifts of more than \$15,000,000, of which \$4,295,963 was raised and expended by the Woman's Division of Christian Service. The gross amount raised by the churches "for themselves" and "for others" was \$148,286,227, not including the large unreported giving of individual church members. The Committee on Overseas Relief, of which Bishop Herbert Welch was the head, reported 1946 receipts of \$1,800,000, of which one-half came from the Crusade fund. This was disbursed in cash or material—food and clothing—to the needy of 24 countries in the war-spent areas. Of this total three-fifths went to Methodist work and the remainder, about \$750,000, was distributed through numerous non-Methodist agencies, such as the Y.M.C.A., Y.W.C.A., International Missionary Council, American Friends' Service committee, World Council Service, United Jewish Appeal, etc. Gifts for relief during 1946 exceeded the total amount contributed for this purpose in the four years previous.

The Board of Publication reported the largest turnover in its history of more than 150 years. Sales in the fiscal year ending July 1, 1946, were \$8,850,000. After large expenditures for new and refreshed equipment, \$400,000 was appropriated for distribution among the retired ministers. Some 5,500,000 copies of church school periodicals were circulated, and the circulation of the weekly denominational organ, *The Christian Advocate*, rose to 345,000, the highest in its long history. The quarterly *Religion in Life* doubled its circulation, and books for the general trade with the "Abingdon-Cokesbury" imprint had become leaders in the field of religious literature.

Bishop Ivan Lee Holt, as head of the western section of the Oecumenical commission, visited England in the summer for conference with members of the eastern section with regard to renewing the sessions of the Oecumenical conference, which were interrupted by World War II. The seventh session, scheduled for Oxford in 1941, had to be given up. The American committee was authorized by the general conference in 1944 to invite the Methodists of the world to meet in the U.S. in 1947. This invitation was accepted, and plans were being perfected for a session probably in a New England city in the early autumn of 1947.

The latest available statistics showed total membership 8,083,787. Returns from Asia and Europe were fragmentary. Church and parsonage property was valued at \$801,250,933, against which the indebtedness was \$19,025,291. In 1946 the Methodist Church had 40,698 preaching places; 21,270 pastoral charges; 18,288 effective ministers and 5,487 retired. Local preachers numbered 10,539. The church school enrolment was 4,848,748. The membership of the Woman's Society of Christian Service was 1,589,581.

At the annual meeting of the Board of Missions and Church Extension in December, the watchword was "Advance." Appropriations: Foreign missions, \$3,371,393; home missions and church extension, \$2,010,475; Woman's Division of Christian Service \$3,999,451. The division received a cheque for \$500,000 from the estate of E. S. Collins, lumberman, of Portland,

Ore., to be added to the Collins Fund for Missionary Pensions, which had a principal of \$1,884,344.

In Columbus, O., July 4-7, 15 bishops met with 500 delegated Methodist veterans for a conference on postwar problems.

Bishop F. H. Otto Melle of Berlin, was retired for age, and Dean J. W. Ernst Sommer of the Frankfort Theological seminary was elected to succeed him by the Germany central conference. The Philippine Islands central conference elected Dionisio D. Alejandro to take over the Manila area from Missionary Bishop Edwin F. Lee, whose jurisdiction was thereafter limited to Malaya, with residence at Singapore, S.S. Bishop Wade was relieved of superintendence of northern Europe, where the central conference elected Dr. Theodor Arvidson as bishop. Bishop Titus Lowe was president of the Council of Bishops. Bishop G. Bromley Oxnam of New York city, continued as secretary of the council. (See also CHURCH MEMBERSHIP.)

(J. R. J.)

Metropolitan Museum of Art: see ART EXHIBITIONS; ART GALLERIES AND ART MUSEUMS.

Mexico. A federal republic of North America lying between the United States and Central America. Area, 767,168 sq.mi.; pop. (est. 1945) 21,672,733 (19,473,741 census 1940). Approximately 55% of the population was mestizo, 29% Indian, 15% white, with foreigners and others making up less than 1%. The language is Spanish, but an estimated 14% speak only Indian tongues. There is no official state religion, but the people are overwhelmingly Roman Catholic. The capital is Mexico City (pop. 1,464,556). Other principal cities are: Guadalajara, 228,049; Monterrey, 180,942; Puebla, 137,324; Mérida, 98,334; León, 86,089; Tampico, 81,334; Aguascalientes, 81,124; San Luis Potosí, 78,042; Torreón, 76,613; Veracruz, 70,958; Chihuahua, 57,456; Pachuca, 52,387. Presidents in 1946 were Gen. Manuel Avila Camacho (took office Dec. 1940) and Miguel Alemán (took office Dec. 1946).

History.—For Mexico the year 1946 brought elections, inflation and the international problems of an uneasy, postwar world. The elections caused some violence and considerable excitement; inflation resulted in industrial and social unrest and the international picture showed a tendency to disintegrate the American republics' bloc among the United Nations.

As usual, the election year in Mexico was a time of great popular stimulation because of the speeches, radio broadcasts, press articles and even popular songs. The campaigns were as colourful as each candidate could contrive. However, it soon became evident that the government-sponsored candidate, Miguel Alemán, would have little difficulty at the polls. The principal opponent of Alemán was Ezequiel Padilla, former foreign minister of Mexico. Padilla, after obtaining world-wide recognition as a leader in foreign affairs, fell into eclipse largely through his too friendly attitude toward the United States and his tendency to antagonize the soviet union as well as because of certain local political reasons. In the contest Padilla drew his support from the more conservative elements.

Lesser candidates, all representing the more conservative groups, included Lic. Octavio Véjar Vazquez, Gen. Miguel Henriquez Guzmán and Gen. Enrique Calderón. Many other candidates, including Enrique de Montalvo, failed to qualify, either through lack of sufficient official registration in their parties or through other legal technicalities. The most powerful element failing to qualify was the clerical Sinarquista party, called Partido de Acción Nacional. Also, the Communists decided to withdraw from the presidential contest and concentrated on legislative seats and local government posts.

The first major outbreak of violence, and the largest, occurred on Jan. 2, 1946. Elections for mayor of the town of León,

¹ This article summarizes the activities of the new church which was formed in 1939 by the union of three Methodist sects—the Methodist Episcopal Church, the Methodist Episcopal Church, South and the Methodist Protestant Church. It does not cover the activities of the numerous smaller bodies of Methodists, viz.—African Methodist Episcopal Church, African Methodist Episcopal Zion church, Coloured Methodist Episcopal Church, Wesleyan Methodist Church, Free Methodist Church, Primitive Methodist Church, etc.

Guanajuato, were held in December, at which time the candidate of the León Civic union, Carlos Obregón, won by a wide majority over the candidate of the government party Partido Revolucionario Mexicano (P.R.M.), Ignacio Guiróz. Most of the support for Obregón had come from the Sinarquistas for whom León had been a stronghold. In spite of the elections, however, the state governor installed the official candidate and sent federal troops into León to maintain order. Meanwhile the Sinarquista press freely predicted trouble. A protest meeting was held outside the town on the first of January, only to be dispersed by the police. On the next afternoon a crowd gathered at the city hall and clashed with the federal troops, with the result that an estimated 40 persons were killed in what became known as the León massacre. The president, Avila Camacho, ordered an immediate investigation, and many observers felt that the government party (P.R.M.) might lose much of its popular support. As a result of the investigation, the governor was ousted and the responsible army chiefs were placed on inactive duty, while at the same time Obregón was seated as mayor.

In the middle of January the P.R.M. was dissolved at its own national convention and Antonio Villalobos gave over the chairmanship. A new party, the Partido Revolucionario Institucional (P.R.I.), was formed at the convention under the chairmanship of Pascacio Gamboa, former governor of Chiapas. The key men in the P.R.M., however, took over similar posts in the P.R.I. and pledged their support to the official presidential candidate, Miguel Alemán. Although little of the shakeup, mild though it was, was attributed to the León affair, still the general need for election reforms was recognized and became one of the keynotes of the new party. Even the long-established custom of deducting party contributions from government workers' pay checks was discontinued.

As a result of the stand of the P.R.I. and the popular clamour, the subsequent elections were considered to be perhaps the cleanest ever held in Mexico. Even so, many cases of tampering with ballot boxes and other irregularities were uncovered. On the whole, the campaign was a triumphant procession for the

popular government candidate, Alemán. An extensive speaking tour was held throughout Mexico and a general round of fiestas and celebration resulted.

Ezequiel Padilla was not so fortunate. Although he had been a great success before diplomatic audiences and at conventions, he had great difficulty arousing interest among the average Mexicans. His audiences were sparse and cool.

At the time of the voting in July, every care was taken by the government to avoid disturbances. All sales of liquor were halted two days before election. All polling places were patrolled by the army to see that no force or coercion was attempted. The actual casting of ballots was done very quietly and orderly.

As soon as returns began to come in, it became evident that Alemán was leading his nearest competitor, Ezequiel Padilla, by a margin of about 3 to 1. While this was largely expected, the margin was nevertheless a surprisingly large one. Pres. Avila Camacho announced that he would support the recorded vote.

Alemán was inaugurated without incident on Dec. 1, 1946, in a ceremony which made him the 58th president. He pledged himself to continue the principles of the revolution (stemming from the overthrow of Porfirio Diaz and the aristocracy in 1910) and to promote liberty and democracy. The following cabinet was also announced by the new president: secretary of the interior (Alemán's former post), Héctor Pérez Martínez; secretary of foreign affairs, Jaime Torres Bodet (formerly secretary of education); secretary of treasury and public credit, Ramón Beteta; secretary of education, Manuel Gual Vidal; secretary of agriculture and development, Nazario Ortiz Garza; secretary of national defense, Gilberto R. Limón; secretary of navy, not named—Vice-Adm. Luis Schauffelberg Alatorre acting; secretary of communications and public works, Agustín García López; secretary of commerce, Antonio Ruiz Galindo; secretary of labour, Andrés Serra Rojas; secretary of public welfare, Rafael Pascasio Gamboa; secretary of water resources, Adolfo Orive de Alba, and attorney general, Francisco González de la Vega.

Inflation during 1946 became an increasingly serious problem. Government controls were relatively ineffectual largely, according to most observers, because of the heavy dependence of Mexico on the world markets. Cost of living rose on an average

BULL RING in Mexico City, seating about 47,000 people and said to be the world's largest, was opened on Feb. 5, 1946. It is the first unit of a giant sports centre in the city



(based upon a factor of 100 for 1939) from 265 points in Dec. 1945 to 326.4 in Dec. 1946, or approximately 25%. This rise, while showing tendencies to level off and even to drop slightly, was causing distress among many parts of the population. Clothing had especially skyrocketed (356 to 489.3) and food costs had followed closely (280 to 324.3).

On the other side of the picture, Mexico continued what was, perhaps, one of its most rapid periods of development from colonial days. During the first half of 1946, 230 new industrial units were registered with the treasury department, and of these 43 represented new industrial fields. Advances were especially rapid in steel, glass, pulp and bottling enterprises. Irrigation, after receiving a healthy impetus under former Pres. Lázaro Cárdenas, made even more rapid strides under Avila Camacho, with 1946 representing one of the greatest periods of expenditures in this regard.

The building boom in Mexico continued despite forecasts that it would begin to slump and despite an almost throttling inflation. It was estimated that after prewar days the cost of land for building purposes had risen 700% to 1,100% and that materials had risen 250%. The need for building is better understood when it is noted that according to the 1940 census, more than one-third of the population were living in temporary huts, brush shelters, etc., and that the larger cities such as Mexico City, Monterrey and Guadalajara had doubled or tripled their population in ten years. Mexico City showed the greatest increase, rising from a little more than 500,000 to almost 2,000,000 population. During the latter part of 1946 construction began to lag a little, but there was no reason to believe that the building boom would come to an end in the near future.

It was announced early in the year that an additional \$20,000,000 of credit had been obtained at low interest rate from the Export-Import Bank of Washington, D.C., for the erection of electric generating plants. Of actual government obligation, however, Mexico was remarkably free. Avila Camacho announced that the last outstanding indebtedness, which was owed to the expropriated oil companies, would be paid off before he relinquished office.

In international affairs Mexico was returning after the end of World War II to its traditional position of avoiding too close identification with the United States and continuing to support the more liberal elements in world affairs. The position Henry Wallace took in regard to the U.S.S.R. raised a furor because of the implication that Latin America was a sphere of influence for the United States. This along with Pres. Truman's proposal of a military alliance caused considerable anti-U.S. feeling. Nevertheless, Mexico did set aside the anniversary of the death of Pres. Roosevelt as a national holiday and day of mourning in Mexico, and relations between the two countries were generally cordial and healthy.

A strong campaign against the Franco government in Spain developed under the leadership of the labour chief Vicente Lombardo Toledano, who announced a continent-wide boycott of the caudillo. As a result, longshoremen of Latin America and other labouring groups caused numerous incidents by refusing to handle Spanish cargoes.

Another stand against world fascism was taken by Lombardo Toledano in April, when the International Labour office met in Mexico City (previous meetings had been in Paris and Philadelphia). There the Latin American Labour confederation (C.T.A.L.) of which Lombardo Toledano was president objected to the inclusion of the Argentine delegates on the grounds that they did not represent Argentine labour, but rather Juan D. Perón. Other Latin-American delegates backed that position, and the Argentine delegates were barred from all but the plenary session. During the same meeting, Lombardo Toledano ac-

cused the United States A.F. of L. of trying to break up the C.T.A.L. in favour of a new group to be manipulated from Washington. Delegates from 11 of the Latin-American countries signed the charge for publication.

Of perhaps as great importance as any of the accomplishments of his regime as reviewed by the outgoing president, Avila Camacho, was the campaign against illiteracy. It was estimated that a total of 1,500,000 illiterates had been taught to read and write during 1945 and 1946, and the campaign was still in full swing. By employing the principle, backed by federal law, that each literate much teach one illiterate to read and write, the spectacular accomplishment was brought about with a total cost of less than \$500,000. The foreign minister and poet, Torr  s Bodet, fathered the plan when he was secretary of education.

On the less pleasant side of the year's events was the continued religious strife in Mexico. The Protestant movement, while not large, was vigorous, and considerable resentment among certain Catholic elements developed. Federal protection had to be given to the Protestants, despite which several persons were killed and others injured. The archbishop of Mexico, Luis Mar  a Mart  nez, who had originally asked for resistance to the "invasion," called on all Catholics to abstain from violence because of the new turn of events.

Education.—Education was free, compulsory and divorced from religion. Private schools were allowed, however, to teach religion. There were approximately 25,000 primary schools, with more than 2,000,000 enrolment (the federal government had, in 1946, 32,778 teachers and 1,837,490 students). Secondary schools had about 80,000 enrolment (47,332 enrolment in 522 government schools in 1946 including technical and agriculture). Also, the 10 universities had about 30,000 enrolment, of which 22,230 (1945) attended the autonomous University of Mexico, Mexico City. Six normal schools had 3,800 students in 1946. Illiteracy was about 35%; however, this number decreased about one-fifth under the impact of the new program of "each person teach one person to read," and as a result of special instruction given to all personnel who were illiterate.

Finance.—The monetary unit was the peso (value in Dec. 1946, 20.64 cents, U.S.). By Aug. 1946 money circulation, including bank deposits, had risen to a total of \$852,947,800, of which \$350,962,560 was in paper money, \$105,532,320 in coin and \$396,453,120 in the form of deposits.

The national income for 1945 was \$2,474,323,200, which compared with \$2,288,976,000 in 1944 and was probably greater in 1946. A comparative statement of earnings in 1945 with 1944 by major categories is (1944 figure in parenthesis): agriculture \$250,569,600 (\$230,136,000); grazing \$128,380,800 (\$115,171,200); fishing \$16,512,000 (\$14,448,000); forestry \$28,483,200 (\$26,832,000); mining \$194,016,000 (\$196,080,000); petroleum \$28,070,400 (\$25,180,800); manufacturing \$623,328,000 (\$577,920,000); commerce and finance \$592,368,000 (\$537,052,800); rentals \$154,800,000 (\$138,288,000); transportation \$112,478,000 (\$97,246,400); government service and public works \$175,440,000 (\$173,995,200); it should be noted that the total federal budget for 1945 was \$207,377,625; domestic service \$82,560,000 (\$79,434,000); entertainment, professional service and other \$85,243,200 (\$76,161,000).

Trade and Communications.—During 1945 and the first half of 1946 imports exceeded exports, continuing the trend begun in the latter part of 1944. Both imports and exports were approximately 50% greater during the first half of 1946 than during a comparable period in 1945. The usual division of trade had been: United States 87%, Latin America 5% and Europe 3.9% (most of which went to Great Britain).

Exports in 1945 equalled \$275,234,400, \$278,506,550 in 1944. Gold, silver, copper, lead, zinc, oil and other mining products

comprised some of the largest single items of export. Beef, henequen, tomatoes, chicle, bananas, coffee, chick peas, guayule rubber, cotton, tuna fish, vanilla, vegetable wax and fodder stood high on the export list. Values according to certain general classes during 1944 were: animal products \$14,303,950; vegetable products \$79,027,550; mineral products \$61,046,800; fuels \$6,814,500; textiles \$25,998,350; food and beverages \$20,711,950; other products \$11,944,400.

Imports in 1945 were \$330,941,760 (\$216,370,700 in 1944). Manufactures including machinery and processed items comprised the largest portion of the imports, also wheat, sugar, wool and rice. Values according to certain general classes during 1944 were: animal products \$35,187,600; vegetable products \$63,622,650; mineral products \$48,155,800; textiles \$13,154,050; chemicals \$28,084,000; machinery and iron goods \$40,990,250; scientific apparatus and vehicles \$24,325,700 (automobiles in 1945 were \$12,053,760).

External communications were by sea, especially through Veracruz, by three main railways to the United States and one to Guatemala, by air to all parts of the hemisphere and by a growing network of motor highways.

Total freight carried by railroads in 1945 was 26,124,510 tons. This was an increase from the 1944 figure. Total passengers carried in 1945 were 39,000,000. Railroad mileage was about 15,000 mi. in 1945. There were more than 36,000 mi. of improved roads, of which 5,000 were paved and 7,000 were traversable in all types of weather.

Agriculture.—Mexico had an estimated 37,050,000 ac. of tillable land, of which 13,410,556 ac. were under cultivation according to the 1940 census. More than 17,000,000 ac. were under cultivation in 1945. Forest land comprised 25,893,993 ac.; grazing land 69,713,715 ac.; 2,471,000 ac. were estimated to be under irrigation by the end of 1945 (more than 2,000,000 ac. of this was under cultivation). Latest estimates on the amount of land which could be irrigated if all potential waters were employed equalled about 12,000,000 ac.

Agricultural production was (in tons): maize 2,843,160 (1946); wheat 424,270 (1945); sugar 411,046 (1946); rice 145,464 (1945); beans 201,666 (1945); large kidney beans 18,594 (1943); tomatoes 190,000 (1943); chick peas 82,056 (1943); sesame 96,072 (1943); pineapple 71,700 (1944); coffee 54,000 (1943); henequen 660,236 (bales 1944); chicle 11,590 (1945-46); alfalfa 2,060,500 (1943); green peppers 34,629 (1943); potatoes 135,770 (1943); sweet potatoes 65,806 (1943); cotton 514,800 (bales 1946); vanilla 164 (1943); avocados 60,104 (1943); cacao 1,650 (1943); bananas 7,200,000 (bunches 1943).

Animal census (1940) by head was: cattle 11,621,879; horses 2,511,175; mules 932,522; donkeys 2,341,539; sheep 4,401,014; goats 6,849,709; hogs 5,067,642. An estimated 164,000,000 ac. were devoted to range.

Timber produced in 1942 was: 33,315,000 cu.ft. of pine; 1,317,250 cu.ft. of mahogany; 1,045,320 cu.ft. of red cedar; 432,600 cu.ft. of white cedar; 91,820 cu.ft. of primavera. Charcoal, resins and other products equalled 50,265 tons.

Manufacturing.—During 1946 there was a steady expansion in Mexican industry. For the period Jan.-June 1946, 230 industrial enterprises registered with the treasury department representing almost \$5,000,000 capital, and of these 43 concerns represented new industries. Newer industrial developments included the establishment of rayon factories (additional annual capacity 17,000,000 lb.), tire factories, medical supplies manufacturers, cement factory, hardware and locks manufacturers and a fruit-packing plant. Other important classes of manufacturing firms were: sugar mills, textile mills, alcohol distilleries, cigar and cigarette (917,000,000 packs) factories, shoe, binder twine and soap factories, chemical works, breweries, flour, paper and coffee

mills, iron and steel mills (steel production was up 25% during 1945), cement manufacturers (688,969 tons in 1944), ice plants, glass and ceramic works, and woodworking shops.

Mineral Production.—Although the relative importance of mining to Mexico's economy had decreased, it was still of basic importance in 1946. Total value of metals, not including petroleum, during 1945 was \$156,565,131 (\$146,408,500 in 1944). Precious metals amounted to \$48,067,989 (\$50,786,610 in 1944); however, the higher total value was a reflection of higher prices, for actual production of most items was much lower in 1945 than in 1946—the exceptions were copper, zinc, iron and graphite. Production of various metals during 1945 was: gold 499,300 oz. troy; silver 61,419,197 oz. troy; copper 67,989 tons; lead 226,318 tons; zinc 231,317 tons; antimony 9,649 tons; arsenic 16,548 tons; bismuth 178 tons; cadmium 1,160 tons; coal 1,008,180 tons; tin 195 tons; graphite 26,052 tons; iron 229,441 tons; manganese 20,438 tons; mercury 625 tons; molybdenum 861 tons; tungsten 71 tons; silicon 200 tons.

Petroleum production, after declining from 43,304,179 bbl. of crude in 1941 to 32,955,000 bbl. in 1942, gave promise of reaching a new high in 1946. Estimates for 1946 were for 55,700,000 bbl. of crude and 52,800,000 bbl. of refinery products.

During the first 7 months of 1946, 26 wells were drilled of which 15 were producers. The daily capacity of the new wells was 24,488 bbl. and 1,400,000 cu.ft. of gas. This was a rise in drilling rate over previous years. However, foreign sales were proving more difficult because of the competition from sources previously diverted to military uses.

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Meyer, Eugene (1875—), U.S. publisher, banker and government official, was born Oct. 31, in Los Angeles, Calif. A graduate of the University of California (1895), he studied finance and languages in Europe. He entered the banking field, organized and headed the firm of Eugene Meyer, Jr., and company.

In 1917 he joined the government service as adviser on non-ferrous metals to the Advisory commission of the Council of National Defense; later, he held this position with the War Industries board. In the succeeding years, he was director and managing director of the War Finance corporation during the Wilson, Harding and Coolidge administrations; member of the Federal Farm Loan board and farm loan commissioner (1927-29); governor of the Federal Reserve bank (1930-33) and first chairman of the board of the Reconstruction Finance corporation (1932). In 1933 he bought the *Washington Post*, which, under his direction became one of the more prosperous and influential dailies in the east.

On June 4, 1946, Meyer was appointed first president of the International Bank for Reconstruction and Development by the institution's executive directors. He resigned Dec. 4, 1946, declaring that he had accepted the post with the understanding that he would remain only until the bank was launched.

Mica. **United States.**—Statistics on mica production and consumption in the United States during World War II, and the salient figures on the industry are as given in the table on p. 500.

These data reflect clearly the drop in demand that became manifest in 1944 for the strategic form of mica and resulted in relaxations in control measures. They also emphasize strongly the lack of ability to meet more than a small fraction of the

Data of Mica Industry in the U.S., 1940-45

(Short tons)

	1940	1941	1942	1943	1944	1945
Amount sold or used						
Sheet and punch . . .	812.7	1,333.2	1,380.9	1,724.1	761.7	649.3
Scrap	22,386	32,500	43,262	46,138	51,727	32,880
Total	23,199	33,833	44,643	47,862	52,489	33,529
Imports	7,688	8,300	11,294	13,759	7,242	9,405
Sheet and punch . . .	767.1	1,008.4	1,622.4	2,750.9	2,516.5	2,124.4
Scrap	3,061	1,251	2,179	2,048	2,412	3,567
Splittings*	3,860	6,041	7,493	8,960	2,314	3,695
Splittings, consumption .	2,459.4	3,648.8	3,318.3	4,206.7	4,408.5	3,948.7
Stocks, Dec. 31 . . .	2,706.4	4,775.8	4,380.7	2,258.6	1,997.5	1,532.3

*Includes other manufactured forms.

emergency demand from domestic output, even at sharp increases in price. The war price schedule was abandoned Aug. 30, 1945.

During the war years India supplied most of the U.S. imports of splittings and the largest share of the sheet mica, with smaller amounts from Brazil, Canada, Argentina and Madagascar. With the drop in war demand, Brazil took the lead in sheet mica, but India continued to supply most of the splittings.

Canada.—While mica production in Canada was reported to have increased from 3,342 short tons in 1944 to 3,685 tons in 1945, these figures included large amounts of scrap mica. Strategic grades amounted to less than one-quarter of the total.

(G. A. Ro.)

Michigan.

One of the north central group of states, Michigan was the 26th state admitted to the union; it is popularly known as the "Wolverine State." Land area 58,216 sq.mi. (excluding 39,960 sq.mi. of Great Lakes water surface); pop. (1940 5,256,106; estimate, Jan. 1, 1947, 6,150,000). Of the state's population in 1940, 3,454,867 were urban, 1,801,239 rural. Whites composed 95.9% of the population, nonwhites 4.1% (215,934). Capital, Lansing (78,753). Larger cities were Detroit (1,623,452), Grand Rapids (164,292), Flint (151,543), Saginaw (82,794).

History.—The problem of the successful reconversion of industry to peacetime production continued to be a dominant one in Michigan throughout 1946. The General Motors strike which had begun on Nov. 21, 1945, was not ended until March 13, 1946; the 113-day cessation of production by the many thousands of labourers in Detroit, Flint, Pontiac, Lansing, Grand Rapids and other cities naturally affected vitally other industries, the consumption of goods and ultimately state sales tax receipts. Automobile production, nevertheless, though halted from time to time, made progress, and the automotive golden jubilee, celebrated during the summer in conjunction with the commemoration of the 150th anniversary of the American occupation of Detroit, found production considerably advanced toward prewar records.

The legislature, in extra session from Feb. 4 to Feb. 22, enacted 30 laws, most of them of considerable importance. A \$50,000,000 trust fund was created to aid Michigan veterans and their dependents. Appropriations amounting to many millions of dollars were made to the various educational, mental, welfare and corrective institutions supported by the state. For the first time Wayne university, hitherto supported by the city of Detroit, received a grant (\$2,700,000 for a new classroom and science building) from the state. The sum of \$750,000 was appropriated for the development of state parks. Local units of government were authorized to undertake the development and administration of temporary housing for veterans, while county road commissions were empowered to purchase federal surplus airports and equipment.

The grand jury investigation begun in 1944, concerned with alleged graft and corruption in the state government, was inter-



KIM SIGLER, elected Republican governor of Michigan Nov. 5, 1946

rupted in March by the dismissal of Kim Sigler as special prosecutor—an event which was destined to have important political repercussions before the close of the year. The investigation continued, however, and on July 20 nineteen prominent men were indicted on charges of conspiring to block passage in 1941 of an anti-branch bank bill. The star witness against them, Charles F. Hemans, after fleeing the state on Aug. 25, was brought back, tried and sentenced to four years' imprisonment as a federal fugitive witness.

Sometime earlier, Frank D. McKay, former Republican national committeeman, was acquitted on charges of corrupting the state Liquor Control commission.

In a four-way contest in the primary election on June 18, Kim Sigler, formerly a Democrat, received approximately 38% of the votes cast for the Republican nomination to the office of governor, having a plurality of 48,000 votes over his nearest rival. In the Republican nominating convention a few weeks later, Sigler presented for nomination to the four administrative offices to be filled, a slate including the name of but one of the incumbents. The other incumbents, all candidates for renomination, were rejected in the triumph of the Sigler slate.

In the Nov. 5 election, Sigler defeated the Democratic nominee, former Governor Murray D. Van Wagoner, by a plurality of more than 350,000 votes—the largest ever accorded a Michigan governor in a nonpresidential year. The entire Republican state ticket was swept into office. Eugene C. Keyes became lieutenant governor; Fred M. Alger, secretary of state; Eugene F. Black, attorney-general; D. Hale Brake was re-elected state treasurer; Murl K. Aten became auditor general. In a nominally nonpartisan race for justice of the state supreme court, Justice Leland W. Carr, endorsed by the Republicans, was re-elected. U.S. Senator Arthur H. Vandenberg, Republican, was re-elected by a plurality of more than 500,000.

Three proposed amendments to the state constitution were ratified by the voters in the Nov. election. A proposal that one-third of the sales tax levy should go to local governments and school districts carried by a 60-40 margin. By a slightly smaller margin the voters granted a veterans' bonus providing for a maximum payment of \$500, based on \$10 monthly for domestic and \$15 monthly for overseas service between Sept. 16, 1940 and June 30, 1946. Nearly 70% of the voters approved of a proposal to permit the state to engage in the development of harbours of refuge, airports, drainage and other internal improvements. Adoption of this amendment permitted the release of \$1,000,000 being held by the state in escrow for airport building. The money was to be matched by federal funds and was part of a \$28,000,000 seven-year state airport development program.

Total state revenues for 1945-46 were \$304,118,039, topping the previous banner year (1944-45) by nearly 18%. Sales and use taxes accounted for about 39% of this total. About 17% of the total came from gasoline and motor vehicle taxes; the

same amount (as required by the constitution) was expended on the highways. Some 27% was spent on education, 20% on public welfare service, 9% on general government, 5% on mental hygiene. Available surplus for restricted purposes on June 30 was \$75,095,609; for general purposes, \$21,532,356. Revenue to the state from federal agencies amounted to \$31,411,306.

Education.—There were 5,823 school districts in the state public school system in 1946, with an average membership of 591,383 pupils and 19,687 teachers in the elementary grades and 348,592 pupils and 12,763 teachers in the secondary grades. The fall enrolment in Michigan's 65 universities, colleges and normal schools reached a peak of 83,000 full-time students.

Social Insurance and Assistance, Public Welfare and Related Programs.—The various state institutions of correction and their populations as of Dec. 1, 1946, were as follows: State Prison of Southern Michigan 5,354; Michigan Reformatory 1,329; Marquette Branch Prison 783; Detroit House of Correction 312; Cassidy Lake Technical School 30. There were 46 wayward minor boys and 35 wayward minor girls in custody.

Expenditures of the state department of correction for the fiscal year 1945-46 were \$5,035,349.

Communication.—The \$27,000,000 road and bridge construction program undertaken by the state highway department in 1946 encountered many difficulties—perhaps the most important among them being shortages of cement and steel. By the end of the year, however, the program was finally well under way. It included initial sections of two intersecting expressways in Detroit, the construction cost of which (probably in excess of \$40,000,000 for these initial sections) was to be shared by the state of Michigan, the federal government, Detroit and Wayne county. During 1946 two of Michigan's tourist information offices which had been closed during the gas rationing period, were reopened. Traffic across the Straits of Mackinac established an all-time record, with some 450,000 vehicles carried by the state ferries; this was about 19% more than in 1941, the previous record year. Due largely to the strain on the highways by wartime traffic, the annual cost of highway maintenance had been extremely heavy—amounting to about \$10,500,000 in late years.

Banking and Finance.—The 344 state banks in Michigan on Sept. 30 had total assets of \$2,444,449,861.51; assets of 3 industrial banks were \$6,616,407.64; those of 8 trust companies, \$40,771,488.71; those of 47 building and loan associations on June 30 were \$100,313,931.04. Total assets of 78 national banks in operation in Michigan on Sept. 30 were \$2,528,057,000.

Agriculture.—The total acreage harvested was 8,371,000. Over-all production was above average in 1946 in spite of a late spring, early fall frosts and an unusually dry summer. High yields from early crops offset lower yields of some late crops. A new production record was set by small grains. The soybean and buckwheat crops were above average, and sugar beets near average. A potato yield of 123 bu. per ac. was harvested, the second highest on record and above any yield after 1924; but total production was below average because of a decrease in acreage planted. Corn, field beans and hay yields suffered from the long summer drought. Despite frost damage in the spring, fruit production was above average, with the peach crop nearly double the ten-year average and the largest on record. The sour cherry crop also set a new record; grapes, however, were below average. Milk production was near 1945's record level. Egg production was higher than in 1945 and near that of the record 1944 season.

Table I.—Leading Agricultural Products of Michigan, 1946 and 1945

Crop	1946 (Est.)	1945
Oats, bu.	71,890,000	64,400,000
Corn, bu.	50,512,000	61,915,000
Winter wheat, bu.	22,896,000	27,648,000
Potatoes, bu.	18,327,000	8,700,000
Peaches, bu.	4,536,000	3,848,000
Apples, bu.	7,875,000	1,250,000
Barley, bu.	5,037,000	3,906,000
Field beans, 100-lb. bags	3,841,000	3,247,000
All tame hay, tons	3,464,000	3,846,000

Manufacturing.—Because of World War II and postwar conditions, statistics on manufacturing were not available beyond 1939. Rapid return to the production of automobiles, despite delays due to strikes and difficulties in obtaining materials, constituted the most significant feature of manufacturing progress in Michigan in 1946. Illustrative of this development is the fact that the Kaiser-Frazer corporation, which had converted the war production plant at Willow Run to automobile manufacture, had, by the end of the year, reached a production record of 300 cars per day.

Mineral Production.—Official figures on mineral production are shown in Table II. Michigan ranked first in the production of salt and was the

Table II.—Mineral Production of Michigan, 1945 and 1944

	1945		1944	
	Quantity	Value	Quantity	Value
Iron ore, tons	11,834,652		13,693,377	\$38,537,000
Copper, lbs.	60,801,716		84,842,000	11,453,670
Salt, tons	4,285,493	\$14,942,443	4,287,758	14,921,719
Petroleum, bbl.	17,267,493	24,262,364	18,490,000	26,600,000
Cement, bbl.	6,243,322	9,937,834	5,177,176	7,733,185
Natural gas, M. cu.ft.	23,298,548	3,159,839	21,253,903	12,900,278
Sand-gravel, tons	12,199,977	6,107,890	12,184,583	6,103,136

leading state in those chemical industries dependent on salt and brines and limestone. The year witnessed some renewed activity in the development of Michigan petroleum and natural gas fields.

BIBLIOGRAPHY.—*Michigan, A Guide to the Wolverine State*, (American Guide Series, 1941); *The Michigan History Magazine*, quarterly; press releases and printed reports of the various governmental offices; *Michigan Official Directory and Legislative Manual*, published by the secretary of state biennially. (L. G. V. V.)

Michigan, University of. The end of World War II brought an unprecedented influx of students, 14,690 in the spring semester of 1946, and 18,848 in the fall. Of the latter, 11,178, or 60% (about 80% of the men), were veterans. In contrast, the highest prewar enrolment was 12,132. By a "doubling up" process in the residence halls, the use of federal housing facilities originally provided for the Willow Run bomber plant, and a search for all available rooms in Ann Arbor homes, the entire group was successfully housed. An increase in the faculty, from 775 to 977, also was necessary, and the teaching schedule was made to include hours not ordinarily utilized for classes. This situation would have been far more embarrassing if the university had not, in the fall of 1946, limited its enrolment to Michigan residents, returning former students, children of alumni and holders of scholarships. The building program progressed during the year. About half of the quarters for married students were completed and occupied, and the residence halls for men and women and the food service building, also financed through a bond issue, were begun. The legislature in 1946 made a building appropriation of \$4,800,000 (including the administration building already planned) and authorized the university to proceed at once with other projects which would increase the program to \$8,000,000. Consequently, construction of a building for the school of business administration and of additions to the chemical laboratory and the east engineering building, as well as the administration building, was begun, though progress was slowed by lack of building materials. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (F. E. R.)

Microphotography: see PHOTOGRAPHY.

Midway Islands: see PACIFIC ISLANDS, U.S.

Mikhailovitch, Draja (1893-1946), Yugoslav army officer, was born in Shumadija, a village near Belgrade. He fought in the Balkan War (1912-13) and in World War I, and then attended the higher military academy and the general staff school. After the swift nazi conquest of Yugoslavia in April 1941, Mikhailovitch fled to the mountains where he welded Yugoslav resistance elements into a strong guerrilla army. His initial operations against the axis were successful and he was made minister of war by the Yugoslav government in exile. In early 1943, Mikhailovitch restricted his operations against the axis and his Chetniks clashed frequently with the Yugoslav partisans, a rival organization headed by Marshal Josip Broz (Tito). In the ensuing struggle for political control of Yugoslavia, Tito won Allied support. Tito's subsequent charges that Mikhailovitch had "sold out" to the axis were echoed (Feb. 22, 1944) by Winston Churchill (then prime minister of Great Britain) who said that Mikhailovitch had "drifted gradually into a position where some of his commanders made accommodations with Italian and German troops." Under British pressure, King Peter himself was forced to disavow Mikhailovitch and announce (May 20, 1944) his removal as minister of war. After the war, Mikhailovitch went into hiding, but was captured on March 13, 1946, and held for trial on charges of treason and collaboration with the axis. A U.S. request (disclosed on April 2) that U.S. army air force personnel be permitted to testify in Mikhailovitch's behalf was rejected.

by the Yugoslav government. During the trial, which opened on June 10 in Belgrade, Mikhailovitch admitted some prosecution charges that he personally collaborated with the enemy, but later retracted this admission, saying that he had been too exhausted by the severe grilling to know what he was saying. After a lengthy trial, he was found guilty (July 15) and together with eight other Yugoslavs was executed in Belgrade by a firing squad, on July 17.

Mikolajczyk, Stanislaw (1901—), Polish politician, was born in Gelsenkirchen, Germany, the son of a farm labourer who emigrated from western Poland to work in the Westphalian mines. He was wounded during the Russo-Polish War in 1920. After the war, he entered politics and at the age of 29 was elected to the sejm, serving from 1930 to 1935. He was made president of the Polish Peasant party in 1937. When the nazis invaded Poland in Sept. 1939, Mikolajczyk saw military action in the unsuccessful defense of Warsaw. He fled to Hungary and later escaped to France. He became President Paderewski's deputy in the Polish parliament in exile, and succeeded to the presidency on Paderewski's death. Mikolajczyk became prime minister in 1943. He sought a settlement with the soviet union on the Polish boundary dispute, but his efforts were hamstrung by anti-soviet elements within his cabinet, and he resigned Nov. 24, 1944. Mikolajczyk endorsed (April 15, 1945) the Big Three decision on Poland which was reached at Yalta, and joined the new Warsaw government as deputy premier, June 23, 1945.

Throughout 1946, Mikolajczyk was violently opposed to what he termed the lack of democracy in the government, and as the campaigning for the 1947 elections got underway, he protested frequently that the government was using terrorist methods to intimidate his followers. After the national elections, Jan. 19, 1947, he disclosed that he had sent detailed memoranda to the U.S., British and soviet ambassadors listing the Polish government's alleged violations of the Potsdam pledges for "free and unfettered" elections.

Military Academy, U.S. A government-maintained college at West Point, N.Y., for the training of young men for leadership in the professional military service. The transition from the accelerated three-year course to the four-year curriculum was continued in 1946. After the graduation of the class of 1946, the next class was divided in half; one-half to be graduated in June 1947 and the other half in June 1948. Thus, with the class which entered in July 1946, there were once more four classes at the academy.

Important changes were made in the academic organization. The subject of chemistry was transferred to the department of physics, which was redesignated the department of physics and chemistry. An additional permanent professor was authorized for each of the nine departments of instruction already having one permanent professor. The positions of professor of law and professor of ordnance (heretofore filled by the appointment of temporary professors) were made permanent professorships. The position of dean of the academic board was created; the dean, with the rank of brigadier general, to be appointed from among the permanent professors who had served as heads of departments.

Under the new curriculum, a course in the psychology of leadership was introduced. Specialized pilot training was discontinued in favour of basic air corps indoctrination for all cadets. For the first time, joint amphibious manoeuvres with the midshipmen of the Naval academy were held during the summer. In order to prepare army candidates for the West Point entrance examinations, a West Point Preparatory school

was established at Stewart Field, N.Y.

(For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

BIBLIOGRAPHY.—*The Catalogue of Information, U.S. Military Academy, West Point, N.Y.*, obtainable from the Adjutant General, War Department, Washington, D.C., gives complete data on entrance requirements, examinations, courses, etc. (M. D. T.)

Milk. The production of milk in 1946 declined slightly but followed the seasonal cycle of 1945. The 1946 output was estimated by the United States department of agriculture at 119,000,000,000 lb. compared with 123,000,000,000 lb., the all-time record of 1945 and a prewar average of 103,000,000,000 lb.

The lower production in 1946 was because of about 4% fewer cows although the production per cow made a new high record. On Jan. 1, 1946, there were 26,785,000 milk cows on farms compared with 27,674,000 in 1945 which was the record of all time. From March on through the year the production per cow was at a new record level of about 4,850 lb. per cow per year compared with 4,789 lb. produced in 1945 and a prewar average of 4,403 lb. This high production was the result of good pastures, the culling of herds of some of the poorer animals and intensive feeding stimulated by the strong demand for milk. During the first half of the year the consumption of fluid milk continued high but in July the amount used as whole milk declined in comparison with a year earlier. Some further decline in whole milk use followed the advance in retail prices in late summer when subsidies and price controls were removed. Civilian consumption of all milk and milk products was estimated at 813 lb. compared with 799 lb. in 1945 and 801 lb. in prewar 1935-39. Civilians got more dairy products in 1946 because of reduced military needs. Total production of milk per capita was estimated at 825 lb. in 1946 compared with 872 lb. in 1945 and 805 lb. in 1936-40.

Butter production increased in the fall but for the year as a whole was the lowest from 1902 allowing civilians only about 10 lb. per capita. Total production was estimated at 1,200,000,000 lb. compared with a prewar average of 2,190,000,000 lb., 1935-39. Lower consumption of whole milk and cream as prices advanced in the fall released more cream for butter production. Cheese production was also smaller in 1946 than in 1945 but above the prewar average. Production of cheese advanced in the late fall months.

Ice cream production expanded rapidly in 1946 and was about 65% above 1945 and 80% above the average, 1940-44.

Prices of milk in the east and far west areas advanced at once following the lapse of price control July 1, 1946. Dairy production payments ceased, which in the second half of 1945 were equivalent to 18% of the price received for milk and 30% of the price of butterfat. The farm price of whole milk averaged \$3.39 per 100 lb. in June plus 50 cents per 100 lb. production payment. In August the price was \$4.11, October \$4.97 and in December \$5.15. Butterfat advanced from 52 cents per pound in June to 90 cents in October and 87 cents in December. Consumers hesitated to pay the higher prices and began to reduce consumption of milk and cream as meats and fats were decontrolled. Organized revolts against paying the high price of butter resulted in a decline in early fall. When other edible fats and oils were decontrolled in October the price of butter dropped nearly 10 cents per pound. The price of milk fluctuated less than prices of butter, cream and cheese. By the end of 1946 milk prices and those of its products had regained their normal relationship. The larger supply of meat for civilians was also a stabilizing factor.

Milk consumption was expected to decline somewhat from the high record of the war years, but the rate was expected to continue above the 340 lb. of prewar. Domestic consumption

of all dairy products was steadily increasing up to World War II. The export outlet was not expected to increase. Evaporated and dry milk production in 1946 was much less than in 1945 but above the average of 1936-40. Stocks of these products were at high levels at the end of the year. Milk production was increasing in Great Britain, Europe, Australia and New Zealand. (See also BUTTER; CHEESE; DAIRYING.)

FILMS.—*Milk*, Encyclopædia Britannica Films Inc. (J. C. Ms.)

Millstones: see ABRASIVES.

Mineral and Metal Production and Prices.

The production record of the war years still contains many gaps, some of which will probably never be filled. Information that was withheld by censorship for security reasons was largely released, though delays were caused by lack of help. In some countries in the active war zones conditions became so disorganized that it likely became difficult, if not impossible to collect and compile production data, and probably in some instances data already collected was destroyed. The extent to which the record had already been completed was gratifying, and it was hoped that still more might be accomplished. Almost immediately after the cessation of hostilities, representatives of various U.S. government agencies were sent to the enemy and occupied countries to collect information along statistical and technical lines, and it was because of their efforts that much of the desired information was secured so promptly.

The statistical data that were still lacking on Jan. 1, 1947, were chiefly from the smaller European countries in the active war zone, and from a few others where the difficulty seemed

to be a matter of delay in compiling and reporting. Inspection of the various world production tables that accompanied most of the reviews of the mineral commodities showed relatively few figures missing from major producers, except in instances like the U.S.S.R. and Japan, both of which followed a policy of restricting information of this kind. While the results were less complete for the minor producers, they usually contributed such a small proportion of the total that a fairly good idea could be had of the world picture, in spite of these gaps.

Table I abstracts the opening and closing prices of the leading metals and their ores, as quoted on the New York and London markets. During the war years most of these commodities were under price control, and the year-end figures for 1946 show the decided upturn in prices since the dropping of price control. All controls have been removed from these prices in the United States, and most of them have been removed in Great Britain; official maximum prices were still in effect on aluminum, copper, lead and zinc, but on all of these items the prices have been adjusted to conform to postwar conditions.

Table II presents the available data on mineral production in 1945 for the more important producers and the leading products. While there are still gaps in this information, the table is the most complete that it was possible to produce after 1939. In order to give fuller information, where current figures are lacking, the figure for the preceding year, or the latest figure available is substituted.

Table III shows the gradual expansion of the total value of the mineral production of the United States, as reported by the U.S. bureau of mines. The 1945 valuation dropped to slightly above the 1943 figure, with all of the decline in the metallics.

Table I.—Mineral and Metal Prices in 1946

New York market as reported by E&MJ Metal and Mineral Markets				London market as reported by the Metal Bulletin									
Open	Close	Grade	Units	Grade	Units	Open			Close (d)				
						£	s.	d.	£	s.	d.		
15.00	15.00	99% ingot	Pound	Aluminum	98-99%	85	..	..	72	15	..
2.15	3.70	50-55% Sb	S.T. unit	Antimony, Ore	50-55% Sb	..	11	3	..	15	9		
15.839	29.625	Domestic, cased	Pound	Antimony	Domestic, 99%	105	..	..	125	..	..
16.50	nom.	Chinese	"	"	Chinese	..	nom.	..	..	nom.	..
4.0	6.0	White oxide	"	Arsenic	Foreign, 99%	31	..	..	38	16	3
15.00	14.75	4% Be (a)	"	Beryllium-copper alloy	Strip	..	9	6	..	13	3		
1.25	1.80	Ton lots	"	Bismuth	"	..	6	8	..	9	..		
90	1.50	Commercial sticks	"	Cadmium	"	..	5	5	..	8	6		
43.50	38.50	48% Cr ₂ O ₃ , 3 Cr:1 Fe	Long ton	Chromium, Ore	Rhodesian, 1st grade	11	7	6	10	..	..
89	89	98%, spot	Pound	Metal	98-99%	..	4	6 1/2	..	4	5		
13	17.1	4-6% C, 66-70 Cr (a)	"	Ferroalloy	4-8% C	46	10	..	43	..	..
19.5	19.5	2% C, 67-72% Cr (a)	"	Ferroalloy	2% C (a)	..	1	3 3/4	..	1	1 1/2		
1.50	1.50	97-99% Co	"	Cobalt	"	..	9	..	..	9	..
11.775	19.275	Domestic	"	Copper	Fire ref., high gr.	61	10	..	97	10	..		
11.700	19.550	Export	"	"	Electrolytic	62	..	..	88	..	..
35.00	35.00	"	Ounce	Gold	Official	..	172	3	..	172	3		
95.00	110.00	Sponge, powder	"	Iridium	"	25	..	..	32	10	..
4.55	5.05	Mesabi, nonbessemer	Long ton	Iron, Ore	50% N. African	..	nom.	..	..	nom.	..
25.25	30.00	Basic	Short ton	Pig	Basic	7	15	6	8	..	..
76.01	60.50	80%, Joplin, Mo.	Pound	Lead, Ore	80% R/C	..	nom.	..	..	nom.	..
6.50	12.55	New York	"	Metal	Foreign, soft	30	..	..	55	..	..
20.5	20.5	99.8% car lots	"	Magnesium, Ingots	"	..	1	6	..	1	6		
27.5	27.5	"	"	Slacks	"	..	1	10	..	1	10		
85.0	70.5	48% Atlantic ports	L.T. unit	Manganese, Ore	50-52% Mn	19	10	..	19	10	6 1/2		
135.00	135.00	78-82%	Long ton	Ferroalloy	18-22% Mn (76 lb.)	11	11	..	11	11	..		
36.00	36.00	19-21% Mn	Flask	Spiegel	85% MoS ₂	30	12	6	22	17	6		
109.00	90.00	90% MoS ₂ (b)	Pound	Molybdenum, Ore	70-75% Mo, C free (a)	..	41	3	..	46	3		
45	45	55-65% Mo (a)	"	Ferroalloy	Refined	..	6	..	..	5	8
35	35	Cathodes	"	Nickel	Long ton	192	10	..	192	10	..		
24.00	24.00	"	Ounce	Palladium	Ounce	5	17	6	5	17	6		
75.00	75.00	24% P	Long ton	Phosphorus, Ferro-	Long ton	15	..	..	22	1	8
35.00	60.00	"	Ounce	Platinum	Ounce	9	..	..	18	..	..
125.00	125.00	"	"	Rhodium	"	30	..	..	31	5	..
1.75	1.75	99.5%	Pound	Selenium	"	..	8	6	..	8	6		
14.75	14.75	97-1% Si, spot	"	Silicon	98-99% Si	85	..	..	67	10	..
6.65	17.45	50% Si (a)	"	Ferroalloy	45% Si	25	5	6	21	10	..		
8.05	9.25	75% Si (a)	"	"	75% Si	39	10	..	29	15	..		
70.75	84.75	Foreign, New York	Ounce	Silver	Official, spot	..	..	44	..	..	55 1/2
1.75	1.75	"	Pound	Tellurium	"	..	7	..	..	7	..
52.00	70.00	Straits	"	Tin	99%+	300	..	8 3/4	380	10	..		
142.50	142.50	Domestic	Short ton	Titanium, Ferrocaban-	15-18% Ti	..	..	..	..	..	8 3/4
24.25	24.00	Chinese	S.T. unit	Tungsten, Ore	65%	..	75	..	..	65	..
24.00	24.00	75-80% W (a)	Pound	Ferroalloy	80-85% W (a)	..	6	10	..	5	8		
1.90	1.90	99% W (c)	"	Powder	98-99% W	..	7	4 1/2	..	6	4		
2.625	2.625	" (a)	"	Vanadium, Ore	10-12% V ₂ O ₅	..	nom.	..	..	40	..
27.5	27.5	" (a)	"	Ferroalloy	35-60% V (a)	..	15	6	..	15	..		
2.80	2.80	60%, Joplin, Mo.	Short ton	Zinc, Ore	52% R/C	..	nom.	..	..	nom.	..
55.28	60.00	St. Louis	Pound	Metal	G.O.B., foreign	31	5	..	55	..	..
8.25	10.50	"	"	"	"	..	..	..	..	..	..

(a) Per pound of base metal contained. (b) Per pound of MoS₂ contained. (c) Per pound of V₂O₅ contained. (d) Dec. 1.

Table II.—World Mineral and Metal Production in 1945
(Metric tons unless otherwise specified: Th. indicates thousands and Mi. millions of units.)

Country	Aluminum (Th.)	Bauxite (Th.)	Antimony (Th.)	Asbestos (Th.)	Cadmium (Th. Lb.)	Chromium (Th.)	Coal (Mi.)	Coke (Mi.)	Copper in Ore (Th.)	Copper Smelter (Th.)	Diamonds (Th. carats)	Gold (Th. Oz.)	Iron Ore (Mi.)	Pig Iron (Mi.)	Steel (Th.)	Lead in Ore (Th.)	Lead Smelter (Th.)
Algeria	—	—	0.1 ⁴	—	—	—	0.1 ⁴	—	p	—	—	—	0.79 ⁴	—	—	—	—
Angola	—	—	—	—	—	—	—	—	—	—	786	—	2.22 ⁴	1.33 ⁴	—	160.6	160.5
Australia	—	3.8	0.4 ⁴	0.8 ⁴	258.1	1.4 ⁴	17.7	1.4 ⁴	—	—	—	635	—	—	—	—	—
Belgian Congo	—	—	—	—	17	—	p	—	P	160.2	10,386	381	—	p	—	—	—
Belgium	—	—	—	—	531.9	—	15.7	2.0 ⁴	—	4.3 ⁴	—	—	0.13 ³	0.72	0.50	P	8.5
Bolivia	—	—	5.1	0.1	—	—	—	—	6.1	—	—	29	—	—	—	—	—
Brazil	p	7.1	—	p	—	1.5	1.9 ⁴	p	—	—	275	178	0.30	0.29 ⁴	0.19	—	—
Burma	—	—	p	—	—	—	—	—	—	—	—	p	p	—	—	—	—
Canada	195.7	—	0.7	423.6	288.9	5.1	14.9	3.0	216.0	198.6	—	2,562	1.03	1.78	2.54	147.7	147.5
Chile	—	—	—	—	—	—	2.3 ⁴	—	470.2	462.6	—	180	0.94	—	—	—	—
China	p	—	0.6 ⁴	p	—	—	5.5 ⁴	0.3 ¹	p	0.7 ⁴	—	478 ⁰	—	—	—	0.6 ⁴	0.6 ⁴
Colombia	—	—	—	—	—	—	0.5 ⁴	—	—	—	—	507	1.58 ²	0.44	0.9	P	5 ³
Czechoslovakia	—	—	3.1 ²	—	—	—	14.2	3.3 ³	—	—	—	90	7.8	1.19	1.16	4.8	4.8
France	37.2	200	—	—	116 ⁸	—	35.1	2.3	p	0.1 ⁴	—	16 ⁴	15.84 ²	21.0 ⁰	5	150 ⁴	150 ⁴
Germany	236.14	25 ⁴	0.4 ⁴	—	432 ⁸	—	149	53.4 ⁴	25 ⁴	30 ⁴	—	7 ²	—	—	—	—	—
Gold Coast	—	120	—	—	—	—	—	—	—	—	500	475	—	—	—	—	—
Greece	—	10 ⁴	p	p	—	15 ³	0.1 ³	—	—	—	—	—	0.31 ⁰	—	—	P	4.9 ⁰
Guiana, Brit.	—	667.8	—	—	—	—	—	—	—	—	17	23	—	—	—	—	—
Guiana, Neth.	—	684.0	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—
Hungary	11.5 ⁴	900 ⁴	—	—	—	—	4	p	p	p	—	P	0.64 ⁸	0.42 ³	—	p	p
India	1.5	24.5 ³	p	0.3 ³	—	33.8 ³	26.4	1.6 ³	12 ³	6.2 ³	—	170	2.70 ³	1.78 ³	1.38 ³	p	p
Indo-China	—	3.5 ²	p	—	—	—	1.3 ³	—	—	—	—	8 ⁰	—	—	—	p	p
Italy	35 ³	2.6	0.3	11.7 ²	184 ¹	P	4.8 ²	2 ³	1.3 ¹	1.4 ³	—	12 ³	0.05	0.07	0.40	1	0.8
Japanese Emp.	136.4 ⁸	—	—	1.0	30 ³	—	—	—	99 ⁰	124 ⁰	—	1,825 ⁹	5.11 ²	0.32	0.33	P	34.9 ⁴
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaya	—	55 ⁴	—	—	—	—	0.8 ⁰	—	—	—	—	36 ⁰	1.87 ⁰	—	—	—	—
Manchuria	—	—	—	—	—	—	25.5 ²	—	—	—	—	100 ⁰	4 ¹	—	—	—	—
Mexico	—	—	8.1	—	1,052.8	p	0.9 ⁴	p	61.7	53.3	—	449	0.18	0.21	0.19	204.0	205.3
Morocco, Fr.	—	—	0.1	0.5 ⁴	—	—	0.2	—	0.5 ⁴	—	—	3 ¹	p	—	—	—	—
Neth. Indies	—	275 ⁴	—	—	—	—	2.0 ⁰	—	p	—	—	90 ⁰	—	—	—	—	—
New Caledonia	—	—	—	—	—	—	40.8	—	p	—	—	—	—	—	—	—	—
Norway	20.04	—	—	—	11.2 ³	0.4 ¹	—	—	14.5 ⁴	0.9 ⁴	—	p	0.26 ⁴	0.12 ⁴	—	p	p
Peru	—	—	0.7	—	1.3	—	0.2	p	28.8	25.5	—	180	—	—	—	39.8	40.0
Philippines	—	—	—	—	—	60 ¹	—	—	9.9 ¹	—	—	1,144 ¹	1.19 ⁰	—	—	P	—
Poland	—	—	—	—	49.2	—	21.0	0.9	—	—	—	—	1 ⁰	0.23	0.14	—	7
Portugal	—	—	p	—	—	1.5 ⁴	0.6	—	p	—	—	100	p	—	—	—	—
Rhodesia, No.	—	—	—	—	—	—	—	—	195.5	—	—	p	—	—	—	p	1.0 ⁴
Rhodesia, So.	—	—	0.2 ⁴	51.1	—	186.3	1.7	0.1	p	—	—	568	—	—	—	—	—
Sierra Leone	—	—	—	—	—	9.8 ⁴	—	—	—	—	800	33 ⁰	0.64 ⁴	—	—	—	—
South Africa	—	—	2	26	—	80.	21.9	0.2 ⁸	P	22.4 ⁴	1141	12,214	0.87	0.56	0.54	p	p
So. West Africa	—	—	—	—	180 ¹	—	—	—	16 ²	—	156	p	p	p	p	p	p
Spain	0.24	3.5	0.1 ⁴	p	—	—	11.9	0.9 ⁴	P	5.0	—	3	1.16	0.48	0.54	27.1	27.1
Sweden	2.5 ⁴	—	—	—	—	—	0.5	0.1 ⁰	18.8	18.8	—	74	7.25 ⁴	0.76	1.23	10.4	10.4
Thailand (Siam)	—	—	—	—	—	—	—	—	—	—	—	13 ⁰	—	—	—	P	—
Tunisia	—	—	—	—	—	—	—	—	—	—	—	—	0.09 ⁴	—	—	—	15.7 ¹
Turkey	—	—	—	0.2 ⁴	—	70	4.4	0.24	P	9.8	—	—	0.13	0.07 ⁴	—	0.9	—
United Kingdom	32.4	35	—	—	125 ⁸	0.5 ³	174.7	14.3 ⁴	P	4.5 ⁰	—	—	14	7.22	12.01	3.6	4.0 ⁴
United States	450.4	99.1	1.6	11.1	3,802.7	12.7	572.4	61.1	701.2	784.2	—	928	89.79	49.86	72.67	354.6	402.3
U.S.S.R.	86.3	400	p	p	50 ⁴	325 ⁵	154	9.9 ⁴	P	160 ²	—	5,200 ⁹	22.74 ¹	7.1 ²	17.96	P	125.7 ³
Venezuela	—	—	—	—	—	—	—	—	—	—	—	58	—	—	—	—	—
Yugoslavia	1 ⁴	150 ⁴	4.8 ⁰	p	—	65 ⁴	7.3 ¹	—	P	80 ³	—	75 ⁰	0.5 ¹	p	—	P	32.9 ⁰
World Total	916	3,926	32 ⁴	?	?	1,761 ³	1,597 ⁰	155 ⁰	?	2,200	14,257	23,930	245 ²	108 ⁰	?	?	1,715 ⁰

Country	Magnesian, Crude (Th.)	Manganese Ore (Th.)	Mercury (Th. Flasks)*	Nickel (Th.)	Petroleum (Mi. Bbl.)	Phosphorus Rock (Th.)	Platinum (Th. Oz.)	Potash (Th.)	Pyrite (Th.)	Salt (Mi.)	Silver (Th. Oz.)	Sulphur (Th.)†	Tin, in Ore‡	Tin, Smelter	Tungsten Conc.‡	Zinc, in Ore	Zinc, Smelter
Algeria	—	—	0.09 ⁴	—	—	220.34	—	—	32.9 ⁴	0.05 ⁴	0.02 ²	—	—	—	—	P	—
Angola	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Australia	23.1	13.3 ¹	0.01 ⁴	—	p	13.1 ¹	0.1	p	53.8 ⁴	0.02 ⁴	9.4	—	2.5	2.4	0.67 ⁴	136	85.1
Belgian Congo	—	—	—	—	—	—	4.2 ⁴	—	—	0.02 ⁴	2.50	—	17.1	10	0.32	20	—
Belgium	—	—	—	—	—	—	—	—	—	—	—	—	—	0.5	—	—	10.3
Bolivia	—	p	p	—	0.4	—	—	—	—	—	6.68	0.6	42.5	—	3.85	21.0	—
Brazil	244.6	—	—	0.9 ⁰	0.1	5.2 ⁴	—	—	—	0.45 ⁴	0.03 ⁴	—	—	—	2.24	—	—
Burma	—	—	—	0.8 ⁴	—	—	—	—	—	0.04 ⁸	1.23 ²	—	0.2	—	8.24 ⁰	p	p
Canada	—	—	—	—	8.6	0.3	317.6	—	206.6	0.62	12.87	—	0.4	0.4	—	231.1	165.3
Chile	—	72.5 ⁴	1.18 ⁴	—	—	50.8 ⁴	—	P	—	0.05	1.10 ⁴	30.4 ⁴	—	—	p	—	—
China	—	p	2.99 ⁴	—	0.5 ⁴	8 ⁰	—	p	—	3 ⁰	0.2 ³	—	1.5	1.0	8.99 ⁴	—	—
Colombia	—	—	—	—	22.8	—	35.1	—	—	0.12 ³	0.17	—	—	—	—	—	—
Czechoslovakia	—	—	2.58 ⁰	—	0.2 ⁴	—	—	—	10 ¹	0.68 ⁴	—	—	—	—	—	P	P
France	—	p	—	—	0.5 ¹	—	—	500.7 ⁴	171.9 ⁴	2.11 ⁸	0.10 ⁴	1.1 ⁴	—	—	0.06 ⁴	—	8.1
Germany	20	p	0.5 ²	0.6 ²	9.6	0.8 ²	—	1,925.5 ⁴	1,397 ⁰	3.72 ⁴	5.64 ²	—	1.0 ⁴	4 ⁴	—	P	290 ⁴
Gold Coast	—	512.5 ⁴	—	—	—	—	—	—	—	—	0.06	—	—	—	—	—	—
Greece	—	11.2 ⁰	—	—	—	—	—	—	—	0.03 ⁰	0.34 ⁰	p	—	—	—	—	—
Guiana, Brit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guiana, Neth.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hungary	—	22.2 ⁵	—	—	—	4.9	—	—	—	0.05 ⁰	—	—	—	—	—	—	—
India	42.6 ⁴	604.9 ³	—	—	2.5 ⁴	1.2 ³	—	3.4 ²	—	1.96 ⁴	0.02 ⁰	—	—	—	p	p	p
Indo-China	—	0.7 ⁰	—	—	24.4 ⁰	—	—	—	—	0.17 ⁰	p	—	0.2	—	39.0	p	p
Italy	13.7 ²	15.4 ⁴	40	0.1 ¹	0.1 ¹	—	10	p	102.5	1.48 ¹	0.81 ¹	80	0.2 ²	0.2 ²	p	p	p
Japanese Emp.	—	80 ³	0.7 ¹	—	3 ⁴	—	—	—	—	—	12.62 ²	P	1.7 ⁰	1.0	—	P	60.6 ⁴
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaya	—	11.7 ⁰	—	—	—	—	—	—	—	—	p	—	2	2.5	0.54 ⁰	—	—
Manchuria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mexico	37	16.44	—	—	43.5	—	—	—	—	0.74 ³	61.10	29.0 ⁴	0.2	0.2</			

Table III.—Value of Mineral Products of the United States

Year	(Millions of dollars)			Total
	Metallics	Fuels	Nonmetallics	
1938	892.6	2,820.3	650.3	4,363.2
1939	1,291.7	2,834.3	788.2	4,914.2
1940	1,678.6	3,116.5	812.8	5,613.9
1941	2,132.0	3,708.1	1,037.9	6,878.0
1942	2,363.9	4,103.4	1,109.0	7,576.3
1943	2,488.0	4,608.3	974.7	8,071.0
1944	2,340.0	5,178.0	901.0	8,419.0
1945	1,975.0	5,212.0	956.0	8,143.0

Increased petroleum production offset the drop in coal, and the postwar boom in building construction is reflected in the rise in value for nonmetallics. While there were some decreases in output in 1946, their effect on the valuation was expected to be reduced by the rise in prices under way during the latter half of the year. The *E. & M. J. Metal and Mineral Markets* weighted index of nonferrous metal prices, for example, after standing unchanged at 96.42 from Nov. 1945 through May 1946, rose to 107.16 in June and 117.11 in July, when the price control bill expired. The temporary renewal of control cut the index back to 113.32 in August and September, but in the last quarter it rose sharply, closing the year at 142.19, an increase of nearly half. (See also STRATEGIC MINERAL SUPPLIES and the reviews of the various metals and minerals.) (G. A. Ro.)

Mineralogy.

The papers presented at the Third Symposium on Diamonds, held in Boston Dec. 27, 1945, and published in the *American Mineralogist*, vol. 31, pp. 135-167, constituted major contributions in mineralogy. The list is as follows: "Diamond Production," by S. H. Ball; "Gem Diamonds," by Lazare Kaplan; "Bonded Diamond Wheel Applications," by A. A. Klein and C. R. Van Riper; "Vector Hardness in Diamond Tools," by Harry Whittaker and C. B. Slawson; "Observations on Orientation and Hardness Variations," by Horace Winchell; "The Preparation and Standardization of Diamond Powders," by Herbert Insley and B. L. Steierman; "Application of the High Voltage Arc to the Cutting, Sawing and Drilling of Diamonds," by C. G. Peters; "Controlled Electrolytic Drilling of Diamonds," by C. G. Peters; "Controlled Electrolytic Drilling of Diamond," by W. B. Emerson; and "Developments and Trends in the Use of Industrial Diamonds," by C. B. Slawson.

Reports concerning the discovery of the big, new Mwadui diamond mine in Tanganyika were confirmed by the department of lands and mines, South Africa. It is eight times larger than the famous Premier diamond mine near Pretoria. There were about 6,000 employees during 1946, mostly Africans, and 800 tons of diamond-bearing rock were treated daily. It was expected that 2,000 tons of rock would soon be handled.

New minerals were described as follows: tinctite, a hydrated iron phosphate from the Tintic Mining district, Utah, by Bronson Stringham (*American Mineralogist*, vol. 31, pp. 395-400); montbrayite, a gold telluride from Montbray township, Abitibi county, Quebec, by M. A. Peacock and R. M. Thompson (*ibid.*, vol. 31, pp. 515-526); pennantite, a manganiferous chlorite from the Benallt Mine, Rhiw, Carnarvonshire, Wales, by W. C. Smith, F. A. Bannister and M. H. Hey (*Mineralogical Magazine*, vol. XXVII, pp. 217-220). In his address, "Geological Mineralogy," K. K. Landes, as retiring president of the Mineralogical Society of America, urged that more attention be paid by mineralogists to paragenesis, that is, to the occurrence of minerals in the field (*American Mineralogist*, vol. 31, pp. 131-134).

The unprecedented demand for jewel bearings during World War II for use in meters, scientific instruments of all kinds, watches and so forth necessitated the development of industries for the manufacture of synthetic rubies and sapphires in the United States, Great Britain and Russia. Prior to the war, these

jewel bearings were produced in Switzerland, France and Germany, but that supply was cut off. Three informative and well-illustrated articles appeared in 1946: "Genuine and Synthetic Rubies and Sapphires," by A. E. Alexander (*Journal of Chemical Education*, vol. 23, pp. 418-422 and 459); "Man Makes Gems," by H. P. Rooksby (*Journal of Gemology*, May and June, pp. 288-291 and 355-356); "Synthetic Sapphire Production in U.S.A." (*Industrial Diamond Review*, vol. 6, pp. 80-82).

Revised Lapidary Handbook, by J. H. Howard (Greenfield, S.C.), is an enlargement of the author's *Handbook for the Amateur Lapidary*, published ten years before. The various phases of gem cutting are discussed in detail.

As the published results of researches in all phases of crystallography as related to physics, chemistry, mineralogy, metallurgy and biology are widely scattered in many journals, the organization of an International Crystallographic union was discussed in London during the summer of 1946 by leaders in modern crystallography. It was agreed to issue a journal to be called *Acta Crystallographica*, and Professor P. P. Ewald, of the University of Belfast, was selected as editor.

At the 1946 meeting of the Mineralogical Society of America, held in Chicago, Dec. 27, C. S. Ross, of the U.S. geological survey, was awarded the sixth Washington A. Roebling medal for meritorious achievement in mineralogy. (See also MINERAL and METAL PRODUCTION AND PRICES.) (E. H. Kr.)

Mining: see MINERAL AND METAL PRODUCTION AND PRICES. See also under separate minerals.

Minnesota.

A north central state of the United States, popularly known as the "Gopher state." Area, 84,068 sq.mi., of which 4,059 are water. Pop. (1940) 2,792,300. The urban population was 49.8% of the total. Capital, St. Paul (287,736). Other principal cities, Minneapolis (492,370); Duluth (101,065). The native born white inhabitants in 1940 numbered 2,474,078, foreign-born, 294,904 and Negro, 9,928. The bureau of the census estimated the civilian population of the state at 2,558,085 on July 1, 1943; 2,494,945 on July 1, 1944, and 2,484,993 on July 1, 1945. More than 320,000 Minnesota men and women were in military service during World War II. More than 262,000 had returned to civilian life by Dec. 31, 1946.

History.—Principal elective officials of the state in 1946 were: governor, Edward J. Thye; secretary of state, Mike Holm; treasurer, Julius A. Schmahl; auditor, Stafford King; attorney general, J. A. A. Burnquist. In Nov. 1946, Luther W. Youngdahl was elected governor for 1947-48; Edward J. Thye was elected U.S. senator.

The 54th session of the legislature met in regular biennial session in 1945. No special sessions were held during the interim. The 55th session convened on Jan. 7, 1947.

Education.—Contribution of the state to local schools, including income from trust funds and fixed income tax allotments, was expected to amount to \$49,103,549 for the biennium that began July 1, 1945. Total public school expenditures for the 1945-46 school year were \$67,201,568, compared with \$61,960,004 in the 1944-45 school year. In 1945-46, Minnesota had 8,196 elementary schools, 645 secondary schools, 6 public state teachers colleges and 11 junior colleges. Enrolment was 326,017, with 11,910 teachers in elementary grades; 162,524, with 7,776 teachers in the secondary grades; 1,726, with 118 teachers in junior colleges; 9,522, with 82 teachers in adult education classes; and 289, with 27 teachers in teacher training departments. Dean M. Schweickhard was commissioner of education.

Social Insurance and Assistance, Public Welfare and Related Programs.—The aid to dependent children average grant per case rose 6.8% from Nov. 1945 to Nov. 1946, while old-age

assistance and aid to the blind average grants per recipient case rose 7.8% and 8.1%, respectively, during the same period. During the year ending June 30, 1946, \$1,902,514 was spent on general relief, with the number of cases averaging 5,154; on old-age assistance, \$21,063,964, with the number of recipients averaging 54,291. A total of \$2,969,375 was spent on aid to dependent children, with the number of families aided averaging 4,778 and number of children helped averaging 12,132. An average of 946 persons shared in the total allowance of \$439,611 in aid to the blind. The state prison, two state reformatories and two training schools for delinquents had 2,181 inmates on June 30, 1946.

Communication.—Minnesota had, at the end of 1945, 11,237 mi. of state trunk highways and 102,004 mi. of other highways, excluding city streets. Expenditures of the state highway department for construction, maintenance and administration during the year ended June 30, 1946, were \$14,794,000 as compared with \$12,524,000 for the year ending June 30, 1945. The state highway building program, with federal aid, was expected to make possible \$74,000,000 in construction in the first three postwar years. Railway mileage at the end of 1945 was 9,080 mi. There were 45 licensed municipal airports. There were 7 seaplane bases, 65 privately owned public airports and 90 privately owned landing strips for private use.

Banking and Finance.—Resources of Minnesota banks reached a level on July 1, 1946, approximately 24% higher than the total on July 1, 1945. The 490 state banks, one mutual savings bank and four trust companies had deposits of \$846,012,000 and resources of \$898,844,000 compared with deposits of \$675,887,000 and resources of \$722,994,000 on July 1, 1945. The 181 national banks had deposits of \$1,960,700,000 and resources of \$2,083,326,000 on July 1, 1946, compared with deposits of \$1,869,395,000 and resources of \$1,980,701,000 on July 1, 1945. The state had 41 state building and loan associations on July 1, 1946, with resources of \$62,014,000 as compared with resources of \$50,930,000 on July 1, 1945. The 30 federal savings and loan associations had resources of \$152,767,000 on July 1, 1946, compared with resources of \$122,219,000 on July 1, 1945. Total operating disbursements of the state government (excluding public debt redemption, stores for resale, annuities and pensions, and land and interest in land) amounted to \$116,901,122 for the year ended June 30, 1946, as compared with \$105,662,555 for the year ended June 30, 1945. Outstanding state bonds and certificates of indebtedness were reduced \$8,476,298 during 1946 to a net of \$63,937,943, making a \$65,849,717 reduction in eight years. Four principal trust funds of the state, income of which is devoted largely to schools, reached \$152,611,122 on Dec. 31, 1946.

Agriculture.—Based on volume of production in 1946, Minnesota ranked third in corn; second in oats; first in flaxseed, alsike and sweet clover seed; fourth in spring wheat, barley, rye, all hay and timothy seed; sixth in soy beans; seventh in



LUTHER W. YOUNGDAHL, Republican, was elected governor of Minnesota Nov. 5, 1946

red clover seed; eighth in alfalfa seed and tenth in potatoes. Peak output in butter production was reached in 1941 when more than 326,000,000 pounds were manufactured in the state, and in 1945 production was 233,000,000 pounds. The downward trend in the first nine months of 1946 was checked and the trend turned upward compared with the previous year. For the calendar year 1945 cash receipts from farm marketings totalled \$858,647,000 with \$667,229,000 from livestock and livestock products and \$191,418,000 from crops.

*Leading Agricultural Products of Minnesota,
1946 and 1945*

Crop	1946	1945
Corn, all, bu.	239,888,000	216,299,000
Oats, bu.	192,168,000	242,640,000
Barley, bu.	21,257,000	12,963,000
Wheat, all, bu.	27,080,000	21,246,000
Potatoes, bu.	16,610,000	19,140,000
Flaxseed, bu.	9,303,000	11,737,000
Hay, all, tons	5,897,000	6,564,000

Manufacturing.—The 1939 U.S. census of manufactures listed 4,008 manufacturing establishments employing 92,084 persons. The *Guide Book to Minnesota Industry* published by the Minnesota Resources commission in 1946 included 5,850 manufacturing establishments. The number of employees in manufacturing industries in Nov. 1946 was estimated at 199,669, 11.7% higher than in Nov. 1945.

Mineral Production.—With more than 65% of U.S. production, an estimated 49,750,000 gross tons of iron ore was shipped from Minnesota mines in 1946 as compared with 62,830,000 gross tons in 1945. (R. B. J.)

Minnesota, University of. An institution of higher education at Minneapolis, Minn. Enrolment of regular collegiate students, which started upward in the fall quarter of 1944, continued the accelerated increase reported in 1945, and in the fall quarter of 1946 reached a figure of 27,103—two and one-fourth times that of the previous fall. By the fall of 1946 the percentage of women students had dropped precipitously from the 70% reported in 1944 and the 63% in 1945 to a new low of 27.4%. Veterans enrolled at the beginning of the fall quarter, 1946, totalled 16,428, 15 times the 1,096 enrolled a year before. Of this year's total, 680 were women. The college of science, literature and the arts, among the colleges of the university, enrolled the largest total, 9,751; the Institute of Technology was second with 5,313. A national educational conference featuring addresses by eminent leaders in American life was held April 23–25, 1946 in celebration of the inauguration of Dr. J. L. Morrill as eighth president of the university. Three new deanships were created during the year, this rank applying to the heads of the general college, the general extension division, and the office of admissions and records. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (J. L. ML.)

Minor League Baseball: see BASEBALL.

Mint, United States: see COINAGE.

Miquelon: see FRENCH COLONIAL EMPIRE.

Missions, Foreign. The foreign missionary enterprise of the Christian churches continued the recovery which had been begun in 1945. More missionaries returned to their posts and a number of new missionaries were sent. Additional ones were in preparation. In the United States several of the religious bodies were raising large postwar funds for reconstruction and advance, and of these substantial portions were earmarked for foreign missions. In Great Britain giving continued at high levels. Gains in funds, however, were more than offset by the rising costs of conducting missionary

operations and by the enormous amount of rebuilding needed in areas which had suffered from the destruction of war. In Japan the difficulty of obtaining housing and food stood in the way of sending many missionaries. However, a few returned. Moreover, the Japanese, prostrate in defeat, were singularly open-minded to the Christian message. The Protestant churches inaugurated a campaign to add 3,000,000 to their membership. In Korea in the U.S. zone, church activity revived and a few missionaries re-established residence. Little information came from the soviet zone. The Chinese scene was so large and varied that generalizations were difficult. Accurate statistics of loss or growth were not obtainable. Some Catholics declared that their numbers had increased during the war years. Others doubted this growth but believed that the life of their church had been deepened. Protestants had gained in some regions and held that, in general, their churches came out of the war stronger than when they entered it. In some areas, notably in those controlled by the Communists, missionary activity and the work of the churches were hampered or made impossible. Civil strife between the National government and the Communists created uncertainties and here and there impeded the churches and the missionaries. In the Philippines returning missionaries and the Filipino Christians were resuming their labours and were beginning to repair the extensive damage to congregations, schools and properties. A somewhat similar situation existed in Burma. In the East Indies the independence movement retarded the renewal of missions, especially in Java. Indeed, in that island, where Moslems were in the overwhelming majority, the struggle for independence had anti-Christian aspects. In India the movement for independence brought uncertainty as to the future of the churches. There, too, the intense nationalism, reflected as it was in the churches, wrought embarrassment for many missionaries. A Protestant conference in Africa brought African Christians and missionaries together for comprehensive planning.

(K. S. L.)

Mississippi. A southern state of the U.S.A., admitted to the union in 1817, popularly known as the "Magnolia state"; area, 47,716 sq.mi. (47,420 sq.mi. land and 296 sq.mi. water); pop. (1940), 2,183,796; capital, Jackson (62,107). Other cities: Biloxi (17,475); Greenville (20,892); Gulfport (15,195); Hattiesburg (21,026); Laurel (20,598); Meridian (35,481); Natchez (15,296); Vicksburg (24,460). Of the state's population in 1940, 432,882, or 19.8%, were urban. In 1940 there were 1,106,327 whites; 1,074,578 Negroes; 2,177,324 native born; 6,472 foreign born. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 2,175,877.

History.—For 1944-48 the elected officers of the state, chosen in the Democratic primaries in Aug. 1943, and in the general election of that year, were: governor, Thomas L. Bailey; lieutenant governor, Fielding L. Wright; secretary of state, Walker Wood; attorney general, Greek L. Rice; state tax collector, Carl N. Craig; state treasurer, Newton James; state auditor, Bert J. Barnett. The superintendent of education in 1945 was J. M. Tubb. Governor Bailey died Nov. 2, 1946. Lt. Gov. Fielding L. Wright succeeded to the governorship to serve until Jan. 1948. Oscar Wolfe became presiding officer of the state senate until Jan. 1948.

Education.—In 1946 there were 1,071 white elementary schools in Mississippi and 3,348 Negro elementary schools, a total of 4,419. The enrolment in elementary schools was 468,074, of whom 219,214 were whites and 248,860 Negroes. The state had 551 white high schools and 100 Negro high schools, with a total enrolment of 71,176 in 1945-46. There were 8,928 white elementary and high school teachers, and 6,236 Negro



FIELDING L. WRIGHT, Democrat, who succeeded to the governorship of Mississippi upon the death on Nov. 2, 1946, of Governor Thomas L. Bailey

elementary and high school teachers, a total of 15,164 teachers. The total enrolment in white elementary and high schools was 275,900; in Negro elementary and high schools, 263,350.

Social Insurance and Assistance, Public Welfare and Related Programs.—

From July 1, 1945, to June 30, 1946, the state department of public welfare paid \$5,209,078 to 30,787 recipients of old-age assistance; \$407,283 to 1,766 recipients of aid to the blind; and \$974,030 for aid to 4,054 families for 10,756 dependent children.

The department continued its regular program of child welfare services on all types of problems affecting children, particularly those children in rural areas. Special child welfare workers were assigned to ten county departments of public welfare, to the State Industrial and Training school and to the Negro Juvenile reformatory. The department of public welfare continued its service to the new parole board established by the 1944 session of the Mississippi legislature.

Through its division for the blind, the department maintained a program of sight conservation, restoration and services. It continued its program of training blind persons to work on factory-type sewing machines, making cloth bags of all sorts under government contracts. This division was also made the channel for federal funds for vocational rehabilitation of blind civilians.

Communications.—In 1946 the state maintained 6,583.7 mi. of highways. In 1945 the counties maintained approximately 54,000 mi.

In 1946 state maintenance expenditures were estimated at \$2,423,263.25; in 1945, \$2,039,610.75. In 1945 county expenditure for maintenance costs amounted to \$8,602,231.50.

The total mileage of railroads in the state on Dec. 31, 1946, was 3,924.02 mi.

Banking and Finance.—On Sept. 30, 1946, there were 179 state banks in Mississippi, with 22 branch banks and 31 branch offices. There were 24 national banks in Mississippi. The resources of the state banks were \$564,772,116.70 and the total deposits were \$532,102,500.23; the resources of the national banks were \$221,728,979.92 and total deposits were \$210,082,836.93.

The balance in the general fund account as of Jan. 1, 1946, was \$23,156,889.38; on Dec. 31, 1946, it was \$17,371,786.09. The special fund account as of Jan. 1, 1946, was \$8,131,891.17; on Dec. 31, 1946, it was \$20,276,912.75.

On Dec. 31, 1946, the full faith and credit debt of the state of Mississippi was \$16,943,000; outstanding highway bonds amounted to (payable from the gasoline tax) \$48,991,000 making a total state debt of \$65,934,000.

Agriculture.—In 1945 there were 264,704 farms, exclusive of urban farms. In 1944 the census showed that of the total land area 19,634,617 ac. were in farms, land in harvested crops being 6,474,360 ac. In 1945 receipts from farm marketing were \$293,406,000, of which \$210,158,000 were from crops and \$83,-

248,000 from livestock and livestock products; the value of farm products consumed in farm households was \$102,262,000. In 1945 the value of all crops was \$376,256,000.

Table I.—Leading Agricultural Products of Mississippi, 1945 and 1944

Crop	1945	1944
Cotton (500-lb. bales)	1,615,000	1,937,000
Cottonseed, tons	671,000	795,000
Corn, bu.	50,660,000	42,224,000
Oats, bu.	13,671,000	15,096,000
Hay, tons	1,185,000	1,139,000
Sweet potatoes, bu.	6,936,000	6,248,000
Sugar-cane syrup, gal.	3,910,000	3,630,000
Sorghum syrup, gal.	1,680,000	1,950,000
Peanuts, lb.	13,000,000	12,555,000
Pecans, lb.	6,000,000	8,300,000

Manufacturing.—The value of all manufactured products in Mississippi for the year 1945 was \$439,000,000.

The amount of wages paid in 1945 to persons employed in all industries employing 8 or more persons amounted to \$237,000,000 as against the amount of \$234,000,000 for 1944, and \$94,000,000 in 1939.

Mineral Production.—The total value of mineral production in 1944, including natural gas, sand and gravel and other mineral products, was \$18,988,000. In 1944 about 16,337,000 bbl. of petroleum were produced; in 1943, 18,807,000 bbl.

Table II.—Principal Mineral Products of Mississippi, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Natural gas	\$ 314,000	\$385,000
Sand and gravel	877,370	1,098,740
Petroleum	16,800,000	18,430,000
Other mineral products	397,115	564,065

In 1944, 1,200,000,000 cu.ft. of natural gas were produced; in 1943, 1,461,000,000 cu.ft.

On Dec. 31, 1946 there were approximately 740 producing oil wells in the state. (A. B. Bu.)

Missouri. A west north central state of the U.S.A., admitted to the union in 1821; popularly known as the "Show Me" state. Area 69,674 sq.mi. of which 404 are water. Pop. (1940) 3,784,664 (51.8% urban, 48.2% rural); 3,425,062 (90.5%) native white, 114,125 (3%) foreign-born white and 244,386 (6.5%) Negro. On July 1, 1945, the bureau of the census estimated the population of the state at 3,481,949. Capital, Jefferson City (1940 census) (24,268). Largest cities: St. Louis (816,048), Kansas City (399,178), St. Joseph (75,711), Springfield (61,238).

History.—On July 1, 1946, the administrative branch of the state government began to function under a new organizational structure, which was the result of the adoption of a new constitution in 1945. This organizational structure was effected by the provisions of the new constitution, reorganization acts passed by the 63rd general assembly and executive orders issued by the governor.

The 63rd general assembly (Jan. 3, 1945–Dec. 12, 1946) was in session 23 months and 10 days, the longest session on record, although the house met on only 230 legislative days and the senate on 253. Besides passing laws implementing the new constitution, the general assembly enacted legislation providing for the extension of the merit system of personnel administration, an enlarged forestry program, the giving of proof of financial responsibility of certain automobile drivers, decreases in personal income and general property taxes and increases in social security benefits.

In the election on Nov. 5, 1946, the Republicans made substantial gains in Missouri. The popular vote for U.S. senator was James P. Kem (Rep.) 572,556, Frank P. Briggs (Dem., incumbent) 511,544. Nine Republicans and four Democrats were elected to the national house of representatives, a Republican gain of three seats; the Democratic candidate from President Harry S. Truman's home district, who was supported by the

president, was defeated. The Republicans retained control of both houses of the state legislature.

The major state officers (1946), all Democrats, were: Phil M. Donnelly, governor; Walter N. Davis, lieutenant governor; Wilson Bell, secretary of state; Forrest Smith, auditor; Robert W. Winn, treasurer; James E. Taylor, attorney general.

Education.—For the school year ending June 30, 1946, the public school system consisted of 7,721 elementary schools, with 476,792 pupils and 16,803 teachers; 841 secondary schools, with 149,538 pupils and 6,198 teachers; 5 state teachers' colleges, with 7,396 students and 427 teachers; Lincoln university (Negro), University of Missouri, (Rolla) School of Mines and Metallurgy, schools for the deaf and blind and a Negro vocational school. In Nov. 1946, Hubert Wheeler was appointed state commissioner of education in accordance with the new constitution, succeeding Roy Scantlin, state superintendent of education.

Under the G.I. Bill of Rights and the Vocational Rehabilitation Act for Disabled Veterans, 54,424 veterans of World War II were enrolled in schools and colleges and 27,758 were receiving job training in Missouri on Dec. 31, 1946.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ending June 30, 1946, unemployment insurance totalled \$22,498,025, and the government employment services made 139,851 placements. For the same period old-age assistance amounted to \$32,030,620, aid to dependent children \$5,377,414, general relief \$2,271,776 and blind pensions \$1,068,585; the monthly average number of persons receiving old-age assistance was 102,092, aid to dependent children 33,068, general relief 21,238, blind pensions 2,863. During the year ending June 30, 1946, the state penitentiary had an average of 2,540 inmates per day; the reformatory and industrial schools, 960. In the same period expenditures for the penal and correctional institutions amounted to \$2,034,822.

Communications.—On Dec. 31, 1945, Missouri had 16,183 mi. of state highways and 100,629 mi. of rural roads. During 1945 the state highway department spent \$18,600,617 (state and federal funds), of which \$3,360,102 was for construction and \$6,213,868 for maintenance. On Dec. 31, 1944, railroad mileage totalled 6,882 mi. There were 893,470 telephones in use on June 30, 1946.

Banking and Finance.—On June 29, 1946, Missouri had 484 state banks, with deposits of \$2,001,854,000 and resources (loans and investments) of \$1,883,023,000; 81 national banks, with deposits of \$1,221,326,000 and resources (loans and investments) of \$1,254,854,000; 176 building and loan associations, with resources of \$188,081,248.

Total receipts of the state treasury during 1946 amounted to \$156,664,530; disbursements for 1946, \$147,268,242; gross state debt, Jan. 1, 1946, \$63,000,000 and net state debt, Dec. 31, 1946, \$57,000,000.

Agriculture.—During the first ten months of 1945 cash income from crops and livestock was \$576,209,000; during the same period of 1946, \$629,619,000. The value of Missouri's 1945 crops was \$381,290,000, and the value of Missouri's 1946 crops, harvested from 13,475,000 ac., was estimated at \$529,923,000. The crop production in 1946 was the largest in several years, principally because the growing season was the longest on record and the growing conditions were favourable throughout the season.

Table I.—Leading Agricultural Products of Missouri, 1946 and 1945

Crop	1946 (est.)	1945	Value, 1946
Corn, bu.	171,976,000	104,571,000	\$232,168,000
Alf hay, tons	4,214,000	4,504,000	67,124,000
Cotton, bales	305,000	180,000	51,240,000
Oats, bu.	60,884,000	28,709,000	49,925,000
Soybeans (for beans), bu.	14,360,000	9,360,000	38,054,000
Winter wheat, bu.	18,780,000	18,256,000	36,245,000

Manufacturing.—The number of persons employed in the manufacturing industries in Sept. 1945 was 306,600, or 28.8% less than the wartime peak of 430,500 in July 1943. The number of persons thus employed in Aug. 1946 was 332,000, or 8.3% more than in Sept. 1945.

In 1939, when the last U.S. biennial census of manufactures was taken, Missouri's industries manufactured products valued at \$1,388,056,267, employed 178,538 wage earners and 24,275 salaried persons and paid

Table II.—Principal Industries of Missouri, 1939 and 1937

Industry	Value of products	
	1939	1937
Meat packing (wholesale)	\$107,254,213	\$116,576,053
Footwear (except rubber)	100,346,106	103,253,379
Iron and steel (excluding machinery)	89,059,177	77,681,234
Wearing apparel	85,297,177	76,998,667
Malt liquors	41,412,301	34,272,016
Drugs, medicines	23,006,499	24,335,460

\$190,735,851 in wages and \$58,937,137 in salaries.

Mineral Production.—In 1945 the value of Missouri's mineral production was \$74,171,000, slightly more than in 1944, but less than the wartime peak of \$76,122,304 produced in 1942.

Table III.—Principal Mineral Products of Missouri, 1945 and 1944

Mineral	Value, 1945	
	Value, 1945	Value, 1944
Lead	\$30,370,900	\$27,949,280
Coal	10,098,000	12,315,606
Cement	6,134,452	4,881,516
Stone	6,055,747	5,312,384
Zinc	5,100,250	8,350,728
Lime	5,031,222	5,820,028
Clay (raw and products)	3,774,478	3,205,495

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Mohammedanism: see ISLAM.

Molasses: see SUGAR.

Molotov, Vyacheslav Mikhailovich (1890—), Russian statesman, was educated at Petersburg polytechnic and during his youth organized bolshevik student groups. He was appointed president of the soviet of people's commissars in 1930, was named foreign commissar May 3, 1939, succeeding Maxim Litvinov, and signed the nazi-soviet pact of nonaggression in Moscow, Aug. 24, 1939.

On May 6, 1941, Molotov resigned as premier of the U.S.S.R. and was succeeded in this office by Stalin; he remained as foreign commissar, however, and took over the vice-premiership. Three weeks after the German invasion of Russia, Molotov signed, July 13, the British-U.S.S.R. mutual-aid pact in which each nation agreed not to make a separate peace. He participated in the Stalin-Churchill parleys in Moscow that ended Oct. 18, 1944, attended the Yalta parley (Feb. 4-11, 1945) and headed the soviet delegation at the United Nations conference in San Francisco. The Russian foreign minister then attended the Berlin conference and represented the soviet union at the London Council of Foreign Ministers (Sept.-Oct. 1945). This conference ended in failure but a later meeting of Molotov, Byrnes and Bevin at Moscow in December was more successful and the Big Three reached agreement (Dec. 27, 1945) on a variety of problems.

Molotov represented his country at most of the major international conferences in 1946, and clashed frequently with delegates of the western powers. After the close of the first Paris council of foreign ministers, Molotov asserted (May 27) that the "Anglo-U.S. bloc" had waged an offensive during the conference in an effort to "impose its will" on the soviet union. On July 10, at the council's second session in Paris, he rejected secretary Byrnes' proposal for a four-power treaty to guarantee German disarmament for 25 years as "wholly inadequate." In speaking on Trieste before the Paris peace conference, Molotov warned, Sept. 14, that attempts "to form another bloc directed against peace-loving countries" would end as "the League of Nations did, in another world war."

Much of Molotov's alleged "intransigence" melted in the closing phases of the N.Y. council of foreign ministers and the United Nations sessions, and he made several important concessions to speed up their work. As he left for Moscow on Dec. 14, he expressed satisfaction with the accomplishments of the meetings.

Molybdenum. The following data on the molybdenum industry in the United States were reported.

Metal Content of Molybdenum Concentrates, 1939-46

	(In millions of pounds)						
	1939	1940	1941	1942	1943	1944	1945
Production	30.32	34.31	40.36	56.94	61.67	38.68	30.80
Shipments*	32.42	25.33	38.38	66.44	53.96	39.42	32.52
Consumption	?	?	16.9†	56.39	49.89	31.52	32.70
Stocks	?	?	?	?	20.16	23.31	21.65
Industrial	?	?	21.22	12.54	17.99	19.34	16.90
Metals Reserve	—	—	?	?	2.17	3.97	4.75

*Including exports. †Second half only. ‡First half.

A decline of about one-half in the war demand for molybdenum took place between 1942 and 1945, and with the ending of the war a similar drop began, bringing consumption in the first half of 1946 down to little more than 1,000,000 a month, against 2,640,000 lb. in the third quarter of 1945, 4,150,000 lb. in 1943, and 4,700,000 lb. in 1942. Production was maintained somewhat ahead of consumption, however, and stocks increased. Production in 1946 dropped back to the level of the mid-1930s.

(G. A. Ro.)

Monaco. A principality on the Mediterranean coast, bounded on the land side by French territory. Area: 375 ac. (.6 sq.mi.); pop. (census 1939): 23,975. Chief towns: Monaco, La Condamine, Monte Carlo. Language: French. Ruler: Prince Louis II.

By the beginning of 1946 plans were under way for restoring the tourist industry and the International Sporting club, and seasons of opera and ballet were re-opened at Monte Carlo. On July 24 Prince Louis II was married to Ghislain Dommanges, a naturalized citizen of Monaco. (J. R. A.)

Monazite. With reduced consumption of monazite in the United States and heavy government and industrial stocks, imports from India and Brazil were allowed to drop from 4,980 tons in 1943 to 384 tons in 1944, but rose to 549 tons in 1945. (G. A. Ro.)

Monetary Units: see EXCHANGE CONTROL AND EXCHANGE RATES.

Mongolia (OUTER AND INNER). A vast, arid, sparsely settled tableland in northeastern Asia. The portion next to the Great Wall of China and south of the Gobi desert is known as Inner Mongolia; it is a part of China. Outer Mongolia, north and west of Inner Mongolia, is an independent nation. Area: 956,844 sq.mi. Pop. (estimated) between 6,000,000 and 8,000,000. Mongolia has a short but extremely hot summer season and extremely cold winters of approximately eight months' duration. Lack of water, type of soil and the short growing season make agriculture impossible in the greater part of the area. The chief industry is grazing and the Mongols live a nomadic life, moving wherever water and pasture are available. Religion: Lamaism, a variety of Buddhism. Thirty per cent of the male population live in lamaseries (monasteries).

Outer Mongolia.—Pop. (est. 1941), 900,000. Capital, Ulan Bator (formerly Urga) (100,000). Mongolia declared its independence from China in 1912 at the time of the fall of the Manchu dynasty. Agreements with Russia in 1912 and 1914 made Mongolia, in effect, a Russian protectorate. In 1915 the treaty of Kiachta, signed by representatives of the three countries, recognized limited Chinese suzerainty and local autonomy.

In the treaty negotiated by the U.S.S.R. and China in Aug. 1945 China agreed to recognize the independence of Outer Mongolia if the people of the country indicated that this was in accordance with their wishes. A plebiscite in Oct. 1945, witnessed by a Chinese delegation, resulted in a unanimous vote in

favour of independence. China officially recognized the independence of the Mongolian People's republic on Jan. 5, 1946. In Feb. 1946 the Mongolian People's republic concluded an "amity pact" with China and an "agreement of friendship and mutual assistance" with the U.S.S.R. Outer Mongolia had not exchanged envoys with any foreign nation with the probable exception of the U.S.S.R. In Aug. 1946 a five-man delegation arrived in New York to support the application for membership in the United Nations. The application for membership was voted down by the United States, Great Britain and the Netherlands.

Economic and Social Developments.—Information in regard to Outer Mongolia is limited to soviet sources. Land, natural resources, factories, mines, banks, haymaking stations and public utilities are nationalized. In 1941 there was a total of 27,000,000 head of cattle; there were 163,000 ac. under cultivation. State co-operatives produced goods valued at 64,000,000 tugriks (90 kopeks) in 1941, and in 1940 handicraft co-operatives turned out goods valued at 19,000,000 tugriks. Power plants, automobile repair shops, coal mines and modern print shops were established. In 1944 there were 285 primary schools, 36 secondary schools, 8 technical schools and 190 nomad schools.

Government.—The constitution drafted in 1940 established a government strikingly similar to the soviet system of Russia. The supreme organ of the state is the Great Hural which is elected by the hurals of the provinces and the hural of Ulan Bator. The constitution specifies that it must meet at least once in three years. A second body, known as the Little Hural, is elected by the Great Hural and serves as the supreme organ of government when the former is not in session. The Little Hural chooses a presidium of seven members which functions in its place when it is not in session. The administrative functions are carried on by a council of ministers whose membership consists of the heads of the ten departments of government. Local government is based on a system of hurals of the various geographical subdivisions. All men and women 18 years of age or over have the right to vote.

Inner Mongolia.—Inner Mongolia includes Jehol, Chahar, Suiyuan and Ningsia, provinces along the northern border of China. Large numbers of Chinese migrated to Inner Mongolia where they reside in the cities or on the farms. The Mongols predominate in the grazing areas.

The strategic location of Inner Mongolia led to its occupation by Japan in 1937, allegedly as a move to forestall soviet penetration. Japan organized the area into a new state, Mengjiang. With the surrender of Japan in Aug. 1945, Chinese Communist forces occupied Chahar and Jehol. Kalgan, the capital of Chahar and an important railroad centre, was termed a "second Yenan," many Communist activities being centred there. In Sept. 1946 the Chinese nationalist forces made a drive toward Kalgan. The Communists announced that a continuance of the drive would result in open civil war. The nationalists agreed to a ten-day truce as suggested by the representatives of the United States. Communist spokesmen insisted on an indefinite truce. The result was a new drive on Kalgan and, on Oct. 11, the nationalists announced the capture of the city. At the close of 1946 eastern Inner Mongolia, including Chahar and Jehol, were largely under the control of the Communists although the nationalists had captured a number of important cities in Jehol and the capital of Chahar. Suiyuan and Ningsia, the provinces farthest west, were in nationalist hands.

According to Chinese estimates, the population of Inner Mongolia was more than 7,000,000. Principal products of the area are wool, furs, coal, iron, opium, cereals and linseed.

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Montana. A northwestern state of the United States, popularly known as the "Treasure state." Land area 146,316 sq.mi.; water area 822 sq.mi.; pop. (1940): 559,456 (1946 est., 547,800); principal cities (1946 pop. est.): Helena (16,700); Butte (37,000); Great Falls (36,000); Billings (26,200); Missoula (21,500); Anaconda (12,100); Bozeman (10,400). Of the total population in 1940, there were 540,468 whites, of whom 484,826 were native-born and 55,642 were foreign-born. The urban population was 211,535 or 37.8%. The Indian population numbered 16,841.

History.—Incumbents in the principal state offices in 1946 were: Sam C. Ford (Rep.), governor; Ernest T. Eaton (Rep.), lieutenant governor; Sam W. Mitchell (Dem.), secretary of state; R. V. Bottomly (Dem.), attorney general; George P. Porter (Rep.), treasurer; John J. Holmes (Dem.), auditor; Elizabeth Ireland (Rep.), superintendent of public instruction. In the 1946 elections the veteran statesman Burton K. Wheeler, seeking a fifth term in the United States senate, was defeated in the primary by former Associate Justice Leif Erickson who in turn lost in the general election to Zales Ecton (Rep.). Mike Mansfield (Dem.) and Wesley D'Ewart (Rep.), were re-elected representatives in congress. Paul T. Smith (Dem.), was elected railroad and public service commissioner, and Frank Murray (Dem.), clerk of the supreme court. Hugh Adair and Lee Metcalf were elected to the supreme court on a non-partisan ticket. Elections for the state legislature returned strong Republican majorities in both houses.

Education.—There were 1,480 elementary schools in Montana in 1946, with an enrolment of 68,137 and a teaching staff of 3,365. There were 187 high schools with 25,389 students and 1,326 teachers. The net amount spent on the operation of these schools was \$15,509,990. In 1946, Governor Ford appointed a commission of nine members to make a statewide study of public elementary and secondary schools whose report, submitted in November, called for sweeping changes in school district organization and financing methods.

Social Insurance and Assistance, Public Welfare and Related Programs.—Approximately 18,000 persons received public assistance in 1946. Grants totalling \$6,109,811 were distributed as follows (figures in parentheses indicate the average number of recipients per month): Old-age assistance (10,675) \$4,294,158; aid to dependent children (5,213) \$960,192; aid to needy blind (357) \$156,492; subsistence (1,125) \$346,747; medical care (287) \$49,399; hospitalization (334) \$274,253; burials (36) \$28,571. Unemployment benefits of \$1,077,800—almost 15 times the amount for 1945—were paid to 11,500 persons, an average of \$13.40 per week for 6.87 weeks, or \$92 per claimant. Correctional institutions with their average populations and total expenditures in 1946 were: Montana State prison, 336 inmates, \$249,206; State Industrial school, 72 inmates, \$77,408; Vocational School for Girls, 63 inmates, \$53,444.

Communications.—In 1946, the state highway commission maintained 8,430 mi. of highways, of which 1,217 mi. were unsurfaced. State highway expenditures in 1946 were \$7,269,045, including federal aid. There were 95 designated airports, of which 26 were suitable for large commercial or military aircraft. The railway mileage was 5,235 mi. The number of telephones was estimated at 89,802.

Banking and Finance.—There were 110 banks in the state in 1946. The 39 national banks had total deposits of \$263,042,000. and their total assets were \$275,192,000. State banks had total deposits of \$234,501,489, and their total assets were \$244,982,138. There were 16 building and loan associations with assets of \$16,924,727. For the fiscal year 1945-46, the net state income was \$35,813,921 and the total expenditures \$29,975,893. The gross debt of the state on July 1, 1946, was \$8,360,000 and the

net debt, \$4,729,432.

Agriculture.—Early season handicaps of dry weather and late freezes were largely overcome by abundant July rains and the total value of crops harvested in Montana in 1946 was approximately \$39,000,000 more than in 1945, and more than double the average value for the ten preceding years. Greater production of most crops and sharply increased prices boosted the farm income to a high peak of \$209,523,000 as compared with \$160,681,000 in 1945, and \$91,807,000 for the 1935-44 average. A \$30,000,000 increase in the main crop, wheat, was responsible for most of the rise in total value.

Table I.—Leading Agricultural Products of Montana, 1946 and 1945

Crop	1946	1945
Wheat, bu.	62,395,000	57,145,000
Hay, tons	2,438,000	2,767,000
Barley, bu.	18,000,000	14,784,000
Sugar beets, tons	916,000	865,000
Oats, bu.	10,509,000	9,367,000
Corn, bu.	2,520,000	2,295,000
Potatoes, bu.	2,080,000	1,650,000
Alfalfa seed, bu.	120,000	120,000
Mustard seed, lb.	38,200,000	25,200,000
Dry beans, 100-lb. bags	322,000	234,000
Flaxseed, bu.	490,000	1,312,000
Seed peas, 100-lb. bags	348,000	360,000

Manufactures.—The total value of manufactures (1939 census) was \$151,885,026. Total employment in 1939 was 10,898, and wages and salaries paid, \$15,832,241. Reports of the unemployment compensation commission of Montana showed that an average of 15,000 persons (wage and salary earners) were employed in manufacturing in 1946 with total wages of about \$35,000,000.

Table II.—Industrial Products in Montana, 1945 and 1944

Products	1945	1944
Cheese, lb.	4,172,438	3,940,502
Butter, lb.	9,899,081	11,807,544
Powdered milk, lb.	47,955	44,000
Ice cream, gal.	1,588,491	1,455,590
Beet sugar, tons	128,000	109,000
Flour, sacks	3,426,383	2,946,559
Mill feed, lb.	132,996,509	110,900,405
Beer, bbl.	265,000	251,912
Gasoline, gal.	159,491,392	171,452,175

Mineral Production.—In spite of a 54% rise in gold production, mainly because of the resumption of dredge operations by a number of companies, the total value of the five principal metals produced in Montana declined 18% from \$35,405,505 in 1945 to \$28,974,160 in 1946. Silver production declined 47% below that of 1945; copper 36%; lead 11% and zinc 9%. Insufficient manpower and labour difficulties were the principal factors responsible for these reductions.

Table III.—Principal Mineral Products of Montana, 1946 and 1945

Mineral	Value, 1946	Value, 1945
Copper	\$18,305,700	\$23,896,620
Zinc	3,918,000	4,002,690
Silver	2,561,360	4,225,472
Gold	2,401,000	1,560,895
Lead	1,787,700	1,719,828
Total value	\$28,974,160	\$35,405,505

Crude oil production amounted to approximately 8,885,000 bbl. in 1946, about 500,000 bbl. more than in 1945. Coal tonnage produced in Montana during 1946 was 3,561,203 tons, as compared with 4,441,174 tons for 1945. (E. E. B.)

Montenegro: see YUGOSLAVIA.

Montgomery, Bernard Law, 1ST VISCOUNT, OF ALAMEIN (1887—), British army officer, was born Nov. 16. He joined the Royal Warwickshire regiment as a second lieutenant in 1908, and fought in France during World War I. A month before the outbreak of World War II, in Aug. 1939, he was appointed to command the third division which went to France with the B.E.F., and helped evacuate his troops from Dunkirk in June 1940. In the summer of 1942, Lt. Gen. Montgomery was made commander of the British 8th army. Under "Monty's" leadership, the 8th army

turned back the Afrika Korps at El Alamein in Oct. 1942, and chased Rommel into Tunisia. On Feb. 11, 1943, Montgomery's forces were placed under Gen. Eisenhower's unified command.

Montgomery, who was promoted to a field marshal supernumerary in 1944, played a major role in the conquest of Tunisia (1943), the invasion of Sicily and Italy (1943), the landings in France (1944) and the final battles in Germany (1944-45). He was appointed chief of the British occupation forces and British member of the Allied Control commission in Germany, May 22, 1945. Elevated to the peerage (Jan. 1, 1946) as Viscount Montgomery of Alamein, he was named chief of the Imperial General staff (April 30, 1946). He visited Washington, D.C., in September, declaring that he was studying U.S. army training methods. Early in Jan. 1947, Montgomery visited Premier Stalin in Moscow.

Montreal. A city in the province of Quebec, Canada, first called Ville Marie, founded in 1642 on the site of the Indian village of Hochelaga, Montreal is on an island at the confluence of the Ottawa and St. Lawrence rivers, approximately 1,000 mi. from the Atlantic ocean and 2,760 mi. from Liverpool. Being at the head of ocean navigation, it is the terminus for lake vessels from the Great Lakes and is served by three canal systems—the St. Lawrence canals (1,230 mi. to the Great Lakes), the eastern United States canals, via the Richelieu river and Lake Champlain (length 127 mi.) and the Ottawa river canals (length 119 mi.).

The population of the city proper, as estimated by *Lovell's Directory* (Nov. 1946) was 1,360,638, and of greater Montreal 1,574,666.

The city is governed by a mayor and a council of 99 members, of whom one-third are appointed by public bodies, one-third elected by the property owners and one-third by the citizens generally. The mayor is elected by the citizens. The council appoints from among its members six councillors to act as an executive committee. Greater Montreal is supervised by the Metropolitan commission, on which the city and suburban municipalities are represented.

The port of Montreal is the largest in Canada. Deep-sea-vessel arrivals in 1946 numbered 749, with a net tonnage of 2,819,166. The number of coastal- or inland-vessel arrivals in 1946 was 207, with a net tonnage of 176,025.

The assessed value of real estate, as of April 30, 1946, was \$1,281,313,440, of which \$937,763,173 was taxable and \$343,550,267 was exempt from taxation.

In 1946 building permits were issued for 3,751 new buildings (other than dwellings), having a value of \$42,696,160 and for 2,703 repairs (other than of dwellings), having a value of \$10,487,365. In addition, building permits were issued for 5,587 new dwellings and for 271 repairs of dwellings.

Bank debits for 1946 were \$18,828,185,425 and bank clearings \$11,451,090,860. (J. A. MA.)

Montreal, University of. One of the two great centres of French culture on the American continent. During 1946 an institute of experimental medicine and surgery was created by the faculty of medicine. A school of hygiene offering postgraduate courses for the preparation of public health officers followed. Other initiatives were the launching of two trimestrial bilingual reviews (French and English) entitled *Bulletin de la faculté de médecine de l'université de Montréal* and *Revue de psychologie*. Advanced postgraduate courses to vulgarize modern methods were amplified by the faculty of dental surgery, thanks to a generous appropriation of the Kellogg foundation. To keep in step with the evolution of after-war exigencies, a department of industrial relations in the

faculty of social science and an optical institute for scientific and technical teaching were also created. The faculty of letters was enriched with two promising institutes of history and geography respectively, thus promoting abundant research in these fields.

There were received during the year several much-appreciated minor gifts and an endowment of \$100,000 by Albert Hudon to the faculty of commerce. (O. M.)

Montserrat: see LEEWARD ISLANDS.

Mormons. **Welfare Work.**—Besides furnishing help in food, clothing, heat and shelter to about 38,671 of its needy members in the United States (principally in the Rocky mountain and Pacific coast states), the church was distributing to its needy members resident in the war-stricken countries of Europe in 1946 more than 47 carloads of food and clothing and, in addition, more than 4,500 packages of vitamins. Of the total shipment, 12 cars of clothing (carload lots), which included 679,404 pieces of clothing and 43,262 pairs of shoes, were assigned to Belgium, Czechoslovakia, France, Germany, the Netherlands and Norway and 28 cars of food to the same countries, which included 500,000 cans of vegetables, nearly 250,000 cans of fruits, more than 50,000 cans of meat, more than 130,000 cans of evaporated and dried whole milk, more than 23,000 cans of pork and beans, more than 300,000 lb. of cracked wheat and considerable quantities of jam, honey and sorghum, together with soap (nearly 17,000 bars) and soap powder (168 packages). The great bulk of the material sent was either produced by the Welfare plan operations or were the voluntary contributions of church members. A very small proportion was acquired by purchase from the public stockpiles. The church had begun shipments to its members in Japan.

Buildings.—The building of meeting houses, with recreation halls attached, was carried on as rapidly as materials could be secured. The plans for many other units were approved and funds for their erection were raised and appropriated. Work thereon was to begin at the earliest practicable moment. It was decided to push the building of a temple in Los Angeles during 1947.

Missions.—The European missions were reopened during the year in Switzerland, Czechoslovakia, France, the Netherlands, Belgium, Sweden, Norway and Great Britain; and arrangements were made for beginning work in the occupied European areas as soon as this would be permitted. Plans were also forming for opening a mission in Japan and in China. The missions in the islands of the Pacific, including Australia, New Zealand, Samoa, Tonga, Tahiti and Hawaii, were consolidated under one head. Increased missionary work was planned for the Indians of the United States and among the peoples of Latin America.

Centennial.—July 24, 1947, would mark the 100th anniversary of the arrival of the Mormon pioneers in the Salt Lake valley. Elaborate plans were maturing during 1946 for the celebration of this event in 1947. (See also CHURCH MEMBERSHIP.)

(J. R. CL.)

Morocco: see FRENCH COLONIAL EMPIRE; SPANISH COLONIAL EMPIRE.

Morrison, Herbert Stanley (1888–), British statesman and lord president of the council, was born at Brixton, London, on Jan. 3, 1888. After leaving school at 14 he worked at a variety of jobs until 1913, when he took up politics as a full-time occupation, first as a journalist and then as secretary to the London Labour party. He became mayor of Hackney for one year in 1919, and

in 1922 was elected to the London county council, which was the main sphere of his activities and influence for 18 years. Having been a member of parliament during the years 1923–25, 1929–31 and from 1935 onward, and minister of transport in the second Labour government, he became in May 1940 one of the three Labour members of the Churchill coalition government as minister of supply. In Oct. 1940 he became home secretary and minister of home security, and in 1941 he was admitted to the war cabinet. In the Labour government which came into power in 1945 he held a prominent position as leader of the house of commons and lord president of the council. It was in the latter capacity that he visited Washington on May 11, 1946, to discuss with President Truman measures for combating the world food crisis, and while in the U.S. he broadcast a speech on the world food situation; he attended similar discussions in Ottawa and returned to England on May 21. In June he attended the Labour party conference at Bournemouth, where he was among the first to reject the Communist party's application for membership.

Mortgages, Farm: see AGRICULTURE; FARM CREDIT ADMINISTRATION.

Mortgages, Home: see HOUSING.

Moscow. In 1946 the execution of the five-year plan, voted in March, was only in its initial stages, and results in Moscow were not yet spectacular. The largest developments provided by the five-year plan for Moscow concerned the construction of motor vehicles, machine tools, diesel engines, electrical equipment, etc. A further expansion of the textile industry of the Moscow province, which already accounted for 40% of the textile production of the soviet union, was planned. The total industrial production of the Moscow province represented 20% of the country's total in 1946. A 30% increase in the total industrial production of this province was contemplated for 1950. Much less ambitious, under the first postwar five-year plan, were the plans for the expansion of housing in Moscow, only 3,000,000 sq. metres of new living space being provided for, enough to house approximately 300,000 persons, although the 1946 population of Moscow had risen to nearly 7,000,000 from 4,200,000 in 1940. No spectacular town planning for Moscow was provided for under the five-year plan.

In 1946 the important gas main bringing natural gas from Saratov to Moscow was completed and came partially into operation. City transport continued to be extremely crowded and inadequate. Numerous repairs were done to historic buildings including the gilding of the Kremlin domes, but house-building and ordinary house repairs were slow owing to shortage of labour, timber and other building materials.

Agriculture in the Moscow province concentrated, as before, on potato and vegetable growing and dairy farming. Horned cattle numbered 526,000 on Jan. 1, 1946, as against 448,000 on Jan. 1, 1941. Grain crops in 1946 suffered severely from drought, but the potato and vegetable crops were fair. In the early part of the year there was visible progress towards prewar living standards, but, as a result of the bad harvest, rations became both dearer and smaller by autumn.

The centre of soviet diplomatic activity during the year largely shifted from Moscow to Paris and New York, with Vyacheslav Molotov abroad a large part of the year. 1946 saw the first full-fledged May-day parade after prewar days: it lasted for eight hours, with Generalissimo Joseph Stalin present in the Red square.

The most notable Moscow trials were those of former General Andrey Vlasov and other traitors, held *in camera*, and that of the Cossack former general, Ataman Semyonov, and seven other

émigrés convicted as Japanese agents, which was public.

(A. WH.)

Motion Pictures. It was estimated that 1946 box office grosses exceeded even those of 1945, some authorities placing the figure in the vicinity of \$1,750,000,000. Record earnings of film companies were ascribed in large part to repeal of the federal excess profits tax, helped by rising attendance, advances in admission prices and increased receipts from foreign trade.

Expense of production rose all along the line—higher wages, advanced costs of materials, greater prices paid for film rights to books and plays, more extensive use of colour film and lengthened “shooting” schedules for pictures. It was estimated that the prewar average of 40 to 50 days for producing a picture increased to 87 days.

In general, quality rose with costs. Budgets of \$1,000,000 to \$1,500,000 came to be considered average for “A” features, and a number of productions ran into several millions. There was a corresponding movement away from “B” or “filler” pictures.

At the same time, several of the major companies, feeling that a drop in theatre attendance was impending, began retrenchment programs which affected hundreds of technicians and artists. A reduction in the heavy salaries paid the performers, particularly those just below the rank of stardom, was considered inevitable if this economy movement continued and more players were thrown on the open market.

In addition to its domestic troubles, of which factional labour strife was foremost, the industry found it necessary to deal in detail with the complicated and varied aspects of the foreign market situation. With practically all foreign countries imposing some form of restriction upon film imports and dollar exports, the U.S. industry sought world freedom of exhibition.

For the first time, there was the prospect of real competition to U.S. pictures abroad. British production, paced by J. Arthur Rank, was viewed by many U.S. executives as a growing encroachment upon Hollywood pre-eminence in world markets. Rank's motion picture activities continued to ramify. They included an affiliation with U.S. companies such as Universal-International and Eagle-Lion. Spectacles such as *Henry V* and *Caesar and Cleopatra*, produced with Hollywood lavishness in Great Britain, attracted wide U.S. attention when released by Rank through United Artists.

Labour difficulties again troubled the industry. The paper settlement of the controversy between the International Alliance of Theatrical Stage Employees (American Federation of Labor) and the Conference of Studio Unions (predominantly A.F. of L.) in 1945 after an eight-months strike by the C.S.U. did not bring labour peace. Uneasy conditions continued. A 2-day strike by the C.S.U. in July 1946 ended with a 25% pay raise for studio employees generally. In September, the C.S.U. went out in another strike which was still in progress at the year's end.

As in the 1945 strike, production was not halted, but made more burdensome and expensive. The release print situation was adversely affected when the technicians' local of the I.A.T.S.E., in defiance of its international leaders, joined the strike. For a time there was some delay in the manufacture of black and white prints, and release of a number of high-budgeted colour pictures was held up pending ability to obtain prints.

The year was featured by two other instances of internal industry strife. Howard Hughes, producer of *The Outlaw*, became involved with the Motion Picture Association of America in a contest upon which hinged, in the opinion of some observers, the fate of the industry's self-regulation of its product through the Production Code administration. The controversy, centring around Hughes's use of advertising material without

submission to that organization, resulted in the producer taking court action against the M.P.A.A. Meanwhile, *The Outlaw*, which met with a number of local censorship difficulties, scored heavily at box offices in its runs.

David O. Selznick broke with Mary Pickford and Charles Chaplin, his colleagues of United Artists, and his connection with that organization was severed. He announced formation of his own releasing company, Selznick Releasing organization, and late in the year filed suits aggregating \$13,500,000 against Miss Pickford, Chaplin and United Artists.

The long-drawn-out controversy with the U.S. government over industry trade practices continued. The U.S. district court in New York, which in 1945 had heard the government's anti-trust action against eight motion picture companies, announced its findings in June 1946. New methods of distributing pictures were prescribed, but general divorcement of theatre ownership, as asked by the government, was not ordered. At the end of the year the court handed down its final decree, embodying some changes. Appeal by both sides seemed to be in prospect.

The most important structural change of the year was the merger of Universal and International (William Goetz and Leo Spitz), an independent organization, the resultant company becoming Universal-International.

The year was notable for the number of exceptional foreign films shown in the United States. Imported products included *Henry V*, *Brief Encounter*, *Stairway to Heaven*, *The Wicked Lady*, *Caesar and Cleopatra*, and *The Seventh Veil* (British); *The Well-Digger's Daughter* (French); and *Open City* (Italian). *Henry V* was chosen as the best picture of the year by the National Board of Review.

Also at year's end more and bigger Hollywood pictures were in competition for honours from the Academy of Motion Picture Arts and Sciences than ever before. Included among the outstanding films receiving attention were *The Best Years of Our Lives*, *The Yearling*, *The Jolson Story*, *The Razor's Edge*, *Duel in the Sun*, *It's a Wonderful Life*, *The Green Years*, *Till the Clouds Roll By*, *To Each His Own*, *Deception*, *The Dark Mirror*, *Anna and the King of Siam* and *Notorious*.

The annual critics' poll of the *Film Daily* gave the following as the “ten best” pictures of 1946: *The Lost Weekend*, *The Green Years*, *Anna and the King of Siam*, *The Bells of St. Mary's*, *Spellbound*, *Saratoga Trunk*, *Henry V*, *Notorious*, *Leave Her to Heaven* and *Night and Day*.

The New York film critics picked *The Best Years of Our Lives* as the year's best picture, with William Wyler, its director, winning the directorial award. British players won both awards for performances, Laurence Olivier being voted the best actor for *Henry V* and Celia Johnson the best actress for *Brief Encounter*. The foreign picture award went to *Open City*.

The Production Code administration in 1946 approved 397 U.S. feature pictures, as against 359 in 1945. Foreign pictures receiving the P.C.A. seal in 1946 totalled 28 (1945—31).

Important new screen personalities to emerge in 1946 included Burt Lancaster, Robert Mitchum and Claude Jarman, Jr. Among British players to find favour with U.S. audiences during the year were Deborah Kerr, James Mason and Ann Todd.

The 1946 poll of exhibitors by the *Motion Picture Herald* placed Bing Crosby as the top box office star for the third successive year. The ten leading box office stars according to this poll are:

- | | |
|--------------------|----------------------|
| (1) Bing Crosby | (6) Humphrey Bogart |
| (2) Ingrid Bergman | (7) Greer Garson |
| (3) Van Johnson | (8) Margaret O'Brien |
| (4) Gary Cooper | (9) Betty Grable |
| (5) Bob Hope | (10) Roy Rogers |

Academy of Motion Picture Arts and Sciences awards for 1945: Best picture, *The Lost Weekend*, Paramount; performances: actor, Ray Milland in *The Lost Weekend*; actress, Joan Crawford in *Mildred Pierce*,

Warner Bros.; supporting actor, James Dunn in *A Tree Grows in Brooklyn*, 20th Century-Fox; supporting actress, Anne Revere in *National Velvet*, Metro-Goldwyn-Mayer; best direction, Billy Wilder for *The Lost Weekend*; best written screen play, Charles Brackett and Billy Wilder for *The Lost Weekend*; best original screen play, Richard Schweizer, for *Marie-Louise*, Praesens (Swiss); best original motion picture story, Charles G. Booth for *The House on 92nd Street*, 20th Century-Fox; best art direction—black and white—Wiard Ihnen for *Blood on the Sun*, Cagney, United Artists; colour, Hans Dreier and Ernst Fegte for *Frenchman's Creek*, Paramount; best cinematography—black and white—Harry Stradling for *The Picture of Dorian Gray*, Metro-Goldwyn-Mayer; colour, Leon Shamroy for *Leave Her to Heaven*, 20th Century-Fox; best sound recording, Stephen Dunn for *The Bells of St. Mary's*, Rainbow, RKO; short subjects—cartoon, *Quiet, Please*, Metro-Goldwyn-Mayer (Frederick C. Quimby, producer); one-reeler, *Stairway to Light*, Metro-Goldwyn-Mayer (Herbert Moulton, producer; Jerry Bresler, executive producer); two-reeler, *Star in the Night*, Warner Bros. (Gordon Hollingshead, producer); best film editing, Robert J. Kern for *National Velvet*; best scoring of a musical picture, Georgie Stoll for *Anchors Aweigh*, Metro-Goldwyn-Mayer; best scoring of a dramatic picture, Miklos Rozsa for *Spellbound*, Selznick International; best song, "It Might as Well Be Spring" from *State Fair*, 20th Century-Fox (music by Richard Rodgers, lyrics by Oscar Hammerstein II); best special effects, *Wonder Man*, Beverly, RKO (John Fulton for photography; Arthur W. Johns for sound); best interior decoration—black and white—A. Roland Fields for *Blood on the Sun*; colour, Sam Comer for *Frenchman's Creek*; documentaries—feature, *The True Glory*, governments of Great Britain and the United States of America; short subject, *Hitler Lives!*, Warner Bros. (Gordon Hollingshead, producer); special awards, Walter Wanger for his six years' service as president of the academy; Peggy Ann Garner, outstanding child actress of 1945; *The House I Live In*, tolerance short subject, RKO. (L. O. P.)

Technical Developments.—The American Standards association considered all of the special temporary standards adopted during the war and also reconsidered previously existing U.S. standards for the motion picture industry. As a result there were 23 approved standards. The report of the A.S.A. with a complete list of all of the approved standards is contained in the April 1946 edition of the *Journal of the Society of Motion Picture Engineers*.

Sixteen Millimetre.—Several of the U.S. motion picture producing companies announced plans for, and were actually providing, 16-mm. release prints of their feature pictures for distribution in other countries. It was understood that a considerable number of 16-mm. theatres were in operation in Germany, France and Italy. Plans for such 16-mm. theatres were also believed to be completed for India and China. Similar programs were projected for several South American countries. Although several 16-mm. only feature length entertainment films were produced in 1945, the absence of well-established 16-mm. theatres prevented much additional production of such pictures.

Camera.—The Mitchell Camera company demonstrated a professional 16-mm. camera similar to, and having all of the facilities available for, their NC and BNC 35-mm. professional cameras.

Colour.—Interest continued high throughout the industry in the Agfa colour process as used by Germany during the war; but this film was not available in the United States. What little commercial use was made of the Ansco three-colour reversal film process was in connection with industrial and amateur motion pictures. The Technicolor process continued to be the dominant one in the colour field. Republic and Consolidated Film Industries were using a new two-colour process under the trade name of Trucolor. It was believed that this process used a tinted base and thus achieved an effect between the previous two-colour process and a three-colour process.

The Ansco 35-mm. colour reversal films were known as type 735 soft gradation camera film; type 132 duplicating film and type 732 printing film. These Ansco colour films could be processed on continuous developing machines at either studio or commercial laboratories. The process was relatively simple.

In Aug. 1946, Eastman introduced type 5268 Kodachrome commercial 16-mm. film designed to provide a low contrast colour original from which a colour release print of normal contrast could be made on Kodachrome duplicating film.

Sound.—The year 1946 marked the 20th anniversary of sound

in motion pictures and was appropriately celebrated by Warner Brothers who introduced sound motion pictures to the public.

Although both RCA and Western Electric announced new lines of recording equipment toward the end of 1945, very little of this equipment was delivered and placed in production during 1946. This was largely due to unavoidable manufacturing delays. Some new equipment was, however, shipped to England for the rehabilitation of studios in that country. It was expected that most of this new equipment would become available during 1947.

Several equipment companies announced new theatre type two-way speaker systems and the Research council of the Academy of Motion Picture Arts and Sciences undertook a comprehensive study of such speaker systems. It was expected that this study would permit the Research council to recommend standards for such equipment.

Although the adoption of a control-track system for improved sound reproduction in theatres was reconsidered by the Research council during 1946, no conclusions were reached and no further action was contemplated at the end of the year.

Twentieth Century-Fox and several equipment and film manufacturers were reported to be developing a new system of motion picture entertainment involving a film of 50-mm. width with stereophonic sound recorded and reproduced from three program sound tracks to which may be added a control-track. This activity was in the early development stages and no conclusion had been reached regarding its commercial application.

Film.—No new black and white picture or sound films for standard motion picture purposes were introduced during 1946. The new colour films introduced are covered in the section under COLOUR. DuPont, however, did introduce two new films developed for television purposes; these are types 323 Kinescope recording film for photographing Kinescope images, and type 136 Gamma Pan-2 for photographing live action which is subsequently to be reproduced by television directly from the photographic negative.

Mexico.—The two new studios, Churubusco and Tepeyac, while probably not completed, were in operation. RKO had used the Churubusco facilities and was reported to have plans for considerable production at this studio.

England.—Most of the studios which had been requisitioned by the government during the war were released by the middle of 1946. In most cases considerable alterations were required and the equipment needed a complete overhauling; nevertheless, most of these studios were in restricted production. Considerable expansion of the industry was planned. Reconstruction on the ABPC, M-G-M, and Teddington studios was under way and production was expected to start during 1947. Both Paramount and 20th Century-Fox announced building programs but it would be some time before these projects could be started. Shortages of equipment and skilled personnel were acute.

France.—Several of the French studios continued limited production throughout World War II; others resumed production, but as in England all production activities were seriously handicapped by a lack of skilled personnel and equipment.

Italy.—The motion picture industry in Italy was believed to be particularly handicapped. Much of the sound and photographic equipment was removed from the studios by the Germans and although some of it was returned it was reported to be in very bad condition. At least one of the major studios was believed to be in use as barracks for displaced persons. It was believed that only a small portion of the prewar production had been re-established in this country.

Television.—The development of theatre television equipment was continuing but no equipment of this type was demonstrated or made available for commercial use after the close of



Above: ANNE BAXTER as the ill-fated Sophie in *The Razor's Edge*, a role which won for her the award of best supporting actress of 1946 by the Academy of Motion Picture Arts and Sciences



Above: FREDERIC MARCH (right) and Harold Russell (left), in a scene from *The Best Years of Our Lives*; their performances won them the awards of best actor and best supporting actor of 1946, respectively, from the Academy of Motion Picture Arts and Sciences. The picture, which was adjudged the best picture of the year and the best written screen play, also took highest honours for best direction and best scoring of a dramatic picture



Above: SCENE FROM *The Jolson Story*, for which the Academy of Motion Picture Arts and Sciences awarded Morris Stoll off an "Oscar" for best scoring of a musical picture



Above: OLIVIA DeHAVILLAND in a scene from the film *To Each His Own*. For her performance she was named the best actress of 1946 by the Academy of Motion Picture Arts and Sciences

Below: LAURENCE OLIVIER in a scene from *Henry V*. Olivier received a special award from the Academy of Motion Picture Arts and Sciences for producing, directing and starring in this picture

Below: ANNA AND THE KING OF SIAM, starring Irene Dunne and Rex Harrison, which was given an award by the Academy of Motion Picture Arts and Sciences for the best cinematography of 1946 in the black and white class



the war. The motion picture industry continued to be interested in the possible application of television equipment and techniques to the production of motion pictures but the shortage of such equipment did not permit the investigation of such applications.

(W. V. W.)

Educational Motion Pictures.—The demand for educational films, projectors and accessories for audio-visual education advanced so rapidly in 1946, as a result of the success of films in war training, that producers of films and manufacturers of projectors for school use, in spite of greatly increased production facilities, were unable to fill more than a fraction of their orders. Schools and colleges everywhere in 1946 increased or planned to increase their budgets for the use of films in education. Stimulated by researches and reports of the American Council on Education, the Department of Visual Instruction of the National Education association, the Department of Secondary Teachers of the National Education association, the British Film institute and the committees of many state associations of teachers in the United States, as well as hundreds of newspaper and magazine articles, new educational texts and notable new educational films, directors of visual instruction were demanding a vast expansion of audio-visual methods in education. In New York city, where the budget for visual education in 1946 was \$50,000, Rita Hochheimer, in charge of the city's visual education program, in a report on Oct. 10, 1946, called on the board of education to allocate \$7,000,000 to develop visual methods in the schools during the first year of a proposed program and to spend \$3,000,000 a year thereafter on visual instruction. In New York city it was estimated in the Hochheimer report that the board was spending seven cents per pupil per year for visual instruction.

An indication of the upward trend was the comparative report that Washington, D.C., was spending 35 cents a year per pupil for visual materials; Los Angeles, Calif., 55 cents; Portland, Ore., 60 cents; Buffalo, N.Y., 65 cents; Cleveland, O., 71 cents; Newark, N.J., 79 cents; Rochester, N.Y., 85 cents; Providence, R.I., \$1.13; and St. Louis, Mo., \$1.17.

It was estimated that of approximately 35,000 16-mm. sound film projectors in the schools of the world (excepting the U.S.S.R., for which no reliable data were available), 85% in 1946 were in the United States. Of the 32,000 projectors purchased by the war department of the United States between 1941 and 1946, few became surplus, as did few of the 8,000 purchased by the navy department, most of the projectors in the armed forces being retained for further training or entertainment purposes or else scrapped as unfit for use. The navy department reported that from Dec. 1941 to Dec. 1946, the number of films produced by the navy, coast guard and marine corps totalled 2,165; and that the number of slide films made by these forces during the same five years totalled 2,778. While no official report of war department film and slide film production for these five years was available at the end of 1946, it was estimated that the ground forces and the air forces reports would double the production numbers reported by the navy. Evaluation of the war-born films of the U.S. navy for educational purposes in 1946 resulted in the selection of 500 subjects for distribution to schools and colleges for the navy film vaults.

In order to keep schools, colleges, churches and community organizations informed as to the activities and aims of the United Nations, Jean Benoit-Levy, French educational film producer, was provided with a budget for the production of a United Nations newsreel and documentaries in 1947, in co-operation with United Nations Educational, Scientific and Cultural organization. Distribution of films made under the direction of Benoit-Levy, it was divulged by the United Nations Office of Information in New York, would follow the established

16-mm. channels of the Office of War Information, which completed its notable job in 1945 and which showed the way to reach an audience of some 30,000,000 people in the United States.

The British Information services during 1946 distributed, in the United States, 110 subjects of continuing value, selected from 450 subjects which it distributed during the war. In addition the B.I.S. made available to U.S. schools notable British film versions of scenes from Shakespeare's *Julius Caesar* and *Macbeth*. It was estimated that in 1947 about 1,000 prints of the *Julius Caesar* film would be in circulation in U.S. schools. The British Film institute published in 1946 a report on German Educational and propaganda films as of Jan. 1, 1944. This indicated that all German schools having electricity were equipped with projectors, mainly of the silent type, totalling 45,346 machines and covering 66% of the schools—a ratio 10 times as great as in the schools of Great Britain and the United States. No report was as yet available as to the number of prints of German school films still in existence in 1946, but it was known that in 1944 the nazis were using 592,000 prints as media of mass educational propaganda.

The University of Chicago, Chicago, Ill., maintained in 1946 its leadership as a world centre for the development of classroom films and of techniques for their utilization. Encyclopædia Britannica Films Inc., operating with the University of Chicago, completed in 1946 24 new classroom film subjects and began the year 1947 with a catalogue listing some 500 school and college films, of which about 100 were provided with foreign-language sound tracks and were being distributed throughout the world. Most widely used E.B.F. films were reported to be those on physics and human biology. In the elementary field, *Adventures of Bunny Rabbit* was reported in greatest demand.

Coronet Instructional Films, Young America Films, Simmel-Meservey and a number of smaller firms all reported rapid gains in demand for their films in 1946.

Most notable activity among major film companies in the development of 16-mm. departments in 1946 was that of Universal Pictures Co., Inc., which set up, in co-operation with the British companies of J. Arthur Rank, a new subsidiary, United World Films, Inc., which acquired by purchase the Bell and Howell Filmosound library of 6,000 short subjects and features in 16-mm. as well as the business of Castle Films, a leading producer and distributor of home movies and a distributor of government and industry-sponsored films. The merger of the Castle organization and the Bell and Howell library organization in United World Films combined the advantages of the trained personnel of those organizations with the resources of the Universal and Rank 16-mm. divisions. As a result, United World Films was able by the end of 1946 to launch a plan for the production and world-wide distribution of 16-mm. and 8-mm. educational, religious and family-entertainment films. It revealed a 7-year production program for the making of 100 pictures a year, half of which were to be made in New York under the supervision of Edmund L. Dorfman, and the rest in London by the Rank subsidiary, G.B. Instructional, Ltd., under the supervision of Ian Cremieu-Javal. The films were to be prepared in 38 languages for the world market and were to include adaptations of 25 to 50 G.B.I. science films made by Julian Huxley. It was revealed that Dorfman would go to England in 1947 to adapt the Huxley reels to the U.S. market, for lease to schools and colleges at \$35 to \$50 a reel for 5-year periods.

Other major U.S. film companies were mainly interested in the foreign market for 16-mm. versions of their pictures, though a few of them, notably RKO, began to market such versions in the United States through their own or independent distributing organizations.

Two new organizations entered the educational filmstrip field in 1946—the audio-visual division of *Popular Science Monthly* and Curriculum Films, Inc., both in New York. In addition, Encyclopædia Britannica Films Inc., launched a filmstrip program. The Society for Visual Education, Inc., with headquarters in Chicago, Ill., continued as the leading producer and distributor of filmstrips and 2x2 film slides, as well as the leading manufacturer of filmstrip projectors, although a number of new slide projectors were placed on the market by other firms.

McGraw-Hill Book Co., Inc., became in 1946 the first textbook publisher to launch a program of film and filmstrip production to supplement widely used texts. These films, it was announced by James S. Thompson, president of McGraw-Hill, would be ready for release in the spring of 1947. It was announced that the first program would cover four books dealing with engineering drawing, mechanical drawing, healthful living and student-teacher training. Each of the books, Thompson said, would be supplemented by a series of six or seven 16-mm. sound motion pictures and a like number of co-ordinated filmstrips. The films were being produced by Albert J. Rosenberg, previously associated with the U.S. office of education in the making of wartime industrial training films. The McGraw-Hill plan, it was explained, was to offer book, films and filmstrips as a complete package for the application of audio-visual methodology, especially in relation to the more difficult chapters of the book. The textbook, it was pointed out, would continue as the basic source of information, but the proper utilization of the filmic materials was expected to speed the work of the teacher. Each pictorial treatment was being planned to give extended coverage of difficult subject matter, rather than to duplicate parts of the book pictorially. Assigned to handle the technical production of the McGraw-Hill reels were three commercial firms in New York.

In 1946 a group of seven educational publishers, including Harcourt, Brace and company, Harper and Bros., Macmillan company, Houghton Mifflin company, Henry Holt and company, Scott-Foresman and Scholastic Magazines, made a joint survey to determine whether textbook publishers should participate in the development of educational films. These firms at the end of 1946 were co-operating with the American Council on Education in a project to produce several experimental text films, using resources of theatrical film interests and commercial producers, with headquarters at New Haven, Conn., and with Gardner Hart, formerly director of visual instruction in the Oakland, Calif., schools, as co-ordinator.

At the end of 1946 the National Broadcasting company revealed that most of its television programs would be on film and that a good many of the films would be educational shorts, including E.B.F. classroom films.

The first yearbook of the 16-mm. industry appeared in 1946. This was published by the Allied Non-Theatrical Film association and met with success. The second *ANFA Yearbook*, edited by William Lewin, was scheduled to appear in 1947. Periodicals devoted to educational films included in 1946 six in the United States (*Educational Screen*, *Film and Radio Guide*, *Film News*, *Film World*, *See and Hear* and *16mm Reporter*) and two in Great Britain (*Sight and Sound* and *16 Mil Film User*).

Among notable new books dealing with educational films, six appeared in 1946: *Movies That Teach*, Hoban (Dryden Press), *Audio-Visual Methods in Teaching*, Dale (Dryden Press), *Audio-Visual Paths to Learning*, Wittich and Fowlkes (Harper), *Teaching With Films*, Fern and Robbins (Bruce Pub. Co.), *The Preparation and Use of Visual Aids*, Haas and Packer (Prentice-Hall), and *The Art of the Motion Picture*, Benoit-Levy (Coward-McCann). The *Hollywood Quarterly*, as a supplement to its volume I, published in 1946 its first *Annual Communications Bibliography* (Univ. of Calif. Press).

Great Britain.—After the return of government-requisitioned studio space, completed by April 1, 1946, it was expected that most British studios would be in full production by Jan. 1947. This was expected to bring about a sharp rise in the number of films made, and the quota of British production which British exhibitors were required to show was fixed at 17½% for 1946 and 22½% for 1947. The board of trade also

reached an agreement with the Rank circuits (Odeon and Gaumont-British) and the Associated British Cinemas circuit (in which Warner Brothers held a substantial share interest) that in addition to their quota commitments they would show a small number of independently-produced British feature films. This was the first gesture of the board of trade towards independently-financed feature production in Britain, which was almost eliminated by the mass studio ownership of the Rank organization and Associated British Picture corporation (the company affiliated with the A.B.C. circuit). Another production corporation was formed by the Alexander Korda-British Lion amalgamation during 1946.

The chief British feature films of the year were *The Captive Heart* (Ealing studios), *I See a Dark Stranger* (Individual Pictures), *Men of Two Worlds* (Two Cities productions), *Theirs Is the Glory* (Rank organization), *The Overlanders* (Ealing studios, made in Australia), *A Matter of Life and Death* (Archers productions), *School of Secrets* (Two Cities) and *Great Expectations* (Cineguild). Documentary production was on a very high level with the feature-length films *Children on Trial* (Crown Film unit), *Land of Promise* (Films of Fact), *The Way We Live* (Two Cities) and the shorter films *Cyprus Is an Island* (Greenpark) and *Defeated People* (Crown) about contemporary Germany. The widespread nontheatrical distribution of documentary continued under the central office of information, successor to the wartime ministry of information. The scheme was parallel to that organized during the war in Canada by John Grierson, who resigned his position as government film commissioner in order to produce a series of international documentaries from the United States. The first "royal command" performance of a film was given in Nov., when the royal family attended a showing of *A Matter of Life and Death* at the Empire theatre, London.

Europe.—Film production in France was seriously compromised during 1946 on economic issues. A producer's strike was threatened early in the year on the grounds that the high taxation with which the industry was burdened made production impossible. In the summer a supplementary agreement to the Franco-U.S. loan reduced the protection so far afforded to the French film in the face of the imported product. Among the important films either released during the year or in production were the resistance film *La Bataille du Rail*, Jean Cocteau's fantasy *La Belle et la Bête*, Marcel Carné's *Les Portes de la Nuit*, a poetic-realistic study of a night in a Paris suburb and Rouquier's *Farrebique*, a remarkable feature-documentary of life on a southern French farm. An international film festival was held at Cannes in September.

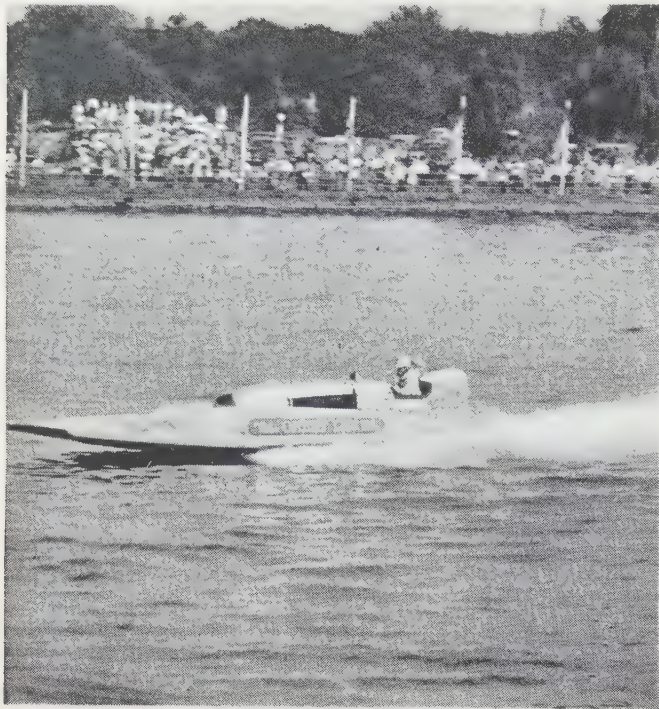
Festivals of French, Russian and British cinema were held in Czechoslovakia, whose film industry was nationalized in 1945. The large Barrandov studios near Prague provided ample studio space for Czechoslovakia, supplemented by other smaller studios, some in Moravia and Slovakia, specializing in admirable educational, documentary, cartoon and puppet films. The Czechs used Agfa colour in some of their productions. Their best feature films were those dealing with contemporary themes, such as the resistance movement during the occupation: *Men without Wings* is a brilliant example. Russia completed a beautiful if somewhat theatrical legendary film *The Stone Flower*, in Agfa colour, at the Barrandov studios. The Russians also developed their own three-colour system and intended to increase the number of their productions in colour. Stereoscopic production was represented by *Robinson Crusoe*, which was begun in 1945.

Soviet production was reviving in all centres, especially in Moscow, Leningrad, Kiev, Tbilisi and the central Asian studios. On the other hand there was an official ideological tightening of the expression of soviet directors, and S. Eisenstein's *Ivan the Terrible* (part II) was banned on the grounds of ideological unsuitability in the presentation of the tsar character. Production aimed at 40 feature films a year, the number to be doubled by 1950.

Another nationalized industry was that of Poland which was reconstructing its damaged cinemas and planning the construction of new studios near Warsaw. German and Italian film production was revived, the former under the supervision of the occupation authorities. Spain developed production in terms of quantity rather than quality, and was anxious to gain distribution in the Latin-American countries. Sweden continued to make notable films, its production rate reaching as many as 50 feature films a year. Light comedy made up a fair proportion of the output, but the most impressive contribution to the cinema lay in the psychological films. Pictures such as *Hets* (Frenzy) proved that Sweden could equal in achievement the most progressive contemporary film art. *Waiting Room of Death*, completed in 1946, belonged to this movement in Swedish production. (See also PHOTOGRAPHY.) (R. MAN.)

Motor-Boat Racing. Long standing records in Gold cup speed boat competition were surpassed at Detroit, Mich., on Labour day, 1946, when Guy Lombardo's "Tempo VI," in winning the classic event, covered the 90 mi. at an average speed of 68.072 m.p.h., and averaged 70.88 m.p.h. for one of the 30-mile heats, while one of her rivals, Dan Arena's "Miss Golden Gate III," set a new one-lap mark of 77.911 m.p.h. Just previously "Tempo VI," which as "My Sin" had won the 1939 and 1941 Gold cup races but at lower speeds, had taken the 1946 national sweepstakes at Red Bank, N.J.

Bought by Albin Fallon and driven by Daniel Foster, the former "Miss Golden Gate III," renamed "Miss Great Lakes III," turned the tables on "Tempo VI" shortly after the Detroit regatta by winning the President's cup at Washington, D.C. In the latter regatta, Gibson Bradfield's 225-cu.in. hydroplane "Buckeye Baby" won the Thomas trophy.



SPEEDBOAT "Miss Great Lakes," driven by Danny Foster of Detroit, Mich., won the first postwar President's Cup race before President Truman and spectators in Washington, D.C., on Sept. 22, 1946.

In England, Sir Malcolm Campbell was working, during the latter part of 1946, on a jet-propelled boat with which he hoped to better his own world's boat speed record of 141.7 m.p.h., made in 1939, but due to the lateness of the season, the attempt was postponed until 1947.

One new outboard motor speed record was made in 1946, in the Midget class, by D. Whitfield's boat, running at Washington, of 41.478 m.p.h. in a one-mile trial.

No new racing motors, either inboard or outboard, were produced during the year, most of the racing being done with old motors or those converted from other uses. (H. L. ST.)

Motor Transportation. There were strikes in and out of the industry in the U.S. in 1946, there were shortages of materials and supplies more acute in some instances than those experienced in wartime, there was inability to secure delivery of new buses and trucks intended to supplement or replace vehicles that long since should have been replaced and there was the general spiral of increased costs, including wage readjustments upward, which could not, as in some other lines of endeavour, be offset at least in part by technological improvements or by passing along some of the increased costs to the consumer.

All these factors contributed to delay programs of the carriers calling for changes and improvements running into the millions.

Production Figures.—Despite adverse factors new buses and trucks were being produced at the end of 1946 in ever-increasing volume even though not in quantity sufficient to meet anything like the immediate demands of the carriers. The extent to which the industry needs were met is in part instanced by the 24,174 bus production figure for the year. That was an all-time high for all types of units. Of the 24,174 buses built during the year, 12,025 were school buses, 11,635 common carriers and 496 were for government agencies. The 1945 total was 17,641, of which 8,225 were school buses, 9,416 common carriers and 5 for government agencies.

For the automotive industry as a whole, however, 1946 was a

year of low volume, stop-and-go production. In consequence, output was estimated at 2,145,000 new passenger cars. This was 57% of the 1941 total of 3,755,309. Truck assembly in 1946 was about 935,000. This was 89% of the 1941 figure of 1,042,085, but that figure included 219,000 military vehicles. Replacement parts were turned out to the value of \$1,600,000,000, or more than double the 1941 total of \$718,000,000. In this last figure allowance must be made for the added dollar value of the product.

In only one respect in the production field did there appear to be a return to more or less normal conditions. The bus and truck tire goal for 1946 was 13,680,000 units. Production was estimated at 15,900,000 units compared with 8,221,000 in the record prewar year of 1940. Production of about 2,000,000 more tires than the goal was in response to continued unprecedented demand.

As in the case of the motor buses, manufacturers of trolley buses were unable to satisfy the demand for deliveries with the result that the 41 operators of this type of vehicle received only 332 new vehicles. The largest number went to the Georgia Power company with the second largest number, 39, to the municipal transit system in Cleveland, O.

Operating Trends.—Plans for modernization of bus companies and many streetcar lines with buses and trolley buses still to be carried out, called for the expenditure of about \$175,000,000. Perhaps the most notable of the changes was the conversion late in the year of four lines of the Third Avenue Transit corporation in New York to all-bus operation. So far as the borough of Manhattan was concerned there were only four left and these were to be converted during 1947. Another significant move in Manhattan was the substitution of single-deck buses by the Fifth Avenue Coach company for the open-top, double-deck buses. The enclosed type of double-deck bus still remained.

In the city and the intercity field 1946 saw the carriers extend the use of the two-way short-wave radio system of communication. Increased impetus was given to the intercity two-way program by the action of the Federal Communications commission which in August allocated frequencies for the exclusive use of the long-haul motor bus carriers.

In the city field the San Antonio Transit company put an air-conditioned bus in operation as the first of the vehicles on an order of 100. In Atlanta, Ga., an air-conditioned trolley bus was placed in operation and early in January the first prefabricated trolley bus ever built in the United States was demonstrated in Toledo, O.

School Bus Service.—More than 80,000 buses were used daily to transport school children throughout the United States in 1946. Nation-wide statistics revealed the extent to which this service was preserved. Successful operation of these vehicles continued under an almost complete revaluation of operating practices, of maintenance and housing and even of specifications, to say nothing of the training of drivers and mechanics. As for the school bus of the future it appeared likely that it would be constructed of lighter materials and that motor speeds would be governed as a step toward further safety.

Road-Rail Carrier Co-ordination.—Recommendations of the Railway Business association for co-ordination of all forms of transport by lifting legal limitations on one type of carrier engaging in other modes of transportation made late in Dec. 1946 focused attention on the co-ordination of railroad and highway service. Many of the major railroad systems had non-rail transport services of one kind or another. They included over-the-road movement of freight in less-than-carload lots, station-to-station transfers, collection and delivery by trucks, bus lines and other forms of highway operation. Twenty-five Class I railroads had rail-highway services for handling less-than-carload lots of freight on 65,000 route-mi.,

and co-ordinated rail-bus services amounting to 75,400 route-mi. Twenty-nine principal railroads employed trucks as an efficient and economical substitute for way-train service, providing rail-motor service to about 8,600 stations. In 1946, however, the highway operation of the railroads was to a large extent auxiliary or supplementary to rail services and was relatively small in extent in so far as the total freight service was concerned which was handled over the 228,000-mi. railroad network reaching every part of the United States. It was on the basis of the growing need for more efficient, economical and stable transport that the Railway Business association recommended the elimination of any provisions of federal law or administrative interpretations which restricted voluntary co-ordination among the several types of interstate transport. The end sought was to put all forms of transport on a fair and equal footing under regulation by a single agency, with co-ordination determined on the basis of the public interest and without permitting monopoly to any one type of transport.

Taxis.—During World War II the number of cabs licensed in any given community was frozen by the Office of Defense Transportation as a conservation measure. Only in exceptional cases were existing operators permitted to enlarge their fleets or secure gasoline for extra mileage. The inevitable shortage of customary taxi service thus imposed led the public to criticize existing operators unjustly.

With the close of World War II petitioners clamoured for licences, often citing the wartime shortcomings as evidence of the need for more service. Many of these applications were from groups of sincere or pretending G.I. owner-drivers. In some cities individual one-man permits were granted to the former servicemen with the clear understanding that if at any time the holder sold or otherwise disposed of the equipment, the regulatory commission would not countenance the transfer of the operating rights to the purchaser of the vehicle or to any other person. This limitation was definitely upheld in a decision made by the Maryland Public Service commission on Nov. 15, 1946, when it refused to approve the transfer of G.I.-style permits.

With a reduction of war emergency taxi service, taxi operators in many cities found their earnings diminishing. Two major reasons were advanced for this: first, there was less need for speed on the part of the cab patron; second, there were more cabs. (See also *AUTOMOBILE INDUSTRY*; *HORSES*; *MUNITIONS OF WAR*.) (C. W. S.)

Great Britain.—Transport was crippled in 1946 by a general shortage—shortage of new vehicles, of spare parts for vehicles, which had far outlasted their usual term, and of liquid fuel. One of the few bright spots was the way in which the highways had stood up to six years of war traffic, practically without maintenance. There was, however, a dearth of strategic highways (e.g., the River Severn bridge which was being seriously considered in 1946) which should have been constructed out of moneys provided by the road users between World War I and World War II.

The motor manufacturing industry made a commendable "switch-over" to production of cars (84% of prewar output) and of buses and trucks (50% more than prewar output), but bottlenecks caused by shortages of steel and many other commodities delayed the work. The total production was nevertheless satisfactory, but the economic situation demanded that a large portion should be earmarked for export. As a consequence, the price of second-hand cars was generally in excess of the price of new ones and a black market in new cars grew up, partially checked toward the end of 1946 by an agreement on the part of the buyer not to resell under six months. Buses were scarce everywhere; many of the larger undertakings had placed orders running into millions of pounds with delivery promised a year or two later. Very rough vehicles were kept in service and queues were inevitable; there was a slow but general realization that the morning and evening peak loads could be met only by a staggering of hours. The 500,000 goods vehicles were mostly in poor shape; many were unroadworthy and few new ones were delivered. Various pooling schemes to economize in mileage were still in being and long-distance road transport, which was released from government control on Aug. 16, needed to be fully extended because railway engines and rolling stock were 30% to 40% below their prewar operative figure. Liquid fuel was strictly controlled by a rationing system for all road vehicles; private car owners received a small basic allowance.

The bill for the nationalization of transport passed its first and second readings in December, bitterly opposed by all traders (users of transport) and all providers (rail, road, canal and coastwise). A public inquiry was demanded to ascertain, conditioned only by the public interest, the best inland transport system. The bill produced the largest opposition vote against the existing government, the opposition declaring its intention to pass a vote of censure on the government. The stock exchange took an unprecedented course in making a scathing denunciation of the bill. (See also *ACCIDENTS*; *RAILROADS*.) (L. GL.)

Motor Vehicles: see *AUTOMOBILE INDUSTRY*; *ELECTRIC TRANSPORTATION*; *FEDERAL BUREAU OF INVESTIGATION*; *MOTOR TRANSPORTATION*.

Mott, John R. (1865–), U.S. evangelist, was born May 25, in Livingston Manor, N.Y. After graduating from Cornell university in 1888 with a Ph.B. degree he became affiliated with the Y.M.C.A., and in 1895 he helped organize the World's Student Christian federation in Sweden. A Methodist, Mott was active in church and missionary movements at home and abroad and made frequent trips throughout the world in the interest of the World Mission of Christianity.

The World Federation of Churches was an outgrowth of his work in unifying the church movement. Mott continued his association with the Y.M.C.A. for many years—in the capacity of general secretary of the international committee, 1915–31, foreign secretary, 1898–1915, general secretary of the national council until 1928 and chairman of the world's committee after 1926. During World War I he had charge of the Y.M.C.A.'s canteen and prisoner-of-war work. He spent the early months of 1946 in Europe aiding with the problem of displaced persons. He was given the Nobel peace prize on Nov. 14, 1946 for his participation in five world church and missionary movements, sharing the award with Miss Emily Greene Balch, U.S. economist.

Mount Holyoke College. An institution for the higher education of women in liberal arts, founded in 1837 by Mary Lyon and situated at South Hadley, Mass. The campus covers nearly 600 ac. with more than 70 buildings. Registration figures for the 1945–46 session included 1,113 undergraduates and 36 graduate students, representing 39 states and territories and 5 foreign countries. (For statistics of endowment, enrolment, faculty, library volumes, etc., see *UNIVERSITIES AND COLLEGES*.) (R. G. HA.)

Mozambique: see *PORTUGUESE COLONIAL EMPIRE*.

Mules: see *HORSES*.

Muller, Hermann Joseph (1890–), U.S. geneticist, was born on Dec. 21 in New York city. Attending Columbia university, he received his A.B. degree in 1910 and his Ph.D. degree in 1916. He taught biology and zoology at Rice institute (Houston, Tex.) and at Columbia and while associate professor of zoology at the University of Texas (1920–25) began his research in the problems of heredity. He subsequently became a full professor at the latter school (1925–36) and was senior geneticist at the Institute of Genetics and a staff member of the Medicobiological institute, both in Moscow (1933–36). Dr. Muller was lecturer at the Institute for Animal Genetics, University of Edinburgh, 1937–40, research associate in biology, Amherst college, 1940–42 and professor, 1942–45. He joined the Indiana university faculty in 1945 when the Rockefeller foundation made a grant to that school for a research program in the field of genetics. In Oct. 1946 he received a grant from the American Cancer society for the study of cancer. His work in heredity changes and mutations caused by X-rays striking the genes and chromosomes of living cells took on added significance when speculation began to arise after the dropping of the atomic bomb on Hiroshima and large-scale human contamination with powerful rays became a reality. He was awarded the Nobel prize in medicine and physiology on Oct. 31, 1946.

Municipal Government. The first full year of reconversion to peace found the cities of the United States facing problems of greater magnitude and gravity than at any other time from the depression years. Foremost was the need for increased revenues at the local level to meet rapidly expanding municipal budgets, which in turn involved the whole question of local-state-federal interrelations and the basic issue of "home rule." A nation-wide wave of strikes by municipal employees imposed a new function on local governments: the regulation of labour relations in municipal employment. The housing crisis continued unabated with the collapse of the national veterans' emergency housing program in December. Traffic and parking crises in major cities went for the most part unsolved. Perhaps most serious of all was the general

apathy on the part of citizens both as to current conditions and future goals.

Municipal Labour Relations.—One of the most dramatic trends in municipal administration in 1946 was the outbreak of strikes and threats of strikes by local government employees in city after city from coast to coast. In Pontiac, Mich., practically all municipal services except fire and police were halted, though utility services were kept functioning by maintenance crews. There were strikes by city school teachers in Norwalk, Conn., and St. Paul, Minn. Strikes by public works employees occurred in several cities, including Bangor and Portland, Me., Wellston and Canton, O., and McKeesport, Pa. Garbage collectors went on strike in Tulsa, Okla., and Louisville, Ky. Indianapolis, Ind., Dearborn, Mich., Milwaukee, Wis., Rochester, N.Y., and New York city were among the cities threatened with strikes. Threatened strikes by New York city subway employees were twice averted during the year, but transit workers were finally granted a pay raise which was made retroactive to July 1.

Remedies against striking municipal employees took various forms. Some cities resorted to the courts and secured injunctions against strikes or threatened strikes—e.g., Tulsa, Okla., and Milwaukee. Omaha, Neb., adopted antistrike ordinances. Portland, Me., required all employees to sign an antistrike pledge. A number of strikes were ended by threatening employees with loss of jobs. Three states—Arizona, Nebraska and South Dakota—adopted constitutional amendments barring the closed shop, making a total of 11 states which regulate agreements between municipalities and unions of employees. At least four cities—New York, St. Louis, Mo., Louisville, Ky., and Toledo, O.—set up labour relations agencies to deal with strikes threatening the welfare of the community. A number of court decisions upheld the right of local governments to prohibit membership of municipal employees in labour unions.

Municipal Finance.—A turning point in the history of municipal finance was reached in 1946. The crisis foreseen during the relatively quiescent period of the war years—when revenues were up, tax delinquencies down, services curtailed, equipment and personnel at a minimum, debts discharged and budgets stabilized—came to a head. Increased personnel, expanded services, increased costs of equipment and supplies, resumption of the unprecedented rise in pay rates for municipal employees resulted in soaring budgets and presaged an upturn in municipal debt. To cite a typical example: St. Louis, Mo., faced a \$1,000,000 deficit for the fiscal year ending April 1, 1947. The operation and maintenance budget for 1946-47 exceeded expenditures for 1945-46 by \$5,700,000 or 21%, and exceeded expenditures for 1939-40 by 52%. Salary raises since the signing of the budget and the sharp rise in prices for supplies made large supplementary appropriations necessary. Appropriations for salaries and wages exceeded those for 1939-40 by 45% and with the subsequent increases would exceed them by 56%. Appropriations for supplies and equipment, based on April 1946 prices, exceeded those in 1939-40 by 92% and most supplies had increased sharply in price after that date.

The story could be repeated ad infinitum. In California, the Los Angeles general budget for 1946-47 was 38.8% above that for 1945-46, that for Richmond was 19% higher; for Oakland 29% higher; for San Francisco 28% higher; for Berkeley 27% higher, and so on. Pittsburgh's budget for 1947 reached \$28,800,000—\$2,600,000 in excess of 1946 and the highest after 1931—chiefly because of a 10% salary raise. Philadelphia's 1947 budget of \$100,000,000—the largest in its history—exceeded the current budget by \$13,700,000 and expenditures of 1945 by \$15,800,000; pay rolls comprised about 57% of the total budget. New York city's over-all budget of \$865,000,000 for 1946-47 was the highest in its history; but that for 1947, it was predicted, would about reach the \$1,000,000,000 mark, almost entirely a result of pay increases for municipal employees after Nov. 1, 1946. A survey by the International City Managers association toward the close of the year of 17 representative cities between 10,000 and 200,000 population showed that nearly all were curtailing construction of capital improvements because of 100% increases in building costs, coupled with an immediate need to pay higher wages and expand some city services regardless of cost. Expenditures were found to be from 2% to 46% higher than 1945 and budgets for 1947 to be higher still.

In the face of the rising fiscal flood which threatened to engulf them, the cities made valiant efforts to rid themselves of the financial strait jacket imposed by their traditional dependence for about 90% or so of their tax revenues on the local property tax, which in many cities had already reached its maximum return. New revenue sources were developed at the local level on an unprecedented scale. Income or pay-roll taxes—first utilized by Philadelphia in 1939—were imposed in Toledo and St. Louis. Taxes on hotel room occupancy were adopted first in New York city and later in Providence, R.I. Sales taxes were adopted by a score or so of California cities and utility taxes in about 30 Florida municipalities. Admissions, cigarette and tobacco, retail sales and other taxes and new or increased service charges and licence fees of all kinds were imposed in literally hundreds of cities throughout the country. Often a program of new charges or taxes was adopted as a group, after intensive study of the local social, economic and political setup.

At the same time many states, including specifically Alabama, California, Louisiana, Mississippi, New York, Ohio and Pennsylvania, made new or increased distributions of state revenues to local governments. In others, including Indiana, Michigan, New Jersey, Oregon and Rhode Island, state commissions had been appointed to consider the local revenue problem and report their findings to the 1947 legislatures. A survey by the International City Managers association showed that all

states except five—Florida, Kentucky, Nevada, Texas and Vermont—were sharing some of their taxes with the cities. An important study, *Where Cities Get Their Money*, published by the Municipal Finance Officers association in 1946 summarized the success of the cities in tapping new revenue sources.

Particular reference should be made to the revolutionary plan for the stabilization of local finance evolved by the Moore [state] Commission on Municipal Revenues in New York State after two years of research and put into effect in 1946. It provided for the distribution of state revenues to the cities, towns and villages annually on a per capita basis of \$6.75, \$3.55 and \$3.00, respectively; also for the establishment of reserves to be drawn upon in depression periods, thus insuring continuation of the per capita payments. The local share of home relief, old-age assistance, aid to dependent children and aid to the blind was reduced to and stabilized at 20%, with the state assuming the difference between 80% of those costs and the federal contributions therefor—a provision designed to relieve local real estate taxpayers of a substantial part of the cost of these services and secure the local governments against the effects of another major depression. Together with additional state aids, the new program increased state assistance to the localities by more than \$50,000,000 annually. The plan evoked nation-wide interest.

The decline in tax delinquency maintained continuously after 1933 continued; median delinquency for selected cities of more than 150,000 population had reached a low of 3.3% by the close of 1945—the latest period for which data were available. Municipal tax rates for 1945-46 showed an increase for the third successive year; the gain of \$0.52 per \$1,000 of assessed valuation was the largest in eight years; rates were notably higher in the larger cities. Assessed valuations likewise increased for the fifth consecutive year; the average gain of 5.3% more than 1945 was the greatest after 1932, when these figures were first recorded, and applied in all classes of cities.

According to the *Bond Buyer*, state and municipal bond issues in 1946 totalled \$1,200,000,000, an increase of more than 46% in excess of 1945, and more than double the total for 1943 (\$500,000,000) which marked the lowest point in municipal borrowing after World War I. It was still slightly less than the all-time high of \$1,500,000,000 for 1940. In the November elections, a total of \$1,043,000,000 in proposed bond issues—an all-time record—was approved, and \$89,000,000 rejected; state funds, mostly for veterans' aid, accounted for \$837,000,000 of the approved total, while local issues amounted to \$206,000,000, only a slight increase in excess of the \$191,000,000 submitted in 1945. Bonds for local improvements in nine major cities totalling \$40,000,000 were rejected by the voters. Municipal bond interest rates reached an all-time low in the spring of 1946 of 1.29%, according to the *Bond Buyer's* index for 20 municipal bonds. The index opened the year at 1.42%, declined to the record low of 1.29% in March and April and rose in December to 1.91%, following the bond-issue approvals in November with their suggestion of greatly enhanced investment supply. While state and local governments were borrowing in larger amounts, the increase was still more than offset, in the aggregate, by debt retirements during the year, and the reduction in local debt which commenced in 1942 was larger in 1946, both in absolute amount and in percentage of reduction, than in 1945. Outstanding local debt as of June 30, 1946, was \$13,564,000,000, compared with \$14,164,000,000 in 1945. On an index basis of 1940=100, the annual volume of local debt for each of the five years 1942 through 1946 was: 98.6, 94.4, 87.9, 84.7 and 81.1, respectively.

Postwar Planning.—In general, the planning programs of municipal governments presented a far from adequate approach to the problems of urban reconstruction. The second report of the bureau of community facilities of the Federal Works agency, issued late in 1946, was specifically designed to give a comprehensive view of the status of the plan preparation of state and local public works, both with and without federal financial assistance, as of June 30, 1946. An additional grant of \$35,000,000 in June 1946 had made a total of \$65,000,000 available under the program of federal planning advances, almost all of which, however, was accounted for by applications already under review. Advances approved through June covered public works with an estimated total cost of \$1,110,000,000 and a construction cost of \$930,000,000. It was estimated that the entire \$65,000,000 would provide planning advances for a volume of public works amounting to about \$2,100,000,000 in terms of construction costs. The foregoing data are exclusive of housing projects and of advances under the federal-aid highway program, which fall in a separate category.

Plans completed without federal aid through June 1946 covered state and local public works with an estimated construction cost of \$1,125,000,000; plans in the design stage—the completion of which without federal aid was very uncertain—were reported for public works with estimated construction costs of about \$4,000,000,000. In several states, local planning was aided by state grants, and in Indiana by loans. Plans completed without federal aid were heavily concentrated in a few states, particularly New York, and a few large cities; 60% of the 11,926 governmental units reporting in this group had no plan preparations in either the completed or design stages, and almost one-half of those were cities, towns and townships of less than 10,000 population.

The purpose of the federal program for planning advances was to build up an adequate reserve of nonfederal public works to be put into construction as economic conditions might warrant; also, to give such planning a wider geographic range and a more extensive spread among the smaller governmental units, particularly cities and towns with populations of less than 50,000. Of the 1,524 cities and towns receiving advances, 53 were in the population group of 100,000 or more, 35 in the group from 50,000-100,000 and 1,436—almost 95%—in the group of less than 50,000; in terms of construction costs for these cities and towns, 54% was for those of less than 50,000 population, contrasted with only 25% in the case of plans completed without federal aid. Preference was given to the type of public works required for an expansion of housing, such as sewer, water, sanitation and educational facilities.

A survey by the International City Managers association covering

700 cities revealed that cities were spending about 50% more for municipal planning in 1946 than in 1945; more than 85% of the reporting cities of more than 25,000 population had either official or unofficial planning agencies, while 30% of the cities in the 10,000-25,000 population group had no planning agencies.

The traffic and parking crisis which developed in the municipalities with the return of normal motor traffic after the war remained largely unsolved.

Personnel.—Data on state and local government employment in 1946 showed a current level of employment substantially higher than in the prewar period. Total state and local government nonschool employees as of April 1946 were 2,000,000, compared with 1,800,000 the year before, and by July had reached an estimated 2,100,000, the highest total recorded after the inception of these surveys in Jan. 1940. Pay rolls increased from \$253,800,000 in April 1945 to \$295,800,000 in April 1946, and by July 1946 had reached an estimated \$309,000,000. July 1946 pay rolls were 40% more than those of July 1940, whereas corresponding employees numbered only 3% more than in July 1940. Information on the number of school employees was tabulated by the census bureau for the first time in 1946.

Council-Manager Cities.—Far more cities adopted the council-manager plan than in any previous year: a total of 75, compared with the previous high of 47 in 1921, bringing the grand total for the United States to 693. Madison, Wis., was the largest city adopting the plan in 1946; it was rejected in Chattanooga, Tenn., by only 612 votes. Toledo, O., defeated for the fourth time proposals to abandon the plan. It was adopted in Hartford, Conn., subject to ratification by the state legislature. (A. M. Ds.; L. Gu.)

Great Britain.—Local authorities throughout the year were busy with many reconstruction problems, of which housing was in the forefront. Temporary houses were set up on numerous sites, and large programs for permanent housing were put under way. Difficulties because of shortages of labour and materials (which lay at the root of the problem) were by no means dispelled. The bias of effort, hitherto mainly absorbed in the long, tiresome process of planning of ways and means, shifted more and more as the year went on toward the work of actual construction. The end of the year gave promise of the general speeding up of building activity.

Local authorities were much occupied with the completion of their development plans under the Education act, 1944. This preliminary phase, necessary in all large-scale projects, produced little surface result but was a period of intense preoccupation with the fundamentals of public education in all its aspects.

The town-planning fervour, which had been stimulated by the issue in previous years of the postwar plans for many areas, and which had given place to the more solid work of attempting to bring the plans into effect, was revived by the proposed application of the New Towns act, 1946, to certain localities, including Hemel Hempstead and Stevenage in Hertfordshire, and Crawley and Three Bridges in Sussex. Public local inquiries all over the country on planning projects provided much work and interest.

The local government boundary commission and the boundary commissions for dealing with parliamentary electoral areas in England, Wales, Scotland and Northern Ireland, were busy. The work of the latter commissions received a severe check because of the difficulty of reconciling parliamentary and local government areas. The government committee set up under the chairmanship of the marquess of Reading to review the boundaries of the metropolitan boroughs and the distribution of functions between London local authorities ceased to function during the course of the year. The attempt to deal with the administrative county of London alone, without dealing with the larger problem of greater London, was felt to be of little value.

Late in the year the Civic Restaurants bill was introduced to empower local authorities to carry on the service provided by the British restaurants.

Disquiet persisted throughout the year at the uncertain future of local government. Important functions were to be taken from local authorities; hospital services were to be transferred to regional boards under the National Health Service act, 1946; proposals were made for the transfer to the government of the noninstitutional relief of the poor and the blind. Many local authorities were electricity suppliers and some had their own tramway or omnibus undertakings: the projected nationalization of electricity supply and transport might involve the curtailment and even the surrender of these undertakings. It was felt that the local government system must soon be revised; regionalism had already been alluded to by government spokesmen. (See also AIRPORTS AND FLYING FIELDS; HOUSING.) (W. E. J.)

Munitions of War. **Army.**—At the Fort Sill Artillery conference in March, one of the weapons demonstrated was the self-propelled 240-mm. howitzer. In World War I this weapon moved in four loads; in two during World War II. It and the 8-in. howitzer are both independent of a prime mover. In the heavy weapons class, three interesting weapons reached the U.S. from Germany. They were in the top flight of Germany's artillery weapons, two 231-ton guns and a 123-ton mortar. The two guns are 28-cm. and 31-cm. bore respectively, both Krupp manufactured. The mortar, known as "Thor," is a 54-cm. weapon, mounted on a self-propelled carriage and was used against the Russians at Sevastopol and Stalin-grad. Remains were also discovered near Frankfurt, Germany, of a supercannon "Gustav Geshutz" used to blast Sevastopol in

the Crimea. This gun, and its companion piece called "Dora," dwarf any other big guns built. Gun and carriage weighed 1,344 tons; diameter of bore 31.5 in.; weight of powder charge 2,500 lb.; weight of projectile 16,540 lb.; length of barrel 105 ft.; effective range 51,000 yd.

In October, a weapons show was staged at Aberdeen Proving grounds, Md., to reveal U.S. progress in new weapons. These included the new .60-calibre machine gun, the 75-mm. and 105-mm. recoilless rifles, the M-1 rifle modified for full automatic fire as well as semiautomatic, a new VT fuse and several types of new mortars. A jeep became a part of a new unit completed by a launcher of 4.5-in. rockets. There was also shown the latest high-power anti-aircraft weapon, the multiple gun motor carriage T-77, mounting six .50-calibre machine guns. A new, superheavy tank, the T-28, appeared. This is the heaviest vehicle ever built for the ordnance department. Weighing nearly 100 tons, it mounts a 105-mm. gun and a .50-calibre machine gun, the whole assembly heavily armoured. For aeroplanes, the outstanding new weapon was the 75-mm. automatic gun which gives planes the punch of artillery with machine-gun operation. The new automatic mechanism of this weapon permits a plane to get off several shots in one power dive, an impossibility with the older, hand-loaded gun of the same size. Three recoilless rifles, developed to cut down weight while giving artillery fire power, were shown. These were the 57-mm. rifle fired from the shoulder like a bazooka and the 75-mm. and 105-mm. rifles fired from light-weight tripod mounts.

Experiments indicated that the high-explosive bullets and projectiles used by fighter pilots of World War II might soon be replaced by high-speed metallic jets, travelling at initial speeds of 25,000 ft. per second. These shaped-charge missiles or "bullets" can be supplied in explosive, penetrating, or incendiary types. They should prove especially effective in firing at armoured, guided missile targets.

The second would be the projection of a high-speed jet from a fighter aircraft in lieu of conventional bullets or projectiles. The tremendously high initial velocity of these shaped-charge missiles ameliorates the difficulties associated with deflection and greatly simplifies the requirements for fire-control instruments.

In August announcement was made of a secret guided missile. This was known as "GAPA" (ground-to-air pilotless aircraft). It is a prototype projectile, pencil slim, ten-foot long guided missile. When ultimately perfected, it was expected to be capable of seeking out and destroying possible weapons before they could register on their targets.

Testing began in May at White Sands, N.M., of captured German V-2 rockets. These tests made it possible to study not only the trajectory and ballistics of the rockets but also to gain information concerning the physics of the upper atmosphere. Radar equipment, adapted to tracking the rockets to a height of 100 mi., along with other special electronic equipment, was used during the tests. Firing of the V-2 rockets was begun at White Sands on May 10; in November one was fired to attempt to learn the secrets of the ionosphere. The rocket was provided with instruments located in its war head to record the properties of the upper air and to provide data on the reflection and refraction of radio waves in the ionosphere. Skin temperature of the missile, which in flight rose to a height of 63.5 mi., was also recorded. By the use of special radio equipment, newly developed, it was determined that only very high frequency radio waves could penetrate the ionized layers while those of lower frequencies were reflected back to the earth's surface as light is reflected by a mirror.

Along with experimentation with V-2 rockets went intensive scientific study of cosmic rays, considered an elementary form of solar energy. Army air forces sought especially to determine

the effect of cosmic rays on various chemicals and metals used in the development and assembly of guided missiles. One of the first things learned was that a radio set with clear reception and long range on the ground goes completely haywire when carried to the high altitudes necessary to a proper consideration of cosmic rays. Cosmic ray investigation led, of course, to a study of mesons. These are described as particles of energy which form part of the breakup of the cosmic ray in the earth's atmosphere. The most energetic of the mesons are rated as 100 million million times as powerful as the particles released by the atom bomb and it was doubtful if they could ever be harnessed.

In the field of general equipment and munitions, interest centred on testing of army items in cold weather climates. Three task forces, totalling 4,500 men and called task forces Frigid, Frost and Williaw respectively, carried out months of testing in Alaskan weather. Some of the new items tested were: clothing lined with fibre-glass to repel cold; nylon tents and portable squad shelters which can be pitched on any terrain without using any poles, ropes or stakes; a reversed refrigerator with a heating element to thaw 4,000 lb. of solidly frozen food and in 24 hr. raise it to a temperature of 128° F.; a new type of knife, fork and spoon, made of stainless steel and designed to be nested compactly to fit in a uniform pocket; a new type of nontoxic heat tablet, known as trioxane and capable of heating a pound of water in still air to 100° F.

During 1946 the army adopted a new ration, "E," containing a variety of meat items, canned bread which keeps well in all climates, confections and other food accessories, superior to the old "C" and "K" rations of World War II. A new water-purifying tablet was perfected and found to be preferable to the former chlorine type. Using iodine rather than chlorine, drinking water produced is less objectionable in taste and odour.

The army effected a 68% reduction in volume of spare parts for materials-handling equipment. This had already made possible a 33% saving in warehouse space and a 40% saving in time required for selection and packing.

New type parachutes, fitted to be used when dropping from supersonic aircraft, were tested.

The realm of applied science produced at least two interesting developments. One of the most modern high-altitude chambers in the world was built at Cornell university research laboratory. The chamber is 34 ft. long with an inside diameter of 10 ft. Its refrigeration and pressure system is so designed that pressure altitudes of more than 67,000 ft. and temperatures as low as -85° F. can be simulated. At Picatinny arsenal, a 20,000,000-volt betatron unit was installed for the examination of artillery shells and bombs. This X-ray machine can "look" through 12 in. of steel and detect cavitations or other imperfections.

The army made two unusual civilian contacts during the year. "Goop," wartime incendiary filling for bombs, was regarded after hostilities as a substance without commercial value or use. However, it was being presented in huge quantities to the United States forest service where it proved a valuable agent, simply handled, in the building of backfires to fight the menace of forest fires. Smoke generators used in World War II were lent to agriculture department experimental stations to be used in fruit, cotton, tobacco and wheat belts to protect crops from frost and insects.

A few more of the outstanding munitions developments of the year are listed briefly.

"Jato" units to assist aeroplane take-offs were successfully tested during 1946. Four such rocket motor units were installed under the wing of a Douglas C-54 "Skymaster" which then took off after a ground run of less than 700 ft., whereas the normal ground run is 3,000 ft. Each rocket unit, using the rapid expansion of heated gases to provide its thrust, produced 333 h.p. at

90 m.p.h. for approximately 12 sec.

Clothing known as "inverted fish bowl" pressure suits were developed for stratosphere flying, enabling air crew members to reach 62,000 ft. altitude in comfort. The suit resembles a deep-sea diver's suit, plus a large goldfish bowl, and is capable of counteracting the loss of external pressure in near-stratospheric heights.

In August the air forces tested its largest land-based bomber, the Consolidated XB-36. It is 163 ft. long, has a wing-span of 230 ft. and a rudder height of 47 ft. 6 in. It is powered by six 3,000 h.p. Pratt and Whitney engines mounted on the trailing edge of the wing, 3 on each side of the fuselage. Each engine drives a three-bladed pusher-type propeller. The XB-36 has a bomb-carrying capacity of more than 30 tons.

Lycoming division of Aviation corporation at Williamsport, Pa., perfected the world's most powerful reciprocating aircraft engine. This engine, the Lycoming XR-7755, develops 5,000 h.p. at take-off; this is the power equivalent to that produced by a modern railway locomotive. The engine, to be known as X-7, has 36 cylinders in 4 banks of 9 each and combines high-power output necessary for take-off with low fuel consumption necessary for range.

The Army Epidemiological board announced in May the development of an effective vaccine against dengue fever. Mice were used in the testing.

Lightweight airborne radar equipment was used for the first time on a scheduled transport operation when a C-54 plane flew from Westover Field, Mass., to Paris, France, during May. Some of the contributions to flight safety of this lightweight radar are:

(1) The ability to "see" turbulence and storm conditions on the flight path and therefore to avoid them.

(2) By using radar beacons, there was provided a method of accurate, short-range position fixing.

(3) An anti-collision device effective during instrument and night flying.

(4) An obstruction warning device for the avoidance of mountains and other terrestrial obstructions.

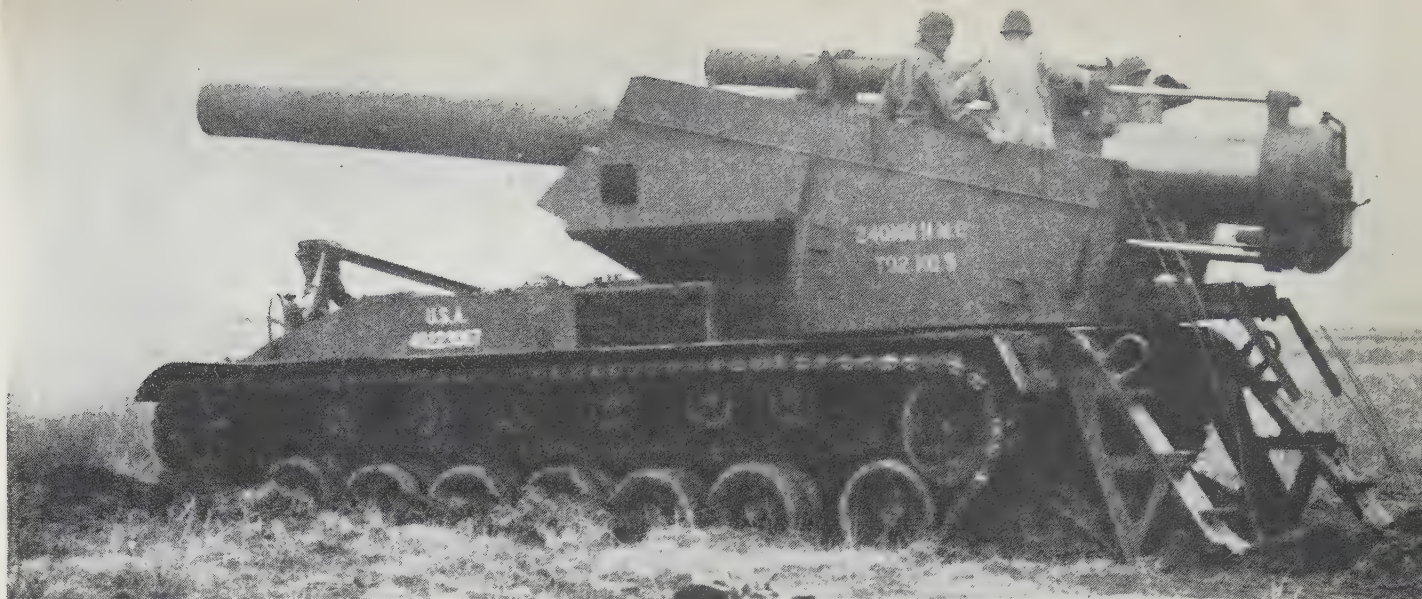
(5) An aid to navigation under instrument conditions for location of islands, shore lines, rivers, lakes, cities and other landmarks.

A telephone switchboard weighing only 2½ lb. was developed. Seven of these units together with a standard army field telephone are sufficient to handle the same traffic as a regular six-line switchboard which ordinarily weighs 60 lb.

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(R. S. T.)

Navy.—The navy's material activities during 1946 fall under three categories: first, demobilization; second, disposal of surplus and third, research and development. In demobilization it was essential to preserve for future use entire ships and items of modern armament for future installation on merchant ships or converted vessels. A notable advance lay in the preparation of materials for long-term storage, including dehumidifying systems in ships and the enclosing of certain fixed equipment aboard ships and certain items, particularly ordnance, in storage ashore in a plastic film sprayed on with a conventional paint spray gun. These measures, and hermetically sealed metal enclosures for certain types of mounts, made it possible to lay up ships so that they might be returned to service with a minimum of time.

The disposal of surplus property had, of course, to be preceded by a determination of what was surplus, which required a close examination of all material to determine obsolescence. There was retained only modern equipment suitable for future use and laid away in condition for immediate reissue. A considerable quantity of obsolete naval equipment had to be scrapped

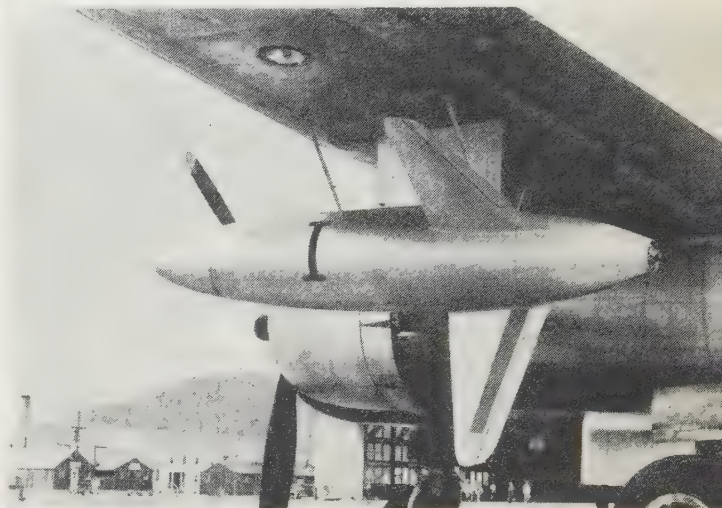


Above: SELF-PROPELLED 240 MM. HOWITZER weighing 63 tons, displayed early in 1946 during the Artillery conference at Fort Sill, Okla. Its top speed is 20 m.p.h. Carrying its crew of 18 men, the weapon can be put into action three minutes after pulling into position

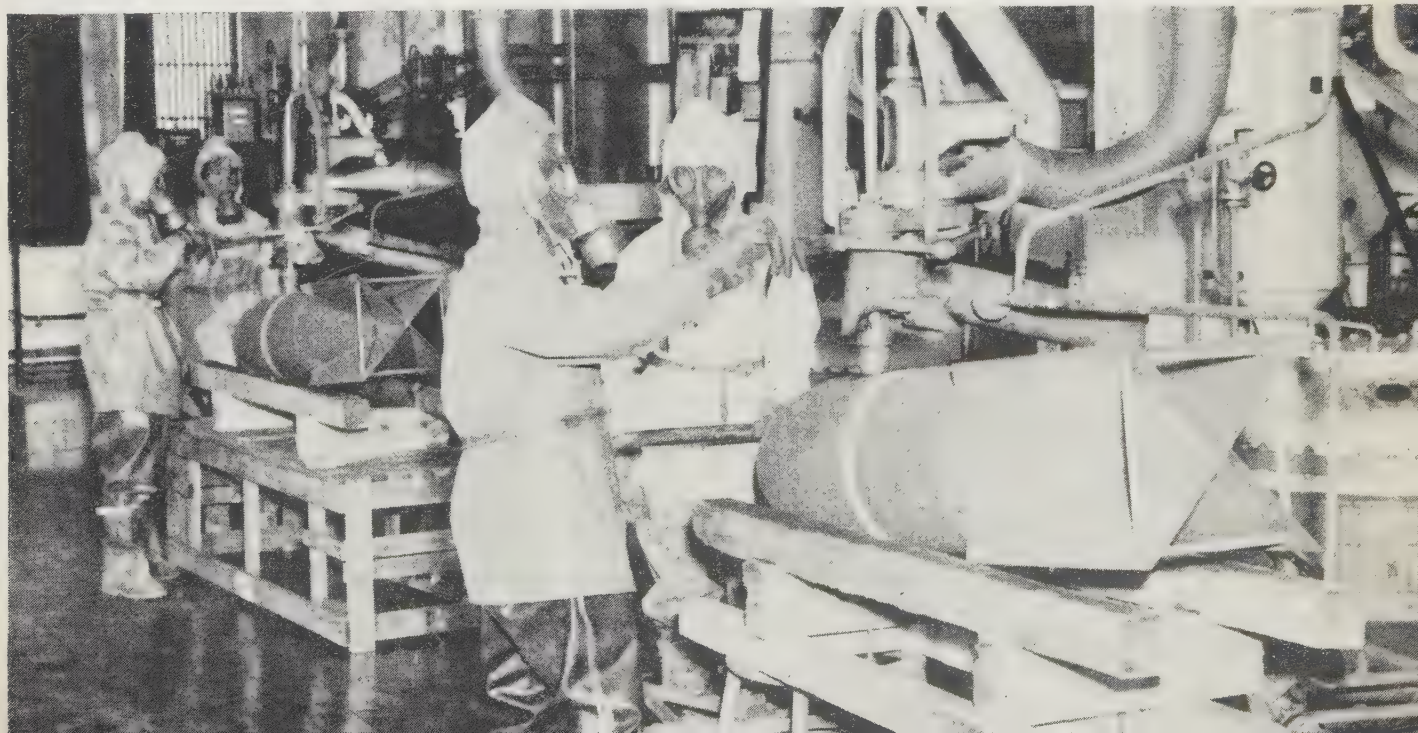


Left: CARBINE FITTED "SNIPERSCOPE," a U.S. army weapon revealed in 1946. The device permits the user to see in total darkness through a telescope (above the gun) an enemy who is revealed by a beam of infra-red light, which is sent out by the projector (below), although the light is invisible to the enemy

Below: JET BOMB (JB-3), shown attached to the wing of a bomber, is launched when the mother plane is flying at 300 m.p.h. and is controlled during initial stages by the operator in the bomber; then a special device in the nose of the bomb guides it to the target



Below: GERMAN WORKERS in protective clothing at a U.S. army chemical warfare service depot in Germany, in 1946, where they were destroying German toxic bombs





AD-1 SKYRAIDER, a new carrier-borne plane of the U.S. navy, revealed in 1946, was built by Douglas. It carries two 12-inch "Tiny Tim" rockets and twelve 5-inch rockets, giving it, according to Douglas, "an explosive wallop more destructive than the guns of a light cruiser." The "Tiny Tim" rocket was also revealed in 1946, and was said to be "by far the deadliest thing ever fired from an aeroplane"

before disposal to retain the confidential status of the equipment itself and of some of its components.

Research and development in naval munitions during World War II had two distinct objectives: the immediate solution of pressing problems and the solution of obviously long-range problems through the application of new and improved scientific techniques. In early 1946 the material bureaus eliminated practically all of the problems for which interim solutions had been sought because shrinking funds and the urgent civilian need for scientific and engineering talent dictated concentration on projects offering greatest promise. Improvements in conventional weapons were pursued only if they offered substantial improvements. Outstanding developments in this field were: (1) The 8-in. rapid fire mount. Fully mechanized handling of ammunition and substantially completely automatic operation promised a marked increase in rate of fire over the conventional 8-in. gun.

(2) The development of the 6-in. .47-calibre gun, of proven effectiveness in night cruiser engagements and shore bombardments, into a double purpose weapon for use against ships and aircraft. Again mechanized handling of ammunition substantially increased the rate of fire.

(3) The old 3-in. .50-calibre anti-aircraft gun, a relatively fast-firing hand-loaded weapon with hand operation of elevation and train, became an automatically loaded gun mounted in pairs on power-driven mounts and controlled by electronic directors embodying radar. Utilizing the VT (proximity) fuse, the combination provides a tremendous increase in anti-aircraft effectiveness at approximately the weight of a 40-mm. quadruple mount.

(G. F. HY.)

Air.—A guided missile is a space-traversing weapon or missile intended to make a single journey to a target. The term guided means that the missile is equipped with some kind of controlling or guiding agent. This agent may be carried within the missile, such as a homing device activated by the target itself, like heat, light, sound or metal, or an automatic pilot set prior to launching. The guiding agent may be external, exerting control by wire from a parent plane or by a radar-radio system. A pilotless aircraft is simply a guided missile whose aerodynamic surfaces are sufficiently large to furnish its chief support in flight, such as the V-1 buzz bomb. The National Advisory

Committee for Aeronautics (N.A.C.A.) had a far-reaching program to provide basic research data for use in the design and operation of guided missiles to be developed by the army and navy. In its laboratories and testing grounds at Langley field, Va., Cleveland and Moffett field, Calif., problems relating to aerodynamics—shape of airfoils, wings, fins, etc., for supersonic speeds; propulsion—rockets, ramjets, pulse jets, etc.; control and stability—electronics, gyros, infra-red, television, etc.—and launching—from ground, ship or plane—and other problems were being tackled. N.A.C.A. developed five special research missiles, RM-1, RM-3 and RM-5 for stability and control, and RM-2 and RM-4 for airfoil and drag research. Late in 1946 N.A.C.A. also announced the "Tiamat" (named for an Assyrian-Babylonian goddess), one of the first successful step rockets, launched by a rocket booster which drops off after 3 sec. and the research missile, equipped with telemetering devices to transmit to ground a record of its flight, continues on its way for 45 sec., powered by a small internal rocket engine.

Army and air force guided missiles were designed for operation from ground-to-air, from air-to-air, from air-to-ground and from ground-to-ground. They had to be capable of reaching tremendous speeds and altitudes, and military authorities were already thinking in terms of outer space as a possible battleground of the future. Army ordnance (White Sands, N.M. and Aberdeen), the signal corps and the army ground forces all had programs under way in this field.

In the autumn of 1946 the U.S. war department assigned to the army air forces full responsibility for research and development in guided winged missiles. Five main fields were being covered: aerodynamics and design, propulsion, guidance and control, war heads, launching methods and equipment. More than 100 universities and aircraft, electronic, chemical, automotive and other industrial companies were conducting active research in these problems. Over-all direction was at AAF headquarters with a guided missiles section attached to A-4, Materiel. Design and development in the field was under the Pilotless Aircraft branch, Air Materiel command, Wright field, Dayton, O. Flight test activities were carried on at the AAF Guided Missiles Proving ground, Wendover field, Utah, while operational testing and training was conducted by the First Experimental Guided Missiles group, Elgin field, Fla. Activities at Wendover during 1946 included testing of new electronic control devices, development of equipment and training of pilots in remote-controlled B-17 drone operations and testing the Boeing developed "GAPA," a supersonic rocket interceptor intended to seek out and destroy enemy high-speed, high-altitude aircraft or missiles. The long range B-29's were also being adapted as remote controlled pilotless aircraft, as perfection of rockets with sufficient range and accuracy was admittedly several years away.

Guided missiles and pilotless aircraft used by naval forces involve problems and requirements that differ fundamentally from those of air forces. The U.S. navy organized its air munitions into four tactical classes: (1) Those launched from ship-to-air for protection against attacks by enemy aeroplanes or guided missiles; (2) ship-to-ship, strictly an attack function; (3) air-to-surface pilotless aircraft launched from parent planes against enemy ships; (4) ship-to-shore missiles designed to pound land targets from the sea, to support amphibious operations, etc. During 1946 navy's Project Bumblebee under the Guided Missiles section, bureau of ordnance, made considerable progress in rockets, ramjets and guided missiles, with projects in scores of universities, industrial laboratories and private companies. (See AVIATION, MILITARY.) (N. F. S.)

Rockets.¹—A great amount of information, released for public consumption in many countries, clearly demonstrated a univer-

¹ Published with permission of the chief scientist, ministry of supply, U.K.

sal and rapidly increasing growth of interest in rocket technique during 1946. The emphasis everywhere was on long-range, guided missiles; the shorter-range compact rockets, used so successfully during World War II as aircraft armament and mass-barrage weapons, were temporarily neglected.

The installation at Westcott aerodrome, near Aylesbury, Buckinghamshire, of a large experimental establishment for guided projectile research under William R. Cook was deplored by local farmers and landowners, but they were overruled by the cabinet and constructional work continued. Reported estimates of the cost were £2,000,000. In October rumours that the project was to be abandoned were officially denied.

A technical mission under the charge of Lieut. Gen. J. F. Evetts left England for Australia in April to explore the practicability of employing large tracts of wasteland and desert there, for rocket-firing trials. Reports published after the return of the mission indicated the approval by Sir Alwyn Crow, director of guided projectiles, of recommendations for the use of a site near Mount Eba, South Australia, as the base, firing in a northwesterly direction, eventually over Port Hedland and Broome, 1,200 mi. away. The cost was variously estimated as between £10,000,000 and £20,000,000. A near-by Australian ordnance establishment was proposed as an assembly factory.

Reports during July and August from several European countries, particularly Scandinavia, of unexplained rocket missiles repeatedly passing over, and frequently exploding overhead, were at first generally regarded as proof of long-range rocket activity by soviet union scientists but later explained by Karl Manne Siegbahn, Swedish physicist and Nobel prize winner, as meteorites. Soviet scientists were reported by many correspondents, however, as actively pursuing rocket research and development, using German scientists alongside their own.

At White Sands, N.M., U.S. scientists fired V-2 rockets, assembled largely from parts recovered in Germany, to heights of more than 100 mi., creating new altitude records. Recording and telemetering instruments, carried in the war head compartment, gave them valuable new data concerning many meteorological problems. Other guided missiles, developed at the California Institute of Technology at Pasadena, were successfully fired and demonstrated the remarkable rate of technical progress in rockets achieved in the U.S.A.

Many reports originating from authoritative sources disclosed optimistic views on the future feasibility of bridging the Atlantic by mail-carrying rockets and of reaching speeds of 25,000 m.p.h. by rocket propulsion, which would suffice to enable a device to leave the earth's gravitational field.

Sir Alwyn Crow, for several years head of rocket research and development in Britain, went to Washington, D.C., in December, to direct the scientific and technical services of the British Supply office, a move indicative of the large share envisaged for rockets in future technical liaison between Britain and the U.S.A. (See also ATOMIC ENERGY; NAVIES OF THE WORLD.)

Murray, Philip (1886–), U.S. labour leader. A native of Scotland, he was born in Blantyre on May 25 and emigrated to the United States in 1902. Naturalized in 1911, he became a member of the international board of the United Mine Workers of America the next year, president of the union's fifth district in 1916, and international vice-president in 1920. Murray succeeded John L. Lewis as president of the Congress of Industrial Organizations (C.I.O.) on Nov. 22, 1940, when Lewis fulfilled his pledge to quit if Roosevelt were re-elected. But Murray did not follow Lewis in his bitter opposition to Roosevelt's foreign policy. A split developed in May 1942, when Lewis ousted Murray as U.M.W.A. vice-president. Mur-

ray fought back, and the C.I.O. went along with him; Lewis and the mine workers walked out. During World War II Murray fought to maintain the no-strike policy, to use manpower more efficiently, to streamline the War Labor board, to stabilize prices, etc. Immediately following conclusion of World War II, the C.I.O., under Murray's guidance, launched its campaign for continued high wages and better working conditions. On Jan. 23, 1946, two days after the steelworkers went out on strike, Murray launched a sharp attack on corporation tax laws, charging that if the steel industry did not operate another day in 1946, it would regain \$149,000,000 in tax rebates, representing an amount 29% above the level of the industry's prewar earnings; he asked Secretary of the Treasury Fred Vinson to take steps to end this "outrageous condition." He assailed President Truman's handling of both the rail strike in May and the coal strike in November-December. Murray was also concerned over the communist issue in 1946 and at the C.I.O. convention in Atlantic City, he was given authority by the executive board (Nov. 15) to expel communists from the union. At the latter convention (Nov. 22), he was re-elected by acclamation to his seventh year as C.I.O. president.

Museums of Art: see ART GALLERIES AND ART MUSEUMS.

Music. German power and propaganda having vanished from the globe, a remarkable cultural renaissance began in the liberated countries of the European continent. Everywhere new life, new voices appeared, new ambitions and new courage developed. Native U.S. composers, conductors and instrumentalists were welcomed in Russia, England, Italy, Austria and Czechoslovakia, reversing thus the picture of prewar days. A new brotherhood through music was in evidence, and the United States had assumed the leadership. Some of the foreign-born musicians who had made their homes in the U.S. during World War II returned to their respective countries to be helpful in the reconstruction of cultural organizations and institutions. International music festivals and meetings took place in many of the European capitals. The London festivities of the International Society for Contemporary Music brought together in happy reunion an unusually large number of creative musicians from both sides of the Atlantic. Among the works performed were: Sergei Prokofiev's *Ode to the End of War*, Anton von Webern's *Cantata*, Belá Bartók's *Concerto for Orchestra*, Arnold Schoenberg's *Ode to Napoleon*, Igor Stravinsky's *Sonata for Two Pianos*, Paul Hindemith's *E flat Quartet*, Ernst Křenek's *Quartet No. 7*. The younger generation complained about the absence of works written by composers under the age of 30. Another London festival featured Frederick Delius in seven concerts conducted by Sir Thomas Beecham. A sensational success was achieved by Benjamin Britten's second opera *The Rape of Lucretia* at Glyndebourne, England. Lucerne, Switzerland, offered two symphony concerts by Arturo Toscanini for the benefit of La Scala. The International Festival weeks, later on, featured programs conducted by French, English, Italian, Swiss and Austrian masters of the baton in co-operation with world famous soloists. Salzburg, Austria, attempted a somewhat modest revival.

The Ninth Festival of Contemporary Music in Venice discovered many new creative talents. The I.S.C.M. in Rome offered well-known and new works of many nationalities. The outstanding world-première was *Don Quixote* by Goffredo Petrassi, a spiritual concerto for two voices and nine instruments. Politically and culturally important music events occurred in Moscow where entire programs of U.S. music were given on July 4th (observing the national holiday) and 5th. Roy Harris' *Ode to Friendship* was surrounded by works of Aaron Copland,



FIRST NIGHT performance of Mozart's opera "Don Giovanni," which opened the Salzburg Festivals on Aug. 1, 1946, at Salzburg, Austria, birthplace of Mozart. The annual music fest was interrupted by the war, but was held in 1946 with the active assistance of the U.S. forces in Austria

Samuel Barber, George Gershwin, George Antheil, Wallingford Riegger, Elie Siegmeister, etc. Yehudi Menuhin's six-day visit to Moscow matched the arrival in the U.S. of Ukrainian opera singers. England, France, the U.S.S.R. and the U.S. were represented at the Prague festival. Czech music celebrated its national reawakening with works by Harris (*Third Symphony*), Barber (*Second Essay*), William Schuman (*American Festival Overture*). Copland (*Salon Mexico*), Leonard Bernstein (*Jeremiah Symphony* and *Violin Sonata*) were performed along with piano concerti by John Ireland and Aram Khachaturian, Arthur Honegger's *Symphony for Strings* and Britten's four "Interludes" from *Peter Grimes*. Aloys Haba's quarter-tone music was again in evidence. The enthusiastic welcome was given the Czech philharmonic in Zurich (*Fourth Symphony* by Bohuslav Martinu under young Jeronym Kubelik) and the visit of the Amsterdam Concert Gebouw orchestra to the Interlaken, Switzerland, festival. Three new works of the aged Richard Strauss: *Metamorphosen* (for orchestra), an oboe concerto with small orchestra and the *Second Sonatina* for 16 wind instruments had their world premières during the annual music weeks in Zurich. Among the new important works by Swiss composers performed on the same occasion and in first presentation were Honegger's *Symphonic Liturgique* and his *Symphony for strings*, Othmar Schoeck's *Summernight* and *Suite in A flat*, both for string orchestra. Heinrich Sutermeister's opera *Niobe* had its first hearing at the state opera house in Berlin and was immediately accepted for performance in Dresden, Basel and Zurich.

At Tanglewood in the Berkshire hills, Mass., Serge Koussevitzky offered the first U.S. presentation of Britten's *Peter Grimes* as well as the U.S. première of Dmitri Shostakovich's *Ninth Symphony* under his direction. Other works performed and worthy to be mentioned were Arthur Loulié's *Naissance de la Beauté* and G. Francesco Malipiero's *Le sette Auegnesse l'Amore*. The annual glorification festivities of native U.S. music in Rochester, N.Y., under the sponsorship of Howard Hanson included 40 works by 30 different composers many of whom were newcomers. First performances to be cited were: Weldon Hart's *First Symphony*, Bernhard Rogers' *To the Memory of President Roosevelt* and shorter works by Robert Palmer and Wayne Barlow. A new organization "The Fellowship of American Composers" (under the guidance of Roy Harris) met in Detroit and gave reading rehearsals to young composers and awards to contest winners. Yaddo, N.Y., the meeting place of

the young set featured many new names on its six programs. At the Saratoga Spa festival a concertino for piano and orchestra by Frederick Jacobi and the *Symphonic Elegy* by Křenek attracted attention. These waves of novelties were tempered by the Ninth Festival of Old Music (six concerts) at Williamsburg, Va., under the direction of Ralph Kirkpatrick.

The friendly exchange of artists and musical works between nations was bound to bring about a better understanding of national temperaments and culture in general. Belgium was the first European country to mobilize its youth for cultural unity. "Les jeunesses musicales de Belgique" found an immediate echo in France. These latin "Youth Societies" expressed the desire to hear much music and to encourage the new native creative talent. Their membership went quickly into the thousands. In Paris the music life took a quick up-turn with both opera houses and the several symphonic organizations reaching prewar status of activities. The "Prix de Rome" was again given after all the years of German occupation. In all the capitals of Europe the local branches of the I.S.C.M. began their reorganization. In Milan, young musicians formed "La Bottega dei compositori" for the exchange of new ideas and for the presentation of new works. Geneva, Switzerland, held its international contest for singers, pianists and other instrumentalists as well as for string quartets. A goodly number of outstandingly talented young artists were discovered. Vienna reported its slow recovery in the musical doings. News from Poland was surprisingly encouraging. Activities in two opera houses and at least five conservatories of music were successfully resumed. Musicians organized for mutual help and for national recognition. The Netherlands seemed to have been the first of the occupied countries to have fully recovered its music-life. Palestine indicated the birth of a Jewish music. Synagogical prayers and folk songs were brought in by refugees from Poland, the Ukraine and Spain. Mexico city featured a busy midyear season under the leadership of Carlos Chavez; Hindemith, Darius Milhaud and Stravinsky conducted their own works.

In the international picture the following newcomers among composers must be mentioned: Olivier Messiaen, Elsa Barraine (both French), Robert de Roos (Dutch), Franz Mohaupt (German), Roman Palester (Polish), Alan Rawsthorne (English) and Albert Moeschinger (Swiss).

Many symphonic writers contributed to the band literature as a new outlet for their ambitions and inspiration (Milhaud, Barber, Shuman, Henry Cowell, Harris, Paul Creston, Stravinsky). Edwin Goldman presented Schoenberg's *Variations* for band and many other similar novelties at Central Park, N.Y., before large audiences. Commissions to seasoned composers

were generously given by broadcasting stations, symphony orchestras, foundations, artists and private individuals, all over the U.S. Music was written for government films, and Hollywood continued to snare both "serious" composers and "box office" artists into the movie world. An avalanche of books about music, its creators and interpreters flooded the market. Two important contributions were *The Schillinger System of Musical Composition*, a new approach to create music, by Joseph Schillinger, and Messiaen's *Technique de mon langage musical* (not translated into English as yet). Formerly well-known music periodicals were revived in France and England and a number of new ones made their appearance stressing the voice of the younger generation.

During the greatly increased symphonic activities in the U.S. some important world premières attracted attention: Copland (*Third Symphony*), Harris (*Celebration Variations*), Milhaud (*Second Symphony*), Stravinsky (*Symphony in Three Movements*), Bartók (*Third Piano Concerto*), Ernest Bloch (*Suite Symphonique*), Hindemith (*Herodiade*), Prokofiev (*Summer Day*), Barber and Vladimir Dukelsky (*Cello Concerti*), Gian-Carlo Menotti (*Piano Concerto*), Creston (*Fron-tiers*). (R. Gz.)

Popular Music.—The year 1946 had its encouraging features in the field of America's popular music. Public taste gave recognition to a number of songs that were definitely above the average, while the end of World War II put an abrupt stop to the abortive attempts at "patriotic" and "martially significant" music. Composers and publishers were content to express old ideas, with an occasional twist of novelty, and Tin Pan Alley dismissed all feelings of national responsibility with a distinct sigh of relief.

The songwriter of the year was unquestionably that established pillar of popularity, Irving Berlin, returning with fresh enthusiasm to his customary success, after a long period of loyal service to his country. His musical comedy, *Annie Get Your Gun*, starring Ethel Merman in a tuneful version of the life of Buffalo Bill's sharp-shooting Annie Oakley, became an immediate Broadway sensation, under the managerial direction of Richard Rodgers and Oscar Hammerstein II. All records were broken when three songs from that production appeared simultaneously for five successive weeks on radio's Hit Parade. These three were "They Say It's Wonderful," possibly the best song of the year, "Doin' What Comes Naturally," a down-to-earth suggestion of uninhibited folk-music, and "I Got the Sun in the Morning," with a smartly rhythmized message of optimism. Berlin was also responsible for the motion picture *Blue Skies*, containing a wealth of his music, interpreted by Bing Crosby and Fred Astaire, and including a new hit, "You Keep Coming Back Like a Song." At the close of the year, "White Christmas" gave its annual reminder of enduring popularity.

The commercial hit of 1946, however, was a curiously old-fashioned song called "The Gypsy," whose exact appeal it is impossible to analyze. It appeared in the Hit Parade for 20 weeks in succession, eight times at the top, and it was admittedly the year's biggest seller of sheet-music and records.

There were other songs whose popularity was not easily explained (except through the astute merchandizing methods of their publishers). The rather obscure names of Bennie Benjamin and George Weiss appeared on three big hits, with the titles "Oh! What It Seemed to Be," "Rumors are Flying" and "Surrender." The Burke-Van Heusen team scored with the slightly suggestive "Personality" and the inoffensive "Aren't You Glad You're You?" but also published "Ole Buttermilk Sky," the latest hit by Hoagy ("Stardust") Carmichael, who came back with still another novelty, "Doctor, Lawyer, Indian Chief,"

besides appearing successfully in that outstanding film, *The Best Years of Our Lives*.

Sammy Cahn and Jule Styne collaborated effectively in the sprightly "Five Minutes More," as well as "Let It Snow!," "It's Been a Long, Long Time" and "The Things We Did Last Summer." Paramount's "To Each His Own," placed second to "The Gypsy" in *Billboard's* popularity poll, profited by motion picture publicity and the title's vague suggestion of moralizing.

The French importation, "Symphony" (originally "C'est fini"), held its own for several months as a holdover from 1945, topping the Hit Parade seven times in the early weeks of 1946. Other good tunes of the year were "South America, Take It Away," by Harold Rome (from the musical hit, *Call Me Mister*), the Kern-Hammerstein "All Through the Day" (appearing in the film, *Centennial Summer*) and "The Old Lamp-lighter," by Charles Tobias and Nat Simon.

"Shoo-Fly Pie and Apple Pan Dowdy" echoed the tune of "Casey Jones," while "I Can't Begin to Tell You" owed something to "When Love is Young in Springtime." Frederick Chopin's melody encouraged a revival of "I'm Always Chasing Rainbows," credited to Harry Fox instead of Harry Carroll in the *Dolly Sisters* film, and the commonplace measures of "Laughing on the Outside" brought more than 20 complaints of plagiarism.

The serious composer of the year was probably Sergei Rachmaninoff, chiefly by way of his *Second Piano Concerto*, which was used in half a dozen motion pictures, besides supplying the tunes for "Full Moon and Empty Arms" and other popular songs. Peter Tschaikovsky and Edvard Grieg also continued to find a new public, and there was no lack of interest in the solid work of Richard Rodgers and Cole Porter (the latter being honoured with a film biography, *Night and Day*).

Billboard's poll selected Dinah Shore and Perry Como as top vocalists in the popular field, with Frankie Carle heading the band-leaders. (S. Sp.)

Music in Industry.—Music for the worker became increasingly popular throughout 1946. There was a large sale of equipment to plants operating their own musical programs, and a great increase in the number of outlets for wired music services.

Extensive research continued to reveal new factors for the betterment of musical programs. Mental workers need a type of program different from that provided for those under physical stress. Still another type of subdued musical program is needed for office workers whose tasks entail concentration.

There was a notable increase of installations for banks, mostly to benefit the workers, but not without consideration of the patrons. Department stores using wired music multiplied. Most of these confined their outlets to the work areas, although some stores catered also to patrons.

Study of the workers' reactions brought new statistical information with resulting betterment of service. In the needlework industry for example, instead of midmorning and midafternoon programs formerly used to anticipate the usual fatigue periods, it was found desirable to supply half hourly programs of brief duration.

In line with music in industry is its use in therapy. It was stated that music in waiting rooms is a time saver for the doctor, who is not obliged as formerly, to relax his patient already soothed by well-designed musical programs.

The solution of the problem of music for workers in noisy operations was regarded as of prime importance, because the fatigue factor is so closely linked to the din of such work. (See also RADIO.) (X.)

Recordings.—With the gradual release of materials previously restricted by wartime needs and the increase in industrial capacities and manpower, the producing companies were hard put to it to meet a demand, which was urged by a number of factors, but principally by the huge new buying public developed during World War II.

In the United States, largest source of supply, it was believed at first that there would be, oddly enough, a great over-production. But this belief resulted from the unanticipated shortage of record players, a situation, influenced by both scarcity of materials and the considerable number of strikes, which was eventually remedied. The 1946 totals attained in overall production by RCA Victor, Columbia, Decca, Capitol and many other firms was much beyond that of the industry's best year, 1921.

In England, HMV, English Columbia, English Decca, Polydor and other groups—all having trade agreements and exchange affiliations with

U.S. houses—channelled the bulk of their production for export.

In Italy, the Cetra company released its first postwar recordings—principally operatic and concert works—almost exclusively for the U.S. market.

The significant developments along the lines of fidelity reproduction were to be observed in the F.F.R.R. (full frequency range recordings) of the Decca company of London, and the pressings made on vinyl plastic by RCA Victor in the United States.

F.F.R.R., a perfected automatic recording technique, dispensed with monitoring, that is to say, the necessity for human control of the quality and volume of sound in the recording studio. In addition, the frequency range was much extended, thus permitting reproduction of all the fundamental frequencies and overtones audible to the ear, thereby enhancing the variety and quality of musical expression.

The vinyl recordings of RCA Victor, (climaxing 11 years of research), besides permitting greater clarity and reducing surface noise to a minimum, had the advantage of being unbreakable and, therefore, more enduring. In 1946 a number of such recordings were issued, although the first had been released in Oct. 1945 (Richard Strauss's *Till Eulenspiegel's Merry Pranks*, performed by the Boston symphony orchestra under the direction of Serge Koussevitzky). However, the extreme scarcity of the plastic, which was still under government control in 1946 did not warrant a wide production, although it was expected that it would increase materially with the curtailment of restrictions. (R. Br.)

Music in Industry: see MUSIC.

Music Library Association: see SOCIETIES AND ASSOCIATIONS.

Mustard Seed: see SPICES.

Mutton: see MEAT.

Narcotics: see DRUGS AND DRUG TRAFFIC.

Nash, Paul (1889–1946), British painter, was born on May 11 in London. A well-known post-impressionist painter, Nash first achieved prominence for his war pictures made while he was attached to the Artists' Rifles in France during World War I. He worked in many mediums—oil, water colour and wood engraving—and in the industrial field designed textiles, wood, glass, china, books and posters. During World War II, he organized the Arts bureau in Oxford for war service and was attached to the air ministry and to the ministry of information as official artist. He was the author of several publications on art and decoration and on British artists; his latest work was *Penguin Modern Painters* #4 (1946). See *Encyclopædia Britannica*. He died on July 11, according to a London report.

National Academy of Sciences: see SOCIETIES AND ASSOCIATIONS.

National Archives: see ARCHIVES, NATIONAL.

National Association of Evangelicals. This inter-church organization in the United States, formed in May 1943 to provide a means of co-operation in fields of common interest for conservative Protestant churches, added five denominations during 1946 to its constituency, giving it a membership of approximately 1,300,000. Its associated organization, the Evangelical Foreign Missions association, served 64 mission boards. Another associate, the National Sunday School association, launched a new International Sunday School lesson series and inaugurated a system of Sunday school conventions in various states. Its radio department was incorporated as the National Religious Broadcasters. Its Commission on War Relief was operating in 12 countries. The value of food and clothing sent to Europe and the orient up to the end of 1946 was in excess of \$8,000,000. An office of transportation and supply was opened in New York during 1946 for the purpose of providing equipment of all kinds and transportation to and from mission fields for its constituents. A regional office was established in Minneapolis, bringing the total number of offices to 12. The officers elected at its annual meeting held in May 1946, in Minneapolis, were Dr. R. L. Decker, of Kansas City, Mo., president; Dr. Stephen W. Paine, of Houghton, N.Y., first vice-

president; Dr. William H. Rutgers, of Grand Rapids, Mich., second vice-president; Seth A. Rohrer, of Elkhart, Ind., secretary; H. J. Taylor, of Chicago, Ill., treasurer. Dr. J. Elwin Wright was continued as executive secretary. (J. E. Wt.)

National Association of Manufacturers: see SOCIETIES AND ASSOCIATIONS.

National Association of State Libraries: see SOCIETIES AND ASSOCIATIONS.

National Budget: see BUDGET, NATIONAL.

National Catholic Community Service: see SOCIETIES AND ASSOCIATIONS.

National Catholic Rural Life Conference: see CATHOLIC RURAL LIFE CONFERENCE, NATIONAL.

National Catholic Welfare Conference: see CATHOLIC WELFARE CONFERENCE, NATIONAL.

National Congress of Parents and Teachers: see PARENTS AND TEACHERS, NATIONAL CONGRESS OF.

National Debt: see DEBT, NATIONAL.

National Education Association of the United States thru its representative assembly meeting in Buffalo, N.Y., July 5, 1946, adopted a Victory Action Program (1946-51) providing for the unification, expansion and development of local, state and national professional associations of teachers along with a 21 point program of action for the improvement of education. The association was working for a nation-wide minimum salary of \$2,400 annually for beginning teachers with a bachelor's degree plus annual increments running up to at least \$5,000. The association continued its pioneering work on behalf of the United Nations and the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.). It was host at Endicott, N.Y., Aug. 17-30, 1946, to a world conference which drafted a constitution and took steps to establish a representative World Organization of the Teaching Profession. The association also sponsored the National Emergency Conference on Teacher Preparation and Supply at Chautauqua, N.Y., in June. The association's federal aid proposal as embodied in S. 181, amended, continued to make progress and was favourably reported to the senate by its committee on education and labour. "Education for the Atomic Age" was the theme for American Education week, Nov. 10-16, 1946. Among new publications issued by the association during the year were the *N.E.A. Manual for Locals* and the United Nations edition of the *American Citizens Handbook*. The association was organized in Philadelphia in 1857. It had in 1946 a membership of 340,973 and its affiliated state associations had a membership of 759,980. Its official organ is *The Journal of the N.E.A.*, edited by Joy Elmer Morgan, and issued to all members monthly except June, July and August. The president for 1946-47 was Pearl A. Wanamaker, state superintendent of public instruction, Olympia, Wash.; executive secretary, Willard E. Givens. (See also EDUCATION.) (J. E. Mo.)

National Foundation for Infantile Paralysis: see INFANTILE PARALYSIS.

National Gallery of Art: see ART GALLERIES AND ART MUSEUMS; SMITHSONIAN INSTITUTION.

National Geographic Society. Organized in 1888 by a small group of professional geographers in Washington, D.C., the society had for its aim, as stated in its charter, the "increase and diffusion of geographic knowledge." Gilbert Grosvenor, president in 1946, assumed the direction of the organization's activities in 1899.

With the idea of interesting a much larger group of intelligent laymen by presenting the less technical and more human aspects of geography, he transformed the society's journal into the handsomely illustrated *National Geographic Magazine* of today. The membership of the society, which was less than 1,000 in 1899, was 1,500,000 in 1946.

The society relies chiefly on its magazine to fulfill its purpose to diffuse geographic knowledge. In carrying on its activities for the increase of geographic knowledge the society, in the 58 years of its existence, sent out more than 100 scientific expeditions to all parts of the earth.

To measure the invisible rain of cosmic rays through the earth's atmosphere the National Geographic society, in co-operation with the U.S. army air forces and the Bartol Research foundation of the Franklin institute, conducted during the summer of 1946 a series of flights totalling approximately 50,000 mi. The investigations were made in a converted B-29 bomber which was flown at altitudes ranging from 5,000 to 35,000 ft. The course extended over 70° of latitude from southern Canada to northern Chile. The plane carried cosmic ray detecting apparatus which made automatic records of the incoming rays showing how they vary with both latitude and altitude. Reports were to be made following a study of the records.

Completing eight years of archaeological investigations in southern Mexico, the joint expedition of the society and the Smithsonian institution, under the leadership of Dr. Matthew W. Stirling, spent the early months of 1946 in excavating the site of an ancient ceremonial centre near the village of San Lorenzo, Veracruz state. This was the third centre of the civilization known as the "La Venta Culture" unearthed by the series of expeditions. Indications are that the culture there reached its highest development. Five gigantic human heads carved from basalt, massive decorated altars and monuments, as well as small ceremonial art objects were uncovered, all showing superior workmanship. It is estimated that the centre flourished between A.D. 500 and 800. The correlation of art forms and pottery types points to the probability that the La Venta culture was a forerunner of much of the culture of the Mayas, the Toltecs and the Aztecs.

The aurora studies of the society in co-operation with Cornell university, directed by Dr. C. W. Gartlein, were continued during 1946 from the headquarters of the project at Ithaca, N.Y. Photographs and measurements made during the year included the outstanding displays of the nights of Feb. 7-8, March 23-24 and July 26-27. An unusually large sun spot which appeared during the latter aurora gave evidence by radio and magnetic effects that particles causing the effects journey from sun to earth in about 27 hours.

Further researches were carried on during the year by the society's expedition for the study of North American birds under the leadership of Dr. Arthur A. Allen of Cornell university. Natural colour photographs were made in bird refuges along the coasts of North and South Carolina, and in Georgia, Florida, Texas, northern Mexico and the Rocky mountains of the United States.

The society's cartographic division in 1946 designed, drew and published four ten-colour wall maps which were issued as supplements to the *National Geographic Magazine*. In all more than 6,000,000 copies of the charts were distributed to the society's members. The map of the northern hemisphere showed a region of special interest to civil aviation following the development of intercontinental air routes during World War II. It contained tables of airline distances, many of them extending over the Arctic regions. The postwar map of the United States embodied data from the most recent aerial and surface

surveys and included new communities such as Oak Ridge, Tenn., which came into existence as a result of war activities. The map of India and Burma, together with the previously issued charts of other portions of Asia, completes the society's current mapping of the earth's greatest continent. The map and the supplemental chart on its reverse side showed 598 political subdivisions of the British provinces and native states of India. The map of the Bible lands, centred near Palestine, included most of the countries of the Arab league, as well as Turkey, parts of Iran and sections of Bulgaria and Greece.

The National Geographic society's headquarters are at 1146 Sixteenth Street, N.W., Washington 6, D.C. Officers in 1946: president and editor, Gilbert Grosvenor; vice-president and associate editor, John Oliver La Gorce; secretary, Thomas W. McKnew; and treasurer, Robert V. Fleming. (G. GR.)

National Guard. When most military groups were consolidating and reducing their activities the national guard of the United States was reorganizing. The National Defense act provides that following a period of federal service all individuals and units of the national guard revert to their states. Provision for the post World War II reorganization was also included in the National Defense act, and in 1946 under these provisions reorganization of the new national guard, to be 682,000 strong, was started.

There was prepared by the war department general staff committee on national guard policy and approved by the secretary of war on Oct. 13, 1945, a set of war department policies relating to the postwar national guard, which made considerable changes in its character, composition and mission of the future as compared with that of the past.

Based upon these policies, the national guard bureau, a division of the war department special staff, prepared a phased plan for the reorganization of the national guard, which was approved on Jan. 28, 1946. The national guard bureau also prepared an allocation of national guard units appearing on the approved war department national guard troop basis and apportioned men among the several states. Letters went to the various states early in February offering them these troops for allotment. Acceptance of these allotments and later adjustments in them in accordance with the provisions of the National Defense act provided the underlying broad authority for the reorganization of the national guard.

The primary mission of the national guard is that of an "M-day force" to supplement the regular army in the defense of the United States in the event of any future declaration of war by an outlaw nation. The national guard provides the organized units: equipped, trained and available for immediate service in any climate, under any combat condition whether defensive or offensive. Secondly, the national guard is a state force which, under the direction of the individual governor, provides the state with local security strength and provides disaster relief if needed.

The major difference between the national guard and other civilian components of the military establishment is that it is authorized by law to receive pay and equipment from the federal government, that it is fully organized and equipped on regulation tables of organization and equipment, that it employs an age-in-grade policy for officers, that it maintains training programs on the same level with the regular army, that its personnel must meet physical and professional requirements identical to regular army standards and that it is at all times ready for instant mobilization.

The national guard is a joint responsibility between the federal government and the states, and the chief of the national guard bureau is the war department's representative to work

with the adjutant generals of the states and territories, etc., the military representatives of their respective governors, on this two-way contract for the benefit of all concerned.

Postwar planning for the reorganization of the national guard was begun before the cessation of hostilities. Studies were begun by the national guard bureau and the war department in 1944 incorporating the changes in weapons of warfare brought about by scientific and technical research and development, the increase of population within the United States and the similarity between the situations toward the end of World Wars I and II.

The results of these studies was an over-all troop basis considered to be a balanced force distributed throughout the United States. Original figures were increased until the number was approximately 620,000 officers and enlisted men in the national guard ground force units, approximately 60,000 in the national guard air units and 4,000 in state headquarters detachments.

The national guard is organized into divisions, wings, regiments, squadrons and other units like the regular army. The units in each army and air force area come under the army area and air force commander in time of peace, and automatically become a part of his command when they are first ordered into active military service of the United States in case of national emergency.

The first step in the reorganization of the national guard was the allotment of the troops to the various states and territories. This was followed by the acceptance of these allotments, with such adjustments as were necessary, by the states and territories.

In accordance with the provisions of National Guard Regulation No. 15 and the fact that federal law limits the troops that can be raised by the various states, it was further necessary that when the states were ready to proceed, the chief of the national guard bureau send to the governors thereof formal authority to organize each of the specific units already allotted and accepted.

By the end of 1946, 6,314 units had been accepted by the states and territories. At the beginning of 1947 about one-half of these units had been authorized to organize and the number of units federally recognized (which means they had met the initial requirements and passed inspection by a team representing the commanding general of the field army or numbered air force concerned) was mounting rapidly. All must stand inspection for federal recognition within 60 days after they are authorized to organize.

It was expected that 72,000 national guard officers and men would be ready for field training in 1947 and that about 240,000 would be enrolled by mid-year.

(B. B. M.)

National Housing Agency: *see* HOUSING.

National Income and National Product: *see* INCOME AND PRODUCT, U.S.

National Insurance: *see* SOCIAL SECURITY.

National Labor Relations Board.

More cases were filed with this independent agency in the fiscal year 1946 than in any year after the National Labor Relations act was passed. A total of 12,260 cases was brought to the board's attention, an increase of 26% over the number filed in the previous year. However, since nearly half of these cases were docketed during the last four months of the fiscal period, the receipt of new cases was really 50% greater than for the comparable period in the previous year.

Of the 12,260 cases docketed in the fiscal year, 8,445, or 69%, involved representation questions and 3,815, or 31%, charges of unfair labour practices. Although this proportion is not markedly divergent from that of the previous year, 75% to 25%, it represents a noteworthy departure from a trend. After

1941 the proportion of unfair labour practice cases to representation cases steadily declined; the shift in proportion thus constitutes a break in an uninterrupted decline of five years' duration.

On July 1, 1945, the board had on its docket 1,916 representation cases—*i.e.*, cases concerned with petitions filed by employers or employees requesting board investigation and determination of units and freely-chosen representatives for purposes of collective bargaining. With the filing of 8,445 new election cases, the board's preoccupation with a total of 10,361 such cases reached an all-time high. During the year it closed 7,981 of these cases leaving a balance of 2,380 on its docket July 1, 1946.

Most of the above cases were closed by board-conducted elections or cross-checks of company pay rolls with union authorization cards. The remaining cases closed were either withdrawn by the parties filing the petitions or dismissed by the board for lack of merit.

During the year the board conducted 5,589 elections in which 698,000 employees cast secret ballots for the organization of their choice. In 4,446 balloting, or nearly 83% of the polls held, an organization was selected by at least a majority of the employees and thereupon was certified by the board as collective bargaining representative.

Only 1,163, or 20.8%, of the elections held during the year were ordered by the board. The greater number of them, 3,685, or 66%, were held with the consent or agreed-upon stipulation of all parties. The remaining 163 polls were prehearing elections, the result of a new board policy instituted in Nov. 1945 to expedite the disposition of reconversion representation issues. This policy makes it possible for elections to be conducted in certain types of cases without awaiting a formal direction of election by the board in Washington; any necessary hearing may be held after the conduct of the election.

Affiliates of the American Federation of Labor were successful in attaining majority designation in 2,004 polls, receiving 175,332 votes; unaffiliated unions scored in 484 instances and received 90,874 votes; and in the remaining 1,143 contests there were 168,965 ballots cast against union affiliation.

From July 1935 through June 30, 1946, the board conducted nearly 30,000 elections and cross-checks. The importance of self-determination to the individual worker is demonstrated by the consistently high percentage of employees who actually cast ballots. Nearly 7,000,000 workers, or 83% of those eligible to vote, went to the polls and, by secret ballot, signified their choice of bargaining representative. About 84% marked their ballots in favour of a representative.

The board carried over from its previous year 1,321 unfair labour practice cases. With the 3,815 new such charges filed during the year, the total to be handled was 5,136. Of these, 2,909 cases were closed in the fiscal period, leaving a balance of 2,227 unfair labour charges pending on its docket July 1, 1946.

Section 8 of the act specifies those unfair acts of employers which deny, abridge or interfere with the employees' right to bargain collectively. Under this section, employers are specifically prohibited from interfering with, restraining or coercing employees in the exercise of their rights to organize and bargain collectively; dominating or interfering with the formation of any labour organization; discriminating against any employee to discourage or encourage membership in a labour organization; discharging or otherwise discriminating against an employee because he has filed charges or given testimony under the act; and, lastly, employers are prohibited from refusing to bargain with the representatives selected by a majority of employees in an appropriate bargaining unit.



C. K. BERRYMAN of the *Washington Evening Star* refers in this cartoon to a ruling of the N.L.R.B. in the Jones & Laughlin Steel Corp. case in March 1946, that foremen had the right to join production workers' unions

As in the past, the most frequent allegation of unfair labour practice in such cases filed in the fiscal period involved discriminatory treatment because of union activity. This was alleged in 64% of such cases docketed. Next in frequency was the allegation of employer refusal or failure to bargain in good faith. This allegation was made in 32% of the charges filed.

Approximately 72% of the 2,909 unfair labour practice cases disposed of during the year were closed by withdrawal or dismissal. To remedy the unfair labour practices found to have been committed in the remaining 793 cases the board obtained the reinstatement of 3,184 workers found to have been discriminatorily discharged. Another 384 employees were directed to be reinstated after strikes caused by unfair labour practices. Back pay amounting to \$899,297 was awarded to a total of 2,779 workers found to have suffered discrimination. Company dominated unions were ordered disestablished in 51 cases. Notices of compliance with board decisions and orders were directed to be posted in 529 cases. Employers were directed to bargain collectively with employee-designated representatives in 175 cases.

From July 1935 through June 30, 1946, the board had ordered the reinstatement of more than 300,000 workers, some with back pay. These back pay awards totalled nearly \$11,000,000. In all, approximately 2,000 company unions had been disestablished. In 5,000 cases collective bargaining was ordered. In 7,200 cases notices of compliance with board decisions were directed to be posted.

The board's jurisdiction extends only to those industries engaged in or affecting interstate commerce. In its 11 years of operation approximately 90,000 cases had been filed by labour organizations, employers and individual workers of the continental United States, Alaska, Hawaii and Puerto Rico. As was the experience in previous years, most of the cases docketed in the 1946 fiscal period involved manufacturing enterprises. A total of 9,227, or 75.3% of all those filed, concerned such companies. Mining, agriculture, forestry and fishing plants were involved in 484 cases; construction, wholesale and retail trade and insurance companies accounted for 1,061; the remaining 443 cases involved transportation, communication and other public utilities.

While the board has its headquarters in Washington, D.C., it maintains 22 regional offices, each responsible for servicing a particular area. The greatest number of cases brought to the

board's attention during 1946 originated in the New York area; the lowest number of cases were filed in Puerto Rico. With the exception of that office, there occurred an increase in the number of representation and complaint cases filed in all of the regional offices. The biggest increase over the previous year was noted in the Indianapolis and San Francisco offices, 103.4% and 62% respectively.

Decisions and orders of the board are not self-enforceable. Either the company or the board may petition the circuit court of appeals. Beyond this, either party may appeal to the supreme court. More than 600 board decisions had been litigated in the federal courts from the time the act was passed. In the circuit courts, 346 of these board orders were enforced in full; 73 were set aside; and 167 modified. Of the 52 cases that reached the supreme court, board orders were enforced in 48 cases; in only 2 cases were board orders set aside.

The board began its 1947 fiscal period with a backlog of 4,607 cases pending on its books, the greatest carry-over in the history of board operations. Alongside this, a cut made in the board's appropriation for the new fiscal year necessitated the discharge of 23% of the board's personnel. The board estimated that the current rate of intake of cases plus the immensity of the backlog, aggravated by the reduction in personnel, might mean the doubling of the amount of time normally required to process cases. Meanwhile, until congress had had an opportunity to consider the board's request for appropriate fiscal relief so that it could perform its statutory duties promptly and efficiently, the board publicly expressed the hope that labour organizations would be patient and not return to the self-help of strikes which the act was designed to discourage. (See also *LABOUR UNIONS; LAW; STRIKES AND LOCK-OUTS.*) (P. M. Hg.)

National Lawyers Guild: see SOCIETIES AND ASSOCIATIONS.

National Mediation Board. The National Mediation board, established in 1934 by amendment of the Railway Labor Act of 1926, is an independent agency of the U.S. government, functioning to adjust employee-representation and collective-bargaining disputes affecting employees of interstate common-carrier railroads and air lines.

In 1946, the most noteworthy railway problems requiring the board's good offices involved the nation-wide wage and rules disputes. After the breakdown of bargaining between the bulk of the railroad industry, represented by three regional conference committees, and the carriers' employees, represented by 20 "standard" railway labour organizations, the Mediation board attempted unsuccessfully to obtain settlements through mediation but persuaded all parties, except the trainmen's and engineers' brotherhoods, to submit the wage-increase issue to arbitration. Following a vote by the two remaining unions to resort to strike action, the Mediation board advised the president of the prospective interruption of interstate commerce, and the president appointed an emergency fact-finding board to recommend a basis for settlement. The emergency board's recommendations of a 16-cent hourly increase, similar to the arbitration award applying to the other 18 unions, plus several changes in working rules, were unsatisfactory to the engineers and trainmen, who engaged in a two-day paralyzing strike late in May. Presidential intervention resulted in a revised settlement, affecting all 20 unions, based upon an aggregate wage increase of 18½ cents. Further negotiations, mediated settlements and recommendations of emergency boards resulted in application of the "concerted wage movement" to all remaining railroads, save a few small, independent carriers found by an emergency board to be on the economic margin.

In the air-transport industry, the Mediation board's services were largely concerned with determination of appropriate "craft or class" groupings of employees and certification of such groups' choices of unions to represent them in collective bargaining. Collective bargaining and mediation were notably productive of voluntary agreements, the most spectacular exception being a wage and rules dispute between the Air Line Pilots association and Transcontinental and Western Air, Inc. A strike which grounded the air line for a month in late 1946, following the pilots' rejection of the recommendations of an emergency board, was ended when the chairman of the Mediation board induced the parties to arbitrate.

Altogether, the board received 450 cases and disposed of 526, of which 186 were representation disputes and 340 were wage or rules disputes. Emergency boards appointed under the Railway Labor act numbered 14.

National Railway Labor Panel.—Under authority of a presidential executive order supplementing the Railway Labor act for the period of wartime emergency, the chairman of the panel, in 11 instances, appointed three-man emergency boards from the panel's membership to recommend settlement of disputes wherein no strike action was threatened. The panel chairman's responsibility for reviewing railroad and air line wage adjustments under wage-stabilization standards was exercised in 346 submitted cases; additionally, the chairman issued three general wage-approval orders prior to termination of the wage stabilization program on Nov. 9, 1946. (See also RAILROADS.)

(K. N. K. A.)

National Museum: see SMITHSONIAN INSTITUTION.

National Parks and Monuments. The year 1946, the 30th anniversary year of the national park service, was highlighted in the U.S. by record-breaking travel to the national parks, national monuments and other units of the national park system. It was also a year marked by reconversion of visitor facilities and services throughout the system to a normal peacetime level.

Visitors to the national park system during the 1946 travel year (ended Sept. 30) totalled 21,682,782, approximately 632,000 more than during the previous record travel year of 1941, the last before the outbreak of World War II. This heavy travel taxed concession facilities to the limit. In some areas visitors who arrived during weekend or holiday periods without advance reservations were obliged to seek accommodations elsewhere, and in a few of the heavily travelled parks the length of stay of visitors had to be limited.

Interest in the national parks and other units of the national park system was not confined to citizens of the United States. Officials of a number of foreign governments toured these areas to obtain first hand information concerning their development, administration and maintenance, or wrote to the national park service for information. In the roster of foreign visitors were several Frenchmen who made an extensive tour of western national parks and wildlife refuges to study their management with a view to possible application of U.S. practices to natural areas in French colonial possessions. Another foreign visitor who came to the United States in search of facts concerning park administration was Dr. Huan-kang Fu, a Chinese forester who managed Sun Yat-sen memorial park over a period of years.

Among major developments of the year 1946 was the designation by Secretary of the Interior J. A. Krug of the Adams mansion in Quincy, Mass., home of Presidents John Adams and John Quincy Adams and of other illustrious members of the Adams family, as a national historic site. This site is in federal ownership and administered as a unit of the national park



INTERIOR of Touro synagogue, Newport, R.I., which was designated a national historic site on March 5, 1946. This structure was said to be one of the finest surviving examples of colonial architecture in the U.S.

system. Secretary of the Interior Krug also designated Touro synagogue in Newport, R.I., one of the finest surviving examples of colonial religious architecture in the United States, as a national historic site. Being privately owned, however, this site is not part of the national park system.

Santa Rosa Island national monument, Florida, a unit of the system from 1939, was abolished by act of congress and its lands turned over to Escambia county, Fla. By another act of congress, Custer Battlefield national cemetery, Mont., was designated a national monument.

By the close of 1946, the national park system included 169 units, classified as follows: 27 national parks, 4 national historical parks, 85 national monuments, 11 national military parks, 1 national battlefield park, 7 national battlefield sites, 11 national historic sites, 9 national memorials, 10 national cemeteries, 3 national parkways and the system of national capital parks.

During the year four of these areas received widespread press and radio publicity on the occasion of their formal dedication to public use. The home of Franklin D. Roosevelt, national historic site, Hyde Park, N.Y., was dedicated on April 12, first anniversary of the death of President Roosevelt; Olympic national park, Washington, a wilderness region famed for its alpine scenery, virgin forests and rare Roosevelt elk, was dedicated on June 15; and Isle Royale national park, Michigan, and Mammoth Cave national park, Kentucky, were dedicated on Aug. 27 and Sept. 18, respectively.

At the suggestion of the national park service, Secretary of the Interior Krug late in 1946 appointed a concessions advisory group, nominated by leading nation-wide organizations, to make an exhaustive and impartial study of hotel, restaurant, transportation and other concessions operations in the national park system. Members of this advisory group were George D. Smith, general manager of the Mark Hopkins hotel, San Francisco; Clem W. Collins of the Denver accounting firm of Collins, Peabody and Schmitz; Elmer Jenkins, national travel director for the American Automobile association; and C. G. Woodbury of Washington, D.C., a director of the National Parks association and the Wilderness society.

(N. B. D.)

National Railway Labor Panel: *see* NATIONAL MEDIATION BOARD.

National Wage Stabilization Board. The National Wage Stabilization board administered, during the postwar reconversion period, the wage provisions of the United States government's price-wage-materials stabilization program. The board's operations extended over the period from Dec. 1945, when it was established by executive order of the president, to Dec. 1946, when its functions were terminated by the order liquidating practically all of the government's stabilization agencies.

The board was set up as a successor to the National War Labor board and was, like that wartime agency, "tripartite" in organization. Two of its six members represented the public, two industry, and two labour. The members were appointed by the president, upon recommendation of the various groups of representatives who made up the War Labor Board. The Wage Stabilization board was administratively part of the department of labour, but was specifically made independent of the department with respect to its policies, decisions, procedures and personnel.

The functions of the Wage Stabilization board differed significantly, however, from those exercised by the War Labor board, particularly in that they included no participation, with one exception, in the settlement of labour "disputes." The exception had to do with cases where the government had "seized" certain operations, the Stabilization board retaining the power under the War Labour Disputes act to order any changes in the terms and conditions of employment in the seized plants. Subject to this exception, the board's operations were confined to the consideration of "voluntary" or agreed upon wage adjustments.

The board administered, in connection with this stabilization function, powers conferred upon the president by the Stabilization Act of 1942, an act which provided for the exercise of broad executive discretion and delegation of authority. The executive orders which established the standards and procedures for the reconversion wage policy were issued on Aug. 18, 1945, and Feb. 14, 1946. These were implemented by regulations issued by the director of economic stabilization, to whose directives the Stabilization board was subject in all matters relating to broad policy.

The wage controls provided for by these orders and regulations did not include the wartime provision whereunder no wage adjustments could be made except as they were approved in advance by the government acting through the War Labor board. The reconversion controls provided instead that *any* wage increase could be made by any employer, irrespective of its amount. The only control maintained was the "indirect" control effected by the provision that a wage increase could not be used by the employer as a basis for seeking an increase in the price ceiling on his product or as a basis for increasing "costs" charged on a government contract, except to the extent it was approved by the Wage Stabilization board. The only exception to this rule permitting wage increases to be made without government approval was in the building and construction industry, where the "direct" wartime controls were retained until Nov. 1946.

The wartime prohibition of unapproved wage *decreases* was continued during the reconversion period and was applicable throughout all industry.

The standards which were applied by the board to determine the approvability of wage increases, permitting their use for price relief purposes, were established by executive order 9651. They provided, in general, for the disapproval of only those

increases which would have contributed to a "second round" of reconversion wage increases. The executive order recognized the fact of the general wage movement which had taken place in a substantial part of U.S. industry during the first six months after V-J day.

The board processed approximately 1,200 wage approval applications each week. It also handled, during 1946, some 25,000 enforcement cases, involving alleged violations of the wartime War Labor board regulations, of the postwar provisions covering the building and construction industry, or of the provisions prohibiting unapproved wage decreases.

The board carried on its operations with a staff of some 700 people. Twelve regional offices were maintained in population centers throughout the country, each of them headed up by a tripartite board whose decisions were final except for a right of appeal to the national board itself. The program in the building and construction industry was administered by the Wage Adjustment board in Washington, from which there was also a right of appeal to the Wage Stabilization board. Jurisdiction over adjustments in salaries exceeding \$5,000 per year and in certain types of executive and professional salaries was vested in the salary stabilization unit of the treasury department, operating independently of the board.

The Wage Stabilization board's operations were effective in whatever measure the broader reconversion stabilization program would be considered to have achieved its purpose. The adoption of "indirect" wage controls made this program simply an adjunct of the price control system. The wage-price "bulge" in the winter of 1945-46 and the legislative bulge in the following summer were a rejection by the country of the principle of postwar stabilization by government. The degree to which these bulges may themselves have been in part a consequence of the V-J day abandonment of strict wartime wage controls will remain an insoluble question, much more complex than it may appear. The Wage Stabilization board was committed by these developments however, along with the OPA and the CPA, to an obligation only to administer the removal of wartime controls in such manner that the withdrawal would not itself contribute to the danger of postwar economic hypertrophy. It is a conservative judgment that this narrow obligation was fully carried out. (W. W. Wz.)

National War Labor Board: *see* NATIONAL WAGE STABILIZATION BOARD.

National Wealth: *see* WEALTH AND INCOME, DISTRIBUTION OF.

Natural Gas: *see* GAS, NATURAL.

Nauru: *see* MANDATES; PACIFIC ISLANDS, MANDATED.

Naval Academy, U.S. The United States Naval Academy, located at Annapolis, Maryland, was founded in 1845, and is maintained by the government, under the immediate supervision of the bureau of naval personnel of the navy department, for the training of young men for the naval service.

The Naval Academy discontinued the wartime three-year course of instruction and resumed the four-year course beginning with the academic year 1945-46. The program for the training of limited numbers of reserve midshipmen which had been in effect throughout the war years was discontinued late in 1945.

In Dec. 1945 the navy department authorized the establishment of a department of aviation in addition to the existing departments of instruction. The major portion of the instruction time allotted for this department is assigned during the summer months. The instruction in the department of avia-

tion is not intended to include actual pilot qualifications but is designed to equip all midshipmen with those fundamentals of aviation which every naval officer should know.

In the summer of 1946 the second class (class of 1948-B) was the initial class to receive instruction in this new department and in addition to recitation and practical work accomplished at the Naval academy this class was also assigned a five weeks' practice cruise in the carrier "Randolph." In company with the second class of the U.S. Military academy, the class of 1948-B also participated in a period of amphibious invasion training under actual combat conditions. The year 1946 also saw the inauguration of other steps looking toward closer co-operation between the Naval and Military academies in the accomplishment of their assigned objectives.

The first and third classes of midshipmen were sent on practice cruises aboard the battleships "Washington" and "North Carolina" which carried them on operations from the North Atlantic to the Caribbean.

In the postwar curriculum of the Naval academy the effort was to be made to renew emphasis upon fundamentals which would result in some curtailment of time previously devoted to highly specialized phases of instruction more properly the subject of postgraduate training. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(R. S. CR.)

Navies of the World. As the outcome of World War II, the balance of sea power at the end of 1946 was vastly different from what it had been in 1939. Only two first-class navies, those of the United States and the British empire, had survived the struggle without serious reduction in strength. The fleets of Germany and Japan had ceased to exist; those of France and the U.S.S.R. had suffered considerable losses which it had not proved possible to make good in their entirety; and the Italian navy was reduced to a shadow of what it had been.

Development of warship design and of naval weapons and equipment was greatly stimulated by the war. In particular, the value of the aircraft carrier was enhanced to an extent that placed it on a par with that of the battleship. This was a natural consequence of improved methods of attack on vessels from the air, in the technique of which the Allied navies had ultimately excelled their opponents. On the other hand, defense against air attack had been correspondingly improved; as many as 100 to 150 anti-aircraft weapons of 40 mm. and 20 mm. were mounted in some U.S. and British battleships.

Most far-reaching of World War II developments was radar, the effect of which was to transform the whole face of naval warfare. It enabled searchlights to be dispensed with almost entirely. In gunnery, great improvements in accuracy resulted from its application to fire control. Navigational hazards were materially reduced by the employment of radar, and the approach of aircraft could be detected by its aid.

Improvements in the efficiency and deadliness of torpedoes, mines and antisubmarine depth charges also resulted from war experience. In some instances these improvements were the result in the first place of enemy ingenuity, but the products of the Allies' efforts ultimately outstripped those of their adversaries. In the design of submarines alone did the Germans retain their lead up to the last, all their resources being ultimately concentrated in this field.

Various novel types of ships inspired by wartime needs included the escort aircraft carrier, the destroyer-escort or frigate, the corvette and landing ships and landing craft of multifarious kinds. Not all of these were likely to survive under peace conditions, but for some years the principal navies would probably

include not only escort carriers, destroyer-escorts and frigates, but also a certain percentage of the more useful types of landing craft.

It was in landing craft that a formidable new weapon, the rocket, was first used as a main armament. There was no doubt that rockets possessed great potentialities, since they were capable of producing a relatively immense volume of fire without absorbing weight and space to the extent that a corresponding armament of guns would require. It was expected that experiments would be attempted with large warships armed with rockets. Completion of certain ships of the U.S. navy was understood to have been deferred with this especial purpose in view.

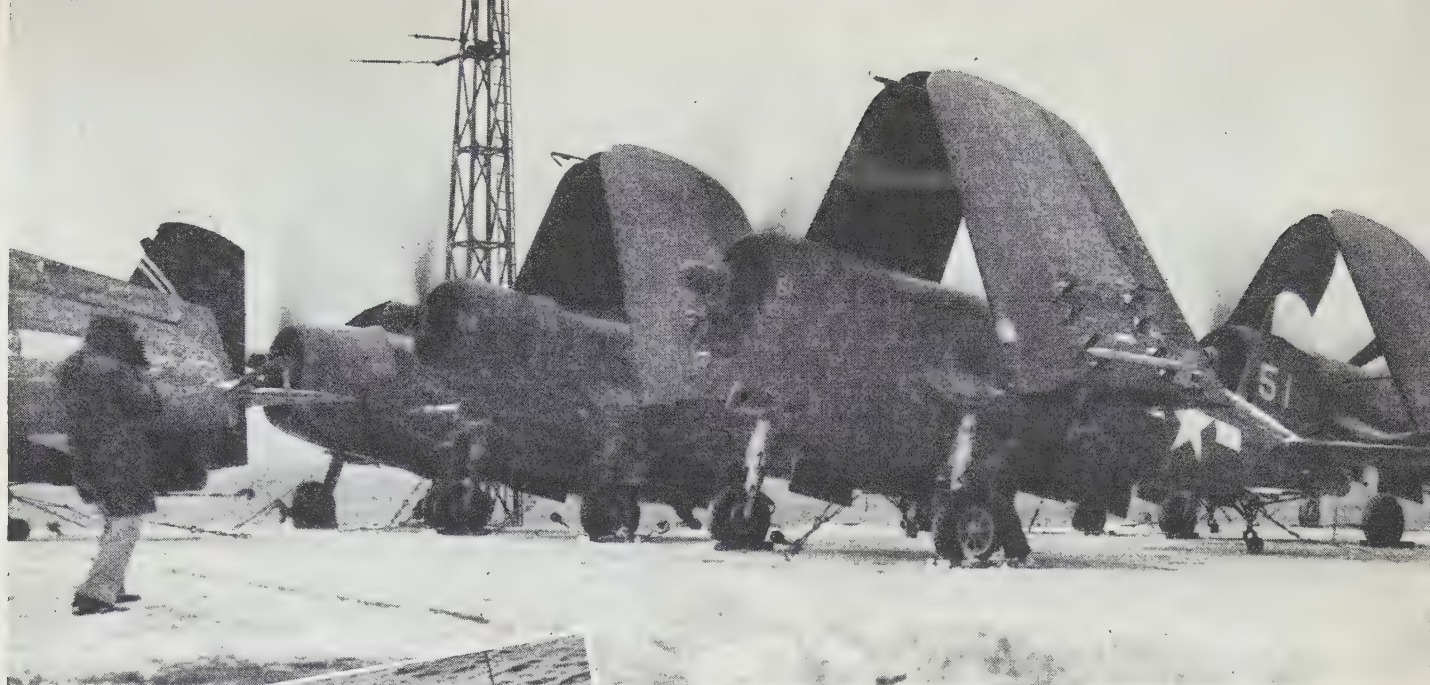
Navies of the World, 1946

	Battle-ships and battle cruisers	Fleet aircraft carriers	Escort aircraft carriers	Cruisers	Destroyers and large Torpedo Boats	Submarines
U.S.A.	19	27	79	72	364	200
British Empire	14	12	2	50	182	97
France	3	1	1	9	28	12
U.S.S.R.	3	—	—	8	50	100
Italy	2	—	—	4	20	—
Turkey	1	—	—	2	8	10
Spain	—	—	—	6	16	7
Sweden	—	—	—	2	27	26
Netherlands	—	—	1	2	6	7
Greece	—	—	—	—	7	6
Norway	—	—	—	—	12	5
Denmark	—	—	—	—	3	2
Portugal	—	—	—	—	5	3
Poland	—	—	—	—	2	4
Finland	—	—	—	—	—	5
Rumania	—	—	—	—	2	1
Yugoslavia	—	—	—	—	—	1
Argentina	2	—	—	3	11	3
Brazil	2	—	—	1	12	4
Chile	1	—	—	1	6	7
Peru	—	—	—	2	2	4
Colombia	—	—	—	—	2	—
Siam	—	—	—	—	1	3

United States Naval Strength.—In the course of 1946 a great many obsolescent or redundant ships were struck from the list of the U.S. navy. As constituted at the end of 1946 it comprised 17 battleships, with an 18th, the "Kentucky," in the completing stage. Delivery of this ship was to be held up for 12 months in order to provide for modification in armament, to include a proportion of rocket projectors. Only ten of the completed battleships were of modern design; two of the remaining seven were probably to be discarded. There were also 2 battle cruisers, with a third, the "Hawaii," held up for alteration in armament on similar lines to the "Kentucky"; 27 fleet aircraft carriers, with 2 more building; 79 escort carriers; 26 heavy cruisers (4 more building); 46 light cruisers (2 more building); 364 destroyers; 296 destroyer-escorts; and 200 submarines, with numerous minelayers, minesweepers, patrol vessels and auxiliaries of various kinds, the totals of which were still in process of reduction in 1946. An increased number of the larger ships were laid up in reserve during 1946, so that only two battleships, "Iowa" and "Missouri," would be retained in full commission, the former in the Pacific and the latter in the Atlantic fleet. The exact proportions of the active fleets, ready reserve and laid-up reserve were thus undergoing some modification.

Future provision was being made for a total personnel of 558,000 officers and men in the U.S. navy and 107,000 in the U.S. marine corps, with reserves amounting to 198,352.

British Naval Strength.—At the end of 1946 the strength of the royal navy included 13 battleships and 1 battle cruiser. Of these only 5 battleships were of modern design, and 2 were in full commission. Three were commissioned with special complements for training purposes, 4 were relegated to harbour service as accommodation ships with reduced armaments, and the remainder were either laid up in reserve or under refit. There were 12 fleet aircraft carriers and 2 of the escort type, with 12 more of the former under construction. Another carrier was lent to the French navy for five years. Cruisers numbered 50, of which 6 were earmarked for sale; 4 others were under

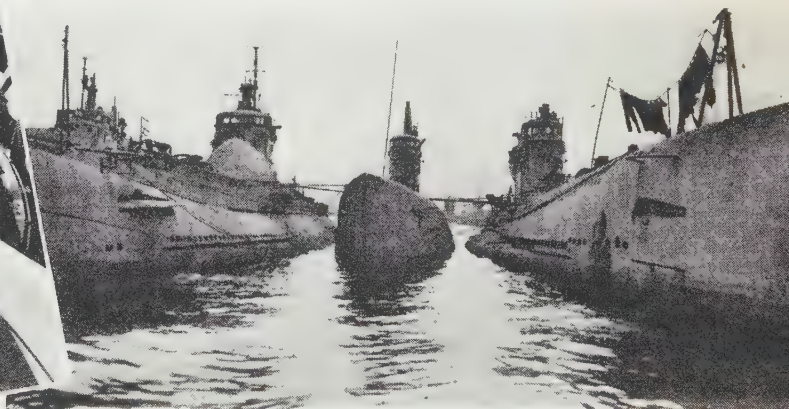


Above: AIRCRAFT warming up for a take off from the snow-covered U.S.S. "Midway" flight deck during "Operations Frostbite," the subarctic cruise in March 1946 undertaken to test the carrier and its gear and equipment

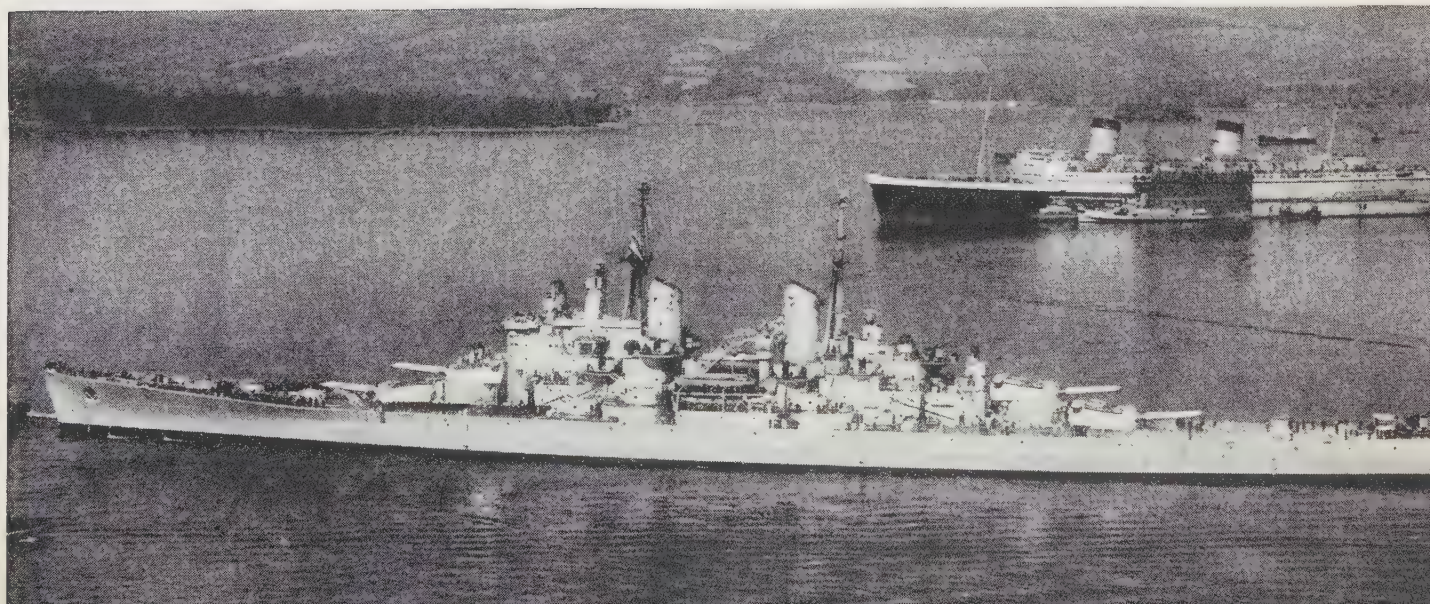


Left: SPRAYING a thin film of plastic over a 40 mm. gun mount on a U.S. navy vessel, which was decommissioned in 1946, to protect it from rusting while the ship was idle and to preserve it for future use

Below: JAPANESE SUBMARINES anchored at Sasebo, Japan, in 1946 were a few of the remains of the once powerful Imperial Japanese navy



Below: H.M.S. "VANGUARD" (foreground), Britain's newest and mightiest battleship, was commissioned on May 13, 1946. In the background the "Queen Elizabeth," world's largest liner, was being refitted after wartime service



construction. Other vessels included 182 destroyers; 97 submarines; 3 minelayers; 44 sloops; 122 frigates; 60 corvettes; 194 fleet minesweepers; 3 monitors; 2 netlayers; and a large number of coastal craft, trawlers and auxiliaries of all kinds. Four battleships of the "Lion" type, on order at the beginning of the war, were ultimately cancelled, as was a substantial proportion of the wartime construction program. In the above figures are incorporated the naval forces of the dominions, the strength of which was also reduced materially during 1946.

British naval personnel in 1946 amounted to 492,800, exclusive of dominion forces.

France.—In 1946 the French navy consisted of 3 battleships (1 under completion, 1 in commission and 1 employed as a gunnery training ship); 1 fleet carrier (lent for five years from Britain) and 1 of escort type; 9 cruisers and a 10th building; 28 destroyers and large torpedo boats; 12 destroyer-escorts and frigates; 12 submarines (4 more building); 4 sloops; 7 corvettes; 13 fleet minesweepers (3 more building); and various auxiliaries. Personnel in 1946 totalled about 60,000.

Italy.—Under the terms of the peace treaty, the Italian navy was reduced to 2 battleships, 4 cruisers, 20 destroyers and large torpedo boats, 20 corvettes, and such minor war vessels and auxiliaries as could be manned and maintained in full commission by a maximum of 2,500 officers and men. The entire personnel of the navy, excluding any naval air personnel, was limited to 22,500 officers and men. Excess units of the Italian navy were to be placed at the disposal of the governments of the United States, the British empire, the U.S.S.R. and France, except in the case of certain surface vessels and submarines, which were directed to be sunk, scrapped or otherwise destroyed. It was further provided by the treaty that no battleship, aircraft carrier, submarine, motor torpedo boat or specialized assault craft should be constructed, acquired, employed or experimented with by Italy. Total standard displacement of war vessels other than battleships was not to exceed 67,500 tons.

During the period of minesweeping because of the war Italy was authorized to employ for this purpose additional officers and men not to exceed 2,500 in number.

U.S.S.R.—Though official information concerning the soviet navy was almost nonexistent, it was believed to include 3 battleships, 8 cruisers, 50 destroyers and large torpedo boats, 100 submarines and considerable flotillas of coastal craft, patrol vessels, minesweepers, etc.

Other European Countries.—In the Royal Netherlands navy were 1 escort aircraft carrier; 2 cruisers (with 2 more building); 6 destroyers; 7 submarines; 3 sloops; 1 frigate; 12 fleet minesweepers; and sundry minor war vessels and auxiliaries.

In the Royal Norwegian navy were 7 destroyers, with an eighth under construction; 5 torpedo boats; 5 submarines; 3 corvettes; 2 fleet minesweepers; and various minor vessels. Personnel numbered 7,500 officers and men.

Denmark possessed 2 destroyers (completing); 3 torpedo boats, with 6 more building; 2 submarines; 2 frigates; 1 corvette; 1 minelayer; and sundry small minesweepers, coastal craft and auxiliaries. Personnel numbered 4,000.

Sweden had 2 cruisers (with 2 more building); 7 coast defense ships; 27 destroyers and large torpedo boats; 26 submarines; 2 minelayers, and numerous minesweepers, patrol craft, etc. Two large destroyers were nearing completion. Personnel totalled about 10,000.

Finland had 1 coast defense ship, 5 submarines and a number of small craft such as minesweepers, etc.

Poland had 2 destroyers, 4 submarines and a number of minesweepers and coastal craft.

Spain possessed 6 cruisers, 16 destroyers, 7 sloops, 6 minelayers and 7 fleet minesweepers, besides minor vessels and

auxiliaries. Under construction or on order were 20 destroyers, 4 sloops and some smaller craft.

Portugal had 5 destroyers, about to be modernized; 3 submarines; and 6 sloops, with various ancillary vessels.

Turkey had 1 old battle cruiser; 8 destroyers; 10 submarines; 2 obsolete cruisers used for training; and sundry other ships.

In the Royal Hellenic navy were 7 destroyers, 6 submarines, 4 corvettes and various smaller craft. It was hoped that a cruiser would also be acquired.

Rumania had 2 destroyers, 1 submarine, 1 minelayer and some other craft of less importance, including a river flotilla on the Danube. Bulgaria had only a few small craft of little fighting value. In the Yugoslav navy were 1 submarine, 2 corvettes and some unimportant small craft. A destroyer laid down before the war might still have existed in 1946, but no appreciable progress appeared to have been made with its construction.

South and Central America.—In the Argentine navy at the end of 1946 were 2 old battleships, 3 cruisers, 11 destroyers, 3 submarines, 2 coast defense ships and a number of minesweepers, patrol vessels and auxiliaries. A new program of construction envisaged the building or acquisition of 1 aircraft carrier, 1 cruiser, 4 destroyers, 3 submarines, and some minor vessels, largely in replacement of obsolete tonnage.

Brazil had 2 old battleships, 1 cruiser, 12 destroyers, 4 submarines, 6 corvettes and some smaller craft. Six destroyers were under construction at Rio.

Chile possessed 1 battleship, 1 cruiser, 6 destroyers, 7 submarines, 1 sloop, 3 frigates, 3 corvettes and some other vessels. A new program of naval construction was being prepared.

Other South and Central American states maintained navies of relatively small importance. Peru had 2 cruisers, 2 destroyers and 4 submarines; Colombia, 2 destroyers; Mexico, 3 sloops; Cuba, 2 sloops; Uruguay, 1 sloop; Honduras, 1 frigate; Dominican Republic, 1 frigate and 1 corvette; Costa Rica, Nicaragua, Haiti and Panama, 1 or 2 small craft each.

Asia.—China was busily engaged in renewing its depleted naval strength, additional vessels being acquired from the United States, Britain and France, together with one or two ex-Japanese ships. In 1946 future strength was expected to be 3 or 4 cruisers, 5 destroyers, 2 submarines, with flotillas of minesweepers, patrol vessels and river craft.

The Siamese navy included 4 coast defense ships, 1 old destroyer, 3 submarines, 2 sloops and some smaller vessels, though the condition of some was reported to be doubtful. Two cruisers which were building in Italy were expected to be scrapped.

Iran and Iraq each possessed a few small craft of negligible fighting value. Manchurian naval vessels were believed to have fallen into soviet hands. (See also MUNITIONS OF WAR.)

(F. E. McM.)

Navy, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

Nazis: see ANTI-SEMITISM; GERMANY.

N.E.A.: see NATIONAL EDUCATION ASSOCIATION.

Nebraska. One of the states formed from the territory of the Louisiana Purchase, Nebraska lies in the lower Missouri valley in the west north central part of the U.S.; admitted to the union in 1867; land area, 76,653 sq.mi.; water area, 584 sq.mi.; pop. (1940) 1,315,834; capital, Lincoln (81,984). In 1940, 39% of the pop. was urban. About 1% of the total pop. is Negro and about 8% foreign-born, principally German and Scandinavian. On July 1, 1945, the bureau of the census estimated the state's pop. as 1,198,492.

History.—Val Peterson, Republican, was elected governor

Nov. 5, 1946, for the term 1947-49. Other state officers for 1947-49 were: lieutenant governor, Robert B. Crosby; auditor, Ray C. Johnson; secretary of state, Frank Marsh; treasurer, Edward Gillette; state superintendent of public instruction, Wayne O. Reed; chief justice, Robert G. Simmons. The legislature consists of a single house of 43 members chosen biennially on a nonpartisan ballot.

The legislature of 1945 enacted laws providing for more liberal unemployment benefits, introducing retirement

systems for municipal and public school employees, adjusting county salaries, setting up machinery for the comprehensive regulation of aviation, and providing for preprimary party conventions for the official endorsement of party candidates. The legislative council, composed of 16 legislators, reported to the legislature of 1947 the results of extensive investigations of electric power, irrigation and water utilization, public school organization and finance, tax assessment practices, municipal finance and the legal status of life insurance companies.

Education.—Elementary and secondary education is largely in the hands of local school districts of which there were nearly 7,000 in 1947, with some supervision from the state superintendent, and with slightly more than \$1,000,000 annual state aid. The total enrolment in elementary and secondary schools in 1945 was 230,666 and the teaching staff numbered 12,183. Expenditures for 1944-45 amounted to \$27,644,106.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state appropriation for public assistance for 1945-47 was \$20,187,000. In July 1946 the number of persons receiving general relief was 2,210 and the amount spent for the year ending June 30, 1946, was \$708,163. At the same time, recipients of aid to dependent children numbered 5,381 and received during 1945-46 \$558,817; 436 blind persons received \$164,986. The state maintained 6 correctional institutions with a total of 1,043 inmates on Jan. 1, 1946, and 10 others for dependents, with a population of 6,644. These 16 institutions were under the supervision of an appointed board of control to which was appropriated \$10,770,926 for 1945-47.

Communication.—The total highway mileage of the state in 1946 was 100,338. Of this 8,860 were in the state system (exclusive of portions in incorporated places) and were maintained by the state. Of this latter figure 3,817 were hard surfaced, 4,805 gravelled and 342 earth. State expenditures for highway purposes in 1945-46 amounted to about \$18,000,000. Federal funds available for highway purposes between Oct. 1, 1945, and June 30, 1947, were estimated in Nov. 1946 as \$16,826,153. In 1946 there were 121 airports in the state, 39 of which were managed by municipalities, in addition to 5 federal auxiliary landing fields. Total railway mileage in the state in 1946 was 6,326. Thirteen radio stations operated in the state in 1946, six of which were located in Omaha and Lincoln.

Banking and Finance.—State banks numbered 282 in 1946 with total assets of \$353,474,542. There were also 46 building and loan associations with assets of \$65,203,121; 133 co-operative credit associations and credit unions with resources of \$11,198,988. The assets of eight trust companies amounted to \$15,062,271. National banks in March 1946 numbered 128 with resources of \$1,011,008,000.

The total assessed valuation of the state as determined in Aug. 1946 was \$2,162,048,610. The tax rate for state purposes was set at 3.3 mills, calculated to produce \$7,134,760. Receipts for the biennium 1943-45 amounted to \$68,325,114, including \$17,358,085 of federal funds. Expenditures were \$61,041,635. Total appropriations for 1945-47 were \$63,105,844, including unexpended balances and the sum of \$3,000,000 set aside for postwar construction, mainly for the state institutions. There was no state tax on personal or corporate incomes or on sales except of motor fuel. The state had no bonded debt, though that of local subdivisions in 1945 amounted to \$57,198,416. This latter figure did not include the indebtedness of the public power districts which supply nearly the entire state. Their debt in 1945 amounted to about \$88,000,000.

Agriculture.—The total acreage harvested in 1946 for the crops listed in



VAL PETERSON, governor of Nebraska, was elected on the Republican ticket, Nov. 5, 1946

the table was 16,009,000. In addition 2,141,000 tons of wild hay were taken from about 900,000 ac. As of Dec. 1, 1946, the total farm income for the year was estimated to run between \$800,000,000 and \$850,000,000, exclusive of government payments, as compared with \$747,992,000 in 1945.

Leading Agricultural Products of Nebraska, 1946 and 1945

Crop	1946*	1945
Corn, bu.	244,156,000	258,304,000
Wheat, bu.	93,579,000	85,212,000
Oats, bu.	68,684,000	74,120,000
Barley, bu.	11,529,000	13,420,000
Potatoes, bu.	11,055,000	12,075,000
Sugar beets, tons.	800,000	635,000
Alfalfa hay, tons.	1,742,000	1,933,000

*Estimated Nov. 13, 1946.

Manufacturing.—Manufacturing is of comparatively minor importance in the economy of the state. Most establishments are engaged in the processing of farm products. No comprehensive figures on manufacturing were available after 1939. In Dec. 1946, however it was estimated that employment by concerns covered by the unemployment compensation laws would total 152,000.

Mineral Production.—Aside from clay, sand, gravel and building stone, most of which is consumed locally, the state has no mineral wealth of consequence. There are deposits of petroleum which were worked after 1939 but total production to the end of 1946 was only a little more than 5,000,000 bbl. (L. W. L.)

Necrology: see OBITUARIES.

Negroes, American. The Armed Services.—The U.S. army announced over-all figures of Negro personnel for the war period as 920,000 men and 7,768 officers; promulgated the Gillem report purporting to aid the better integration of Negroes in all the various branches of the service, but after Negro re-enlistments reached 20%, announced a 10% ceiling quota for Negro army strength and 315 specifically designated reserve corps units for all Negro personnel, assigned, however, to small detachments affiliated with general units. The latter actions were widely protested. Negro fighting units received distinguished unit awards totalling 32 such units, and the 969th field artillery battalion, a mixed unit, received this award for heroic action in the defense of Bastogne during the Battle of the Bulge.

Legal and Political.—Throughout the south, elections showed a heavy increase of Negro voting; Georgia registrants increased by 118,387 alone. Even in Mississippi, despite threats and acts of violence, several hundred Negroes voted and a militant Negro newspaper editor, Percy Greene of the *Jackson Advocate*, joined with white liberals to bring senator-elect Theodore G. Bilbo to trial before a congressional investigating committee for illicit campaign practices, including threats and intimidation of Negro voters, culminating in the postponement of his seating in the 80th congress. In reaction to Negro political participation, Alabama reverted to state convention instead of primaries for candidate nominations and passed by a small margin the Boswell amendment calling for the interpreting before election judges of the constitution as a qualification test for voters. In Georgia, the Negro became the pivotal issue in the state elections which resulted by a narrow margin in the election of Eugene Talmadge as governor; this, too, was largely a reaction from the liberal reforms of the regime of Gov. Ellis G. Arnall. Renewed Ku Klux Klan activities, mass lynchings in Webster county, La., and Monroe, Ga.; and the organization of a new "white supremacy" order, the Columbians, in Atlanta, Ga., indicated serious reaction trends. But these situations were widely protested, south as well as north; extensive Federal Bureau of Investigation inquiries were started, Governor Arnall took steps to outlaw both the K.K.K. and the Columbians and the Klan had its charter revoked in New York, New Jersey and California. Interracial protest meetings, especially one held Sept. 23 at the Lincoln memorial, Wash., D.C., highlighted the Monroe lynching of two Negroes and their wives, but in spite of extensive FBI investigation, a grand jury found insufficient evidence to indict.

The Columbia, Tenn., riot trial attracted nation-wide attention, ending in the acquittal by an all-white jury of 23 of the 25 Negroes charged with murder and inciting to riot. The University of Texas was sued for noncompliance with the Gaines decision, requiring equal educational college and professional facilities, and in June the United States supreme court ruled against racial segregation of passengers in interstate bus travel.

Industrial and Economic.—Massachusetts adopted a Fair Employment Practices committee (F.E.P.C.) law, with similar legislation pending in 12 states. The Congress of Industrial Organizations (C.I.O.) and the American Federation of Labor (A.F. of L.) both announced wide-scale drives to organize labour without race restrictions in the south, and in Norfolk, Va., the U.S. district court ruled that the Brotherhood of Locomotive Engineers and Firemen must not restrict the promotion rights of Negro firemen. The National Urban league announced considerable increase in the upgrading and employment of Negroes as sales and clerical workers in the retail merchandising field and in public utility employment, as a result in part of the direct and indirect influence of F.E.P.C. statutes; in 28 cities public utilities figures jumped from 717 to 2,712.

Educational and Cultural.—Negro college enrolment was 53,030 with 5,264 graduates; Dr. Charles S. Johnson was elected the first Negro president of Fisk university, Nashville, Tenn. Several appointments of Negroes to posts on mixed college faculties, including New York university, Haverford college, and the University of Chicago, brought the total of such appointments to about 50. The Booker Washington bust by Richmond Barthe was dedicated in the American Hall of Fame on May 7. Ralph J. Bunche as acting director of the trusteeship division of United Nations, organized the division and supervised the first trusteeship agreements and the hearings which refused the petition of the Union of South Africa for annexation of its old mandate. William O'Hara Lanier took up his post as U.S. minister to Liberia, and by a gift of \$250,000 from Harvey S. Firestone, an American Foundation for Tropical Medicine was announced for Liberia. Lester Granger was awarded an honorary L.H.D. by Dartmouth college, his alma mater, and the distinguished service medal on nomination of the secretary of the navy for his services as adviser on Negro personnel. It was announced that 12 Negro research scientists had served on the atom bomb research staffs. Mrs. Emma Clarissa Clement was chosen the "American Mother of the Year" by the Golden Rule foundation. In music, Camilla Williams starred successfully in the name role of Madame Butterfly with the New York Center Opera Co., and received a "Page One award" for this achievement, while Carol Brice continued her successful career by a featured appearance at the Berkshire Festival concerts. Canada Lee, after a successful Broadway run with his sponsored problem drama, *On Whitman Avenue*, appeared with the Elisabeth Bergner company in "white-face" as Boscola in Webster's *The Duchess of Malfi*. The race discriminatory policy of several Washington, D.C. theatres was extensively challenged locally and nationally, with the result that 30 of the leading U.S. playwrights signed a ban on any Washington performances of their plays until the restrictions were lifted. Actor's *Equity* also passed condemnatory resolutions. Shirley Graham won the Julian Messner award for the best book fostering democratic relations with her biography of Frederick Douglass, *There Once Was a Slave*. The Federal Council of Churches of Christ in America in Columbus, O., convention, adopted strong resolutions against segregation in the armed forces, in residence areas and churches. (See also LYNCHING.)

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White Woman Looks at the Negro; Buell G. Gallagher, *Color and Conscience*; Robert C. Weaver, *Negro Labor*; John A. Davis and Marjorie McKenzie, *Post-War Employment and the Negro Worker*; Milton Mezerot, *Really the Blues*; Rudi Blesh, *Shining Trumpets*; Edmund Fuller, *A Star Pointed North*; Era Bell Thompson, *American Daughter*. (A. LER. L.)

Nehru, Jawaharlal (1889–), Indian statesman, historian and writer, was born on Nov. 14 at Allahabad of a distinguished Hindu family. For his early career, see *Encyclopædia Britannica*. Next to Gandhi, Nehru is regarded as the most influential of Indian nationalist leaders. After the outbreak of World War II, he split with Gandhi over the latter's insistence on nonviolent resistance in the event of a Japanese invasion. After the Congress party issued a mass call for a large-scale civil disobedience movement on Aug. 8, 1942, the British authorities arrested Nehru and other nationalist leaders. During his imprisonment at Ahmadnagar fort, Nehru wrote *The Discovery of India* (publ. 1946), a distinguished historical work. He was released on June 14, 1945, and took a leading part in negotiations with the British cabinet mission in New Delhi in March 1946. The following May, he was elected president of the Congress party and later head of the first all-Indian Executive council (the "caretaker government").

Nehru at first refused to participate in the British cabinet's proposed emergency meeting in London in the late winter of 1946, but later reconsidered and attended the conference after receiving assurances that the independence plan would not be changed. He expressed disappointment over the results of the London mission, and on Dec. 13, 1946, he urged the new constituent assembly to pass a resolution proclaiming an Indian republic free of Great Britain.

Nepal. An independent kingdom lying between India and Tibet and including Mt. Everest. Area: c. 54,000 sq.mi.; pop. (est.): 5,600,000. Capital: Kathmandu (pop. c. 108,800). Sovereign: Tribhubana Bir Bikram. Prime minister: General Sir Padma Shumshere Jung Bahadur Rana.

History.—On Nov. 29, 1945, Sir Joodha Shumshere Jung Bahadur Rana, prime minister from 1932, retired and was succeeded by his nephew, General Sir Padma Shumshere Jung Bahadur Rana. The former prime minister was an enlightened ruler, and the author of many reforms. Nepal contributed generously to World War II. A Nepalese force of nine battalions went on active service, and won ten Victoria crosses. The number of Gurkha battalions in the Indian army was increased from 20 to 40. The viceroy, Lord Archibald Wavell, visited Nepal in January. (H. G. R.N.)

Nervous System. More experimental work with streptomycin sulphate (an antibacterial substance) was done in 1946 and it was found to be of benefit in meningitis especially when the germs causing it were gram negative bacilli or streptococci.

Alcoholism.—Many persons suffering from alcoholism were given regular lectures, as a group, and were permitted to associate and mingle with each other. This type of treatment proved valuable only to those patients who were able to quit drinking for eight weeks but was not efficacious to those who could not resist the temptation to go back to imbibitions after the eight weeks. Apparently during this period the patient had great difficulty in maintaining his adjustment. The observer felt that the opportunity of presenting other patients who had maintained abstinence after the eight weeks and survived had a salutary influence on his group of patients.

Psychotherapy.—Dr. John C. Whitehorn said the physician needed to develop respect and understanding of the human being as a pathogenic organism and to gain familiarity with the

common ways in which people defeated themselves. It was essential for the physician to recognize and respect the patient's personality as the most powerful biological agent available for treatment. Finally the physician must serve as a strategic aid to the patient in liberating and developing the patient's own resources for more satisfactory modes of adjustment.

Psychoneurosis.—In 1944, industry and almost everyone else were given to understand that many discharged veterans of World War II were neurotics, "screwballs," etc. As a result of this Dr. C. C. Burlingame was asked to make a study and investigation to determine ways of protecting industry's equipment and employees. The author stated that the greater percentage of men discharged from the armed forces as psychoneurotics never left the continental United States. In civilian life they would not have been labelled as psychoneurotic and would not have needed a doctor's treatment. The root of the whole problem was due to the fact that these people were essentially not good soldier material but had been perfectly good civilian material. The vast majority of these men who had a good work record and were not in combat should offer no great problem in readjustment. The author felt that those who did very well in the army and were the best in combat might need the help of a psychiatrist.

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Netherlands. A kingdom of northwest Europe, bounded N. and W. by the North sea, E. by Germany and S. by Belgium. Area: 12,742 sq.mi.; pop. (est. Oct. 1, 1946): 9,479,000. Chief towns (pop. est. Dec. 31, 1942): Amsterdam (cap., 790,900); Rotterdam (616,910); The Hague (seat of government, 507,351). Language: Dutch; religion: Christian (1930 census, Dutch Reformed Church 2,732,333; Roman Catholic 2,890,022). Ruler: Queen Wilhelmina; prime minister (1946): Dr. L. J. M. Beel.

History.—When they celebrated the first anniversary of liberation on May 4, 1946, the Dutch people were able to look back on a year of remarkable achievements. The starvation of May 1945 had been replaced by a diet of at least 2,500 calories per day. In the Wieringmeer Polder, flooded by the Germans in April 1945, promising crops were growing. Walcheren, flooded by the royal air force in 1944, had been drained and the dykes repaired by Dec. 1945. Of the 285,000 damaged houses, 230,000 had been made habitable and 2,000 temporary houses had been built in the first 3 mo. of 1946. By Aug. 1946 the Moerdijk railway bridge was repaired, thus re-establishing the direct route between Holland and Brabant. Electric trains were running between all the large northern towns. By Sept. 1946 coal production had increased to more than 33,000 (short) tons per day, 69% of prewar production.

Elections for the Dutch parliament were held on May 17, 1946. The result was a majority for the Roman Catholic party which won 32 seats; the Social Democrats were second with 29. A Catholic-Social Democrat cabinet was formed on July 2 under the leadership of Dr. Beel (Catholic).

Dr. E. N. van Kleffens led the delegation at the first general assembly of the United Nations during 1946, and the minister of foreign affairs, Baron van Boetzelaer van Oosterhout, at the second. The latter also led the Dutch delegation to the Paris peace conference.

In September a commission general of three, led by the previous prime minister, Prof. W. Schermerhorn, went to the Netherlands Indies to consider with Dr. H. J. van Mook, lieutenant governor general of the N.I., and the republican leaders, the

constitutional relationship of the N.I. with the Netherlands. A draft agreement was there drawn up, recognizing the republic and planning the United States of Indonesia; the agreement was ratified in the Netherlands parliament on Dec. 20. (G. J. R.)

Education.—In 1938: elementary schools 7,812, scholars 1,242,778; secondary schools 288, scholars 62,301; high schools (1937-38) 4, scholars 3,037; universities (1937-38) 6, students 9,471.

Finance.—Revenue (est. 1946-47) 2,598,976,684 guilders (ordinary: 2,401,141,856 guilders); expenditure (est. 1946-47) 4,250,093,693 guilders (ordinary: 2,310,358,329); public debt (March 1944) 14,947,368,400 guilders; exchange rate (1946): 1 guilder=38 U.S. cents.

Trade and Communication.—Foreign trade (merchandise): imports (first 10 mo. of 1946) 1,650,000,000 guilders; exports (first 11 mo. of 1946) 660,000,000. Communications and transport (1938): roads suitable for motor traffic 8,534 mi.; railways open to traffic 2,278 mi.; rivers and canals, navigable, 4,817 mi.; airways, distance flown, 6,629,000 mi.; shipping (June 30) 2,855,400 gross tons; launched (July 1938-June 1939) 246,400 gross tons; entered with cargoes 27,606,524 net tons; cleared with cargoes 23,151,428 net tons; motor vehicles licensed (Aug. 1, 1938): cars 94,000; buses 4,088; trucks 50,988; cycles 55,140; wireless (June 30, 1939): registered receiving sets 839,542; connections with radio-distribution systems 368,710.

Agriculture, Manufactures, Mineral Production.—Exports, 1946 (first 11 mo.): agricultural 318,000,000 guilders, industrial 342,000,000 guilders. Production (harvest 1946), in short tons: wheat 385,000; rye 495,000; barley 192,500; oats 462,000; pulse 88,000; flax 60,500; potatoes 4,543,000. Minerals (1939) in short tons: coal 14,147,000; zinc 22,550; salt 219,780; pig iron and ferro alloys (1938) 304,260. (See also CURAÇAO; NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES; SURINAM.)

Netherlands Colonial Empire. Total area excluding mother country (approx.): 789,700 sq.mi.; total pop. excluding Netherlands (est. Dec. 31, 1940): 70,760,000. The accompanying table lists the overseas territories of the Netherlands, together with statistics appropriate to each of them.

History.—The year 1946 opened on a troubled scene. The commander of the British forces, representing the supreme allied commander, Southeast Asia command, was in control of the situation only in a few key areas in Java (Batavia, Bandoeng, Soerabaja, Semarang) and Sumatra (Palembang, Medan, Padang) as well as in parts of the other islands of the archipelago. In the interior, however, the radical Indonesian nationalist elements of the republic, armed and supported by the Japanese after their defeat, held sway; many thousands of European internees were held as hostages in prisons and internment camps. On the outskirts of the sectors held by Allied forces, desultory fighting and sniping by Indonesian bands went on; and the considerable Japanese armies in the interior, still to be disarmed and evacuated, formed a sinister background.

In these unbalanced circumstances, political negotiations began on March 13 between the Dutch, represented by the lieutenant governor-general, and the Indonesians of the "republic" in Java, led by Sutan Sjahrir, with the British ambassador, Sir Archibald Clark Kerr (later Lord Inverchapel), acting as chairman. Discussions soon reached a stage where it became necessary to consult the home government in the Netherlands. All parties participating in the talks therefore went to the Netherlands by air, and discussions were continued there till the end of April; they broke down on the Indonesians' claims that the republic should receive formal recognition as a sovereign power

Overseas Territories of the Netherlands and Essential Statistics

Country and Area, sq. mi. (approx.)	Population (000's omitted)	Capital	Status	Governors, Premiers, etc.
ASIA				
Netherlands Indies, including Java and Madura, Sumatra, Celebes, Borneo (D.), New Guinea (D.), Timor (D.), etc.	735,300	22,000 (est. 1942)	Batavia	Autonomous parts of the state of the Netherlands Lieutenant-Governor-General Dr. H. J. van Mook
AMERICA				
Curaçao	403	119 (est. 1941)	Willemstad	Governor: Dr. P. A. Kasteel
Surinam (Dutch Guiana), etc.	54,000	183 (est. 1943)	Paramaribo	Governor: Dr. J. C. Brons

and that its administration should cover Sumatra as well as the other islands of the archipelago, although in many parts opposition against domination by Javanese intellectuals was manifest among the Indonesian population. To these claims the Dutch government therefore found it impossible to agree, and after the return of the Indonesian delegation to Java a prolonged deadlock followed. On June 17 Sjahrir came forward with counter-proposals, but these offered less than had been agreed upon in April; a few days afterwards he himself was kidnapped, the president of the Indonesian republic, Achmed Soekarno, assumed dictatorial powers and negotiations broke down. During June the Indonesian extremists in Java indulged in atrocities against the Chinese living in the interior (Tangerang massacres), and Chinese people in Sumatra were threatened by the same fate.

The Japanese armies in the interior, on orders from the Allied supreme command, marched to the coasts, and by the end of June the bulk of them had been evacuated. The support which they hitherto had lent to the republic thereby came to an end. Newly raised Dutch troops began to arrive in the archipelago; by Nov. 1946 the last British forces had left the area. When responsibility over the whole of the archipelago, with the exception of Allied bridgeheads in Java and Sumatra, was resumed by the Dutch on July 15, a conference was held in Malino (near Macassar) in which Indonesian leaders from the liberated islands (particularly Borneo, Celebes and the eastern part of the territory) took part. Agreement was quickly reached on a number of important points, *e.g.*, that the Netherlands Indies should henceforth be reconstructed as a federation of autonomous states (United States of Indonesia), which in its turn would maintain a status as a federal part of the state of the Netherlands. These developments made the more responsible elements in the republic inclined to seek a reasonable political settlement with the Dutch. This tendency was strengthened by the growth of the Communist movement; led by propagandists who trickled into the interior, this party got some support among the masses after their three years of starvation, oppression and spoliation by the Japanese. The Communists ultimately threatened the members of the Indonesian intellectual class who led the republic in their newly acquired positions.

To expedite a constructive solution from the side of the Dutch, the queen and parliament of the Netherlands sent three commissioners-general to Batavia with extensive powers to promote a political settlement. These met a number of representatives of the republic at Batavia on Oct. 7, 1946, with Lord Killearn, British high commissioner for Southeast Asia, in the chair. The auspices seemed favourable; a truce to stop the irregular fighting between Allied troops and the Indonesian bands was concluded, and a cease fire order was given.

The political problem lay in reconciling recognition of the republic with the authority of the crown of the Netherlands and the Netherlands state, thereby safeguarding minimum standards of law and order as well as the fulfilment of Dutch obligations under paragraph 73 of the United Nations charter.

On Nov. 15, 1946, a draft agreement was initiated at Linggadjati (near Cheribon, in West Java), by the Dutch commissioner-general and the leaders of the Indonesian republic of Java and Sumatra. According to this agreement the republic would take its place in a federation with the other islands of the archipelago. This federation would bear the name of United States of Indonesia, and in its turn would enter into a union with the kingdom of the Netherlands, headed by the queen. As

this agreement, which would come into force on Jan. 1, 1949, virtually meant the end of Dutch parliamentary control over the affairs of the union and of Indonesia, opposition to it in the Netherlands was strong. Nevertheless, the Dutch cabinet gained for it the support of a substantial majority in parliament (65 votes to 30, on Dec. 20), and the commissioners general returned to the Indies with authority to sign the agreement on behalf of the Dutch government. (*See also* CURAÇAO; NETHERLANDS INDIES; SURINAM.) (W. G. P.)

Netherlands Indies. The Netherlands Indies constitute a major portion of the largest archipelago in the world. They extend 3,000 mi. along the equator from Sumatra to New Guinea between 6° N. and 10° S. lat. The Netherlands Indies include the Greater Sunda islands (Sumatra, Java, Borneo, and the Celebes), the Lesser Sunda islands (Bali, Lombok, Sumbawa, Flores, and Timor), the Moluccas (Halmahera, Ceram) and the western half of New Guinea. Area, 735,000 sq.mi.; pop. 72,000,000 (est.) of whom 40,000,000 live in Java, 8,000,000 in Sumatra, 4,000,000 in the Celebes, and 2,500,000 in Borneo. Capital, Batavia, pop. 1930 (435,184). The white population on the islands before World War II was estimated at 250,000. About 90% of the Indonesians are Mohammedans; there are approximately 2,500,000 Christians and 1,000,000 Hindus. Attachment to the great world religions has failed to stamp out pagan practices and natives generally indulge in the worship of ancestral spirits.

History.—Japan conquered the Netherlands Indies early in 1942. When Japan surrendered in Aug. 1945, orders were issued to the Japanese forces to maintain peace and order in the islands. Lack of Dutch forces led to the dispatch of British troops who moved into Batavia on Sept. 29, 1945. The occupying forces, under the command of Lieut. Gen. Sir Philip Christison, proposed to restrict the occupation to a few of the larger cities and refused to interfere with local administration. A strong nationalist movement led by Achmed Soekarno and later by Sutan Sjahrir was in control of local administration. Dutch authorities refused to deal with the nationalists and in October fighting broke out between the Indonesians and the forces of occupation. On Feb. 10, 1946, the Netherlands government issued a declaration stating that the people of Indonesia should, after a given preparatory period, be enabled freely to decide their political destiny. The declaration looked forward to a commonwealth of Indonesia associated with the Netherlands on the basis of the federative principle. Dr. Hubertus J. van Mook, acting governor-general, and Sutan Sjahrir, Indonesian nationalist leader, entered into negotiations. In June negotiations were broken off due to a disagreement over the question of sovereignty in the period of transition. In August the Netherlands states-general created a commission-general to carry on negotiations. On Oct. 14, a truce was declared between Allied (British and Dutch) and Indonesian armed forces. Negotiations were resumed at Linggadjate, near Cheribon on Java on Nov. 11.

On Nov. 12, 1946, a most significant agreement was reached which brought the 14-month rebellion to an end. The Indonesians and the Dutch agreed to the establishment of a commonwealth of Indonesian nations under the Dutch Crown. The Netherlands East Indies, under the name of The United States

of Indonesia, was to become a sovereign state by Jan. 1, 1949. It was to be composed of three states: the Republic of Indonesia (Java, Sumatra, Madura), East Indonesia (Celebes, the Moluccas, Bali, Lombok, Dutch Timor) and Dutch Borneo. Arrangements for Dutch New Guinea were not completed in 1946. The second state, East Indonesia, was proclaimed Dec. 25. A conference was scheduled to meet in Borneo in Jan. 1947 when that island would receive statehood.

The three states were to have equal status in the United States of Indonesia. Each of the states was to have control over affairs of a local nature. The central government, as outlined in the plan of government, was to exercise control over foreign affairs and currency. The United States of Indonesia was to have coequal status with the Netherlands under the Dutch crown. In 1946 Achmed Soekarno was president and Sutan Sjahrir premier of the Republic of Indonesia; Rajah Sukawati was president of East Indonesia and Tadjuddin Noor was premier.

Education.—The Dutch established two types of schools in the islands. The first, village or native schools, were designed to provide an elementary education for those who would go no further in school. These indigenous schools, offering a three-year or four-year course, employed native teachers and the native language. In 1938 there were 1,677,000 enrolled in these schools. The second type of school was intended for children who would continue their training. There were 142,726 children enrolled in these European schools which employed the Dutch language. Link schools were established for graduates of the village schools who wished to prepare themselves for more advanced training. There were approximately 10,000 enrolled in junior high schools and 6,500 in secondary schools. Eleven per cent of the students in the European elementary schools were natives. There were three colleges with a total enrolment of 1,051 in 1938.

Finance.—The Dutch budget, in 1942, anticipated revenue of 750,918,773 guilders and expenditures of 813,802,815 guilders. The three main sources of revenue were import duties and excise taxes. In 1938 these yielded 64,000,000 guilders. In the same year government monopolies on opium, salt and pawnshops yielded 14,250,000 guilders. An additional source of revenue was the profits on the government sales of cinchona, rubber, timber, gold, tin and coal.

Trade and Communication.—Imports in 1941 were 384,200,000 guilders and exports 854,200,000 guilders (value of the guilder 53 U.S. cents). In 1939 the Netherlands Indies produced 2.8% of the world's export of oil, 17% of tin, 37% of rubber, 6% of sugar, 91% of quinine, 86% of pepper, and 27% of copra. Production was greatly curtailed as a result of Japanese occupation and estimates of 1946 exports were generally far below prewar levels. The Netherlands Indies Rubber fund announced on July 19, 1946, that it had purchased 23,400 tons of rubber for export after the end of the war. It expected to accumulate another 47,000 tons by the end of the year. Monthly figures indicated steadily mounting production. In the 12 months following Japan's surrender 10,000 metric tons of copra were exported. Mining of tin had made only a slight recovery due to the lack of machinery and power. Japan curtailed tea production in order to produce more vitally needed foods; only 50 of 222 tea factories were continued in operation and large tea areas were uprooted. Spice production was almost at a complete halt in 1946.

In 1940, there were 43,450 mi. of highways and 4,620 mi. of railways, 3,387 in Java and 1,233 in Sumatra. There were 94,000 motor vehicles in 1941.

Agriculture.—In Aug. 1946 sugar production in Java was reported as only a fraction of normal. Only 51 out of 85 sugar



JAVANESE REVOLUTIONARIES, armed mostly with bamboo spears, at a meeting to demand independence from the Dutch. On Nov. 12, 1946, an agreement was reached, bringing the fighting to an end and leading to the establishment of a commonwealth of Indonesian nations under the Dutch crown

factories were in good operating condition. Rice production in Java in 1945 was 3,088,618 tons as compared with normal production of 4,000,000 tons. Corn production decreased from 2,165,281 tons in 1942 to 1,208,596 tons in 1944. It was reported that less than 1% of the 20,000,000 pepper trees on

Bangka Island and only about 20% of those in Southern Borneo were left standing. The Japanese did less damage to the 610,000 ac. of rubber plantations but 43,000 ac. were said to have been uprooted in Java.

Manufactures and Minerals.—Many tin mines were damaged by the Dutch prior to evacuation and further damage was done by the Japanese. The mines on the islands of Bangka and Billiton were largely inoperative in 1946. It was reported full production would not be resumed until dredging machinery was available. Nine of the 85 open mines were expected to resume operation shortly but lack of coal for power was a major obstacle. None of the tin smelters on Bangka were operating in June 1946. (See also JAPAN; NETHERLANDS COLONIAL EMPIRE.)

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Neurath, Konstantin von, COUNT (1873–), German statesman, was born in Wuerttemberg. After studying law he entered the German foreign service. He was appointed foreign minister of the reich in 1932 and retained this post after Adolf Hitler became chancellor in 1933. In 1938 he was ousted by Hitler in favour of Joachim von Ribbentrop, and the following year (March 1939) he was appointed reich protector for Bohemia and Moravia.

During his tenure as ruler of Bohemia and Moravia Von Neurath ordered abolition of political parties and trade unions, instituted racial laws and made Czechoslovakian industry work for the German war effort. However, he also intervened with the German security police for the release of many Czechoslovakians arrested in the fall of 1939. In 1941 Von Neurath was summoned before Hitler, told that his rule was "too lenient" and was dismissed; his successor was Reinhard Heydrich.

He was captured in the closing days of the war in Europe by French troops and was brought to trial before the International Military tribunal at Nuernberg.

Although he was found guilty, the court recognized circumstances mitigating in his favour and returned a sentence, Oct. 1, 1946, of 15 years of imprisonment.

Neutrons: see ATOMIC ENERGY; CHEMISTRY; PHYSICS.

Nevada. One of the southwestern group of states, popular name "Battle born," was the 30th state admitted into the union on Oct. 31, 1864. Land area 109,802 sq.mi.; water area 738 sq.mi.; it ranks 6th in size among the states. Population (1940 census) 110,247 of which 66,956 were rural and 43,291 were urban. Native whites numbered 93,431 and foreign-born whites 10,599. Capital, Carson City (2,478). Reno (21,317), Las Vegas (8,422), Sparks (5,318), Ely (4,140), Elko (4,094) are largest cities. On July 1, 1946, the estimated population of the state was 159,790.

History.—The 1946 general election was marked by a political upheaval in Nevada in spite of an almost two to one Democratic registration. The voters elected Republican George W. Malone to the U.S. senate and Charles H. Russell as representative in congress. Vail Pittman, Democrat, however, who had been acting governor from July 24, 1945, was elected governor by a large majority, carrying with him the entire Democratic state slate of officials. Supreme Court Justice Edward A. Ducker died on Aug. 15; Judge Edgar Eather was appointed by Gov. Vail Pittman on Sept. 6 to fill the vacancy; thus, for the first time all three members of the state supreme court faced the voters in the general election.

Dec. 31, 1946, marked the first full year during which the

1% tax on gross income of all gambling establishments doing more than \$3,000 worth of business was in effect. Based on the state revenue from this tax, totalling \$270,179.13, the Nevada tax commission estimated that Nevada's residents and visitors bet \$650,447,825 on gambling tables throughout Nevada during 1946.

On Jan. 1, 1947, state officers were: governor, Vail Pittman; lieutenant governor, Clifford Jones; secretary of state, John Koontz; state controller, J. P. Donovan; state treasurer, Dan W. Franks; superintendent of public instruction, Miss Mildred Bray; attorney general, Alan H. Bible; chief justice of the supreme court, Edgar Eather; justices, Charles Lee Horsey and E. J. L. Taber.

Education.—On Jan. 1, 1947, Nevada had 201 elementary schools with a total enrolment of 18,366; teachers numbered 678; high schools totalled 36 with enrolment of 5,888, staffed by 280 teachers. Enrolment was 1,372 in 10 kindergartens with 22 teachers. The total school enrolment was 25,620, compared with 23,114 pupils Jan. 1, 1946.

Social Insurance and Assistance, Public Welfare and Related Programs.—The amount spent for social security and old-age assistance was \$959,609.87 for the fiscal year ending June 30, 1946. Aid to the blind expense was \$6,500.00. Nevada spent \$1,672,510.68 for unemployment security benefits. On Jan. 1, 1947, the state prison had 293 inmates including 4 women; total expenditures for the fiscal year ending June 30, 1946, were \$157,723.92. The state industrial home had 25 boys and 3 girls on Jan. 1, 1947, and 17 boys and 3 girls on parole. Support of the school for the fiscal year was \$26,898.59. The state hospital for mental diseases had 327 inmates on Jan. 1, 1947; expenditures were \$179,876.69. The orphans' home had 60 inmates on Jan. 1, 1947; expenditures were \$51,961.56.

Communications.—During 1946 highway mileage completed was 11.93 mi. of gravel surface at a cost of \$145,000 and 63.38 mi. mixed bituminous-covered highway at a cost of \$1,800,000. Projects carried over to 1947 were 104.40 mi. of mixed bituminous highway at an estimated cost of \$2,858,000 and 80.35 mi. of gravel-surfaced roads to cost \$712,000.

On Jan. 1, 1947, plans called for 95 mi. of gravel highways to cost \$840,000 and 140 mi. of bituminous surface treated to cost \$4,317,000. The state highway budget for the year 1946 was maintenance \$900,000 and new construction \$5,900,000. Total expenditures during 1946 were \$5,047,570 of which 82.67% was contributed by the federal government and 17.33% by the state.

Railroad mileage in Nevada including main-line tracks and sidings totalled 2,349.42 on Jan. 1, 1947; of this main-line mileage was 1,819.08.

Airways and airports totalled 48 on Jan. 1, 1947, and consisted of 4 army, 1 navy, 7 Civil Aeronautics administration, 1 department of interior, 5 state, 7 county, 3 municipal, 1 commercial and 19 privately owned. Plans called for the improvement of 16 existing airports and the construction of 30 new airports during the ensuing 3 years.

Banking and Finance.—On Dec. 31, 1946, there were 23 banks in Nevada; total assets were \$170,354,648.99. Three state banks with 4 branches had total deposits of \$22,911,251.47 and resources of \$24,104,440.39. The First National bank of Nevada had 11 branches and on Dec. 31, 1946, had deposits of \$116,471,780.93 and resources of \$122,892,482.47. In addition the following national banks operated in the state: the Security National at Reno, deposits \$8,686,579.58 and resources of \$8,909,306.68; the Ely National bank had deposits of \$6,474,114.96 and resources of \$6,817,489.92; the First National bank of Ely had deposits of \$4,373,801.18 and resources of \$4,664,378.15; the First National bank of Lovelock had deposits of \$3,068,457.37 and resources of \$3,202,924.38.

Of state funds on July 1, 1946, cash on hand was \$13,466,490.07, disbursements were \$8,102,412.61, leaving a cash balance of \$5,364,077.46. There was no state debt on Jan. 1, 1947. Total securities held by the state treasury on Jan. 1, 1947, totalled \$21,183,831.12. Nevada's Postwar Reserve fund totalled \$1,649,000, all in U.S. bonds.

Agriculture.—The 1946 Nevada grain crop was slightly greater than in 1945; weather conditions were favourable throughout 1946. Beef cattle increased 3% in 1946 and were in good condition. Sheep numbered 4% less than in 1945; hogs 20% less and chickens 15% less.

Table I.—Leading Agricultural Products of Nevada, 1946 and 1945

Crop	1946 (est.)	1945
Barley, bu.	840,000	640,000
Potatoes, bu.	800,000	700,000
Wheat, bu.	500,000	388,000
Hay, tons	370,000	599,000
Oats, bu.	276,000	273,000
Corn, bu.	120,000	64,000

Mineral Production.—The estimated total mineral production in 1946 was \$26,294,384—an increase of 9% over that of 1945. During 1946 mining conditions improved, encouraged by the increased price of silver which was 90.5 cents per pound compared with 71.11 cents for 1945, and an upward market on copper, zinc and lead, after removal of Office

Table II.—Principal Mineral Products of Nevada, 1946 and 1945

Mineral	Value 1946 (est.)	Value 1945 (actual)
Gold	\$ 3,097,500	\$ 3,229,275
Silver	859,874	741,959
Copper	15,335,250	14,200,650
Lead	1,292,800	1,079,300
Zinc	5,708,960	4,935,110
Totals	\$26,294,384	\$24,186,294

of Price Administration price ceilings. Nevada was the second largest mercury-producing state in 1945. Tungsten productions were also substantial during 1946. The hope for a large increase in mining operations in 1946 did not materialize, because of shortage of labour, increased costs and scarcity of materials. (E. C. D. M.)

New Brunswick. New Brunswick, one of the three maritime provinces of Canada, entered the union in 1867. Area, 27,985 sq.mi., including 512 sq.mi. of fresh-water lakes; pop. 457,401 (1941 census), 68.64% rural. In 1946 the dominion bureau of statistics estimated the population at 468,000. The largest cities are St. John (51,741) and Moncton (22,763). The capital is Fredericton (10,062). Administered by a lieutenant governor, an executive council and a 48-member legislative assembly, New Brunswick was represented federally by 10 members of parliament and 10 senators.

History.—Throughout 1946 the Liberal administration of J. B. McNair continued in office and converted industries from war to peace production without major dislocations. Production in many lines boomed; the full effect of government stimulation of agriculture was felt with poultry and dairy farming expanding; lumbering activity continued unabated, with encouraging growth of secondary industries based on wood; the biggest annual run of sardines ever known reached Bay of Fundy fishermen; mink ranchers held the largest show on record, exhibiting entirely new colour phases.

Transportation services expanded during 1946; a \$10,000,000 road-improvement program got under way. Tourist traffic was high, with the first air-borne sportsmen's tour occurring when 20 businessmen from Washington, D.C., arrived for September angling in Miramichi trout and salmon waters. (C. Cy.)

Education.—For the school session, 1943-44, enrolment in all educational institutions was 99,630; the revenues of provincially-controlled schools in 1944 were \$3,468,361. The University of New Brunswick with its seat at Fredericton was the provincial university.

Agriculture and Industry.—In 1944 the estimated gross value of agricultural production was \$61,508,000; farm income \$32,200,000. In 1945 the value of field crops was \$34,138,000 (1944: \$37,978,000). In 1944 the value of the fisheries was \$5,389,000.

New Caledonia: see FRENCH COLONIAL EMPIRE.

Newfoundland and Labrador. A British dominion of North America, with suspended constitution. Area: Newfoundland 42,734 sq.mi.; Labrador 110,000 sq.mi.; pop. Newfoundland 312,899 (1945); Labrador 4,780 (1938). Capital: St. John's (pop. 1945, 43,179). Language: English; religion (1935 census): Roman Catholic 93,925; Church of England 92,732; United Church 76,100; Salvation army 18,054. Governor: Sir Gordon Macdonald.

History.—Governor Sir Humphrey Walwyn resigned in Jan. 1946 and was succeeded by Sir Gordon Macdonald. In March the British dominions office announced that a convention of 40 members would be elected in June which would make recommendations on possible future forms of government; its proposals would be submitted to the British government, which would in turn submit them to the people in the form of a referendum. In April a group of Newfoundlanders led by Peter Cashin organized a petition to the king asking for the immediate return of self-government and the holding of general elections in 1946. Polling took place in Newfoundland on June 21, in Labrador (because of communication difficulties) from Aug. 8 to Sept. 4. Cashin and nine members of his group were among those elected.

Under the terms of an agreement signed by Canada, Great Britain and Newfoundland on May 8, the airbase at Gander

installed by the Canadian government at a cost of \$25,000,000 was handed back to Newfoundland for \$1,000,000. Control of the airbases at Gleneagles and Botwood was handed back to Newfoundland, but Canada retained the right to operate Torbay airport as a civil airport. (J. RA.)

Education.—In 1945: schools 1,197; scholars 69,000; teachers 2,227.

Banking and Finance.—(In Canadian dollars) Revenue (est. 1946-47) \$30,757,200; expenditure (est. 1946-47) \$22,939,700; reconstruction expenditure \$11,065,000, to be paid for by excess of revenue over ordinary expenditure (\$7,817,500) and by surplus accumulated in previous years. Public debt (March 31, 1946) \$82,188,070; sterling debt at rate of \$4.45 per £1. Exchange rate (1946): Canadian dollar=100 U.S. cents.

Trade and Communication.—Overseas trade (1944-45) (in Canadian dollars): imports \$65,824,066 (\$57,000,000 excluding imports by or on behalf of the armed forces); exports \$46,414,485; re-exports \$2,297,495. Communication: roads (1946), main and secondary, 2,200 mi.; railways 747 mi.; motor vehicles licensed (1945) 6,903.

Mineral Production and Fisheries.—Exports (year ended March 31, 1945) (in short tons): fluorspar 48,014; iron ore 647,654; limestone 350,840; copper concentrates 27,161; lead concentrates 36,234; zinc concentrates 84,107; newsprint 283,360. Value of fish exported (year ended March 31, 1945) (in Canadian dollars): codfish, dried (salt bulk and soft cured) \$12,434,000, fresh and frozen fillets \$3,855,000; herring \$2,071,000; other fish \$3,509,000.

New Guinea. The largest island of the East Indies with an area of more than 310,000 sq.mi., stretching from the equator in the N.W. to 12° 5' S. in the S.E. and from 130° 50' E. to 151° 30' E. The island is separated from Australia to the south by the Torres strait and the Arafura sea. The Bismarck archipelago and the Solomon Islands lie to the east. Total estimated population (1940) 1,420,000, including surrounding islands within the jurisdiction of New Guinea.

Before World War II New Guinea was one of the least explored and least known parts of the world. Although the island was discovered in the beginning of the 16th century, it had never been completely explored. The non-native population before the war never totalled as much as 5% of the entire population. The native population is quite diversified in language, race and social customs.

Shortly after the outbreak of the Pacific war, the Japanese occupied most of the settlements on the northern coast of New Guinea and several on the southern coast. In the autumn of 1942, Japanese troops attempted to drive overland from North-eastern New Guinea across the Owen Stanley mountain range to capture Port Moresby, the capital of Papua (Australian New Guinea). U.S. and Australian troops, however, stopped the Japanese advance and, after taking the offensive, drove the Japanese from Lae, Salamaua and other towns in Northeastern New Guinea. This was followed by successive drives against other Japanese-held areas and by the time of the Japanese surrender in 1945, U.S. and Australian forces had retaken practically all of the coastal areas of New Guinea which had been occupied by the Japanese. New Guinea is divided under Dutch and Australian control into three administrative units. The single Dutch area is about equal in size to the two Australian units.

Dutch New Guinea (area 151,789 sq.mi.; pop. (est. 1940) about 400,000) prior to World War II was administered as part of two districts or divisions of the Moluccas residency with headquarters in Amboina. Dutch rule was represented by two assistant residents, a few lesser officials, and native assistants and native police. As a result of native discontent in the Nether-

lands Indies after the end of World War II in opposition to Dutch rule, at the end of 1946 there was under consideration a plan for the formation of a "United States of Indonesia" in equal partnership with the Netherlands in the "Netherlands-Indonesia Union." This plan would establish three autonomous states in the United States of Indonesia: the Indonesian Republic (Java, Sumatra and Madura), Dutch Borneo and East Indonesia (Celebes, Moluccas and the Lesser Sundas). The status of Dutch New Guinea was not defined under the proposal. Principal towns of Dutch New Guinea are Hollandia, Manokwari, Merauke and Babo.

Papua (also known as Australian New Guinea) (area 90,540 sq.mi.; pop. [1940] 338,822) is governed by Australia under a Lieutenant governor with administrative headquarters at Port Moresby.

Northeastern New Guinea, together with the islands of the Bismarck archipelago and the northern Solomon Islands, are former German possessions which were turned over by the League of Nations in 1920 as a class "C" mandate for administration by Australia. Area of the mandate, about 93,000 sq.mi.; pop. (1940), about 680,000, fewer than 10,000 of whom were non-natives. Headquarters of the Australian administration are at Rabaul. During 1946, Australia submitted a draft agreement whereby Northeastern New Guinea would be transferred to the supervision of the Trusteeship council of the United Nations with Australia to retain the administration of the territory. This was accepted by the United Nations assembly on Dec. 13, 1946.

Economy.—New Guinea has a primitive agrarian economy with only slight development of existing natural resources. The natives subsist on sweet potatoes, sago, coconuts and fish. Gold, silver, platinum, lead, zinc, bauxite, coal and petroleum are known to exist, but only a small portion of the island has been intensively surveyed. Some coconut, coffee, tobacco and rubber plantations were developed by non-natives before the war. Dutch New Guinea and Northeastern New Guinea exported sizeable quantities of copra prior to World War II, averaging about two-thirds and one-third, respectively, of the total value of exports of these areas. Coal and petroleum are found in the Vogelkop area of Dutch New Guinea; copper is found near Port Moresby in Papua. (See also NETHERLANDS COLONIAL EMPIRE.)

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New Hampshire. One of the New England states and one of the original group of 13, popularly known as the "Granite state"; area, 9,304 sq.mi., including 280 sq.mi. of water. Population (1940) was 491,524, of which 57.6% was urban and 42.4% rural. Estimated population, July 1, 1945, excluding armed forces overseas, was 452,174, of which 445,930 was civilian. In 1940 there were 490,989 whites, including 422,693 native and 68,296 foreign born. Capital, Concord, with estimated population (1943) of 27,495. Other cities: Manchester 78,436, Nashua 33,914; Berlin 16,480; Dover 16,393 and Portsmouth 20,530, as of 1943. An estimated total of 62,000 men and women entered the armed services during the war, of whom 56,000 had been discharged by Nov. 30, 1946.

History.—The general court was not in session during 1946. Town meetings were held on March 12 and the state primary election on Aug. 6. At the general election in November, Charles M. Dale (Republican) was re-elected governor by a vote of 103,204 over F. Clyde Keefe (Democrat) who received 60,247. The Republicans likewise won decisive majorities in the state senate and house of representatives. On a question as to the

expediency of calling a convention to revise the constitution of the state, 49,230 votes were cast in favour of the proposal and 29,336 against it. The state poll tax was reduced from \$5 to \$2, as a result of action taken by the general court in 1945, repealing the levy of \$3 to provide revenue for a soldiers' bonus.

State officers in 1946 were governor, Charles M. Dale; secretary of state, Enoch D. Fuller; state treasurer, F. Gordon Kimball; commissary general and adjutant general, Charles F. Bowen; attorney general, Ernest R. D'Amours; commissioner of education, James N. Pringle, succeeded on Feb. 16 by Edgar Fuller. U.S. senators were H. Styles Bridges and Charles W. Tobey, both Republican.

Education.—In 1945-46 there were 1,734 public schools, classified as follows: kindergartens, 53; mixed (one-room) schools, 194; classified schools, 1,327, opportunity schools, 16; junior high schools, 37; senior high schools, 85; evening schools, 22. The total number of elementary pupils was 44,020 with 1,807 teachers; the number of high school pupils, 22,952, with 1,222 teachers. There were 372 evening school pupils with 22 teachers. Total payments for public elementary and high schools during the year ending June 30, 1946, were \$8,713,962. In 1940 private and parochial elementary schools and secondary schools had an enrolment of 25,007.

Other state educational institutions were the University of New Hampshire, at Durham, Keene Teachers college, at Keene, and Plymouth Teachers college, at Plymouth.

Social Insurance and Assistance, Public Welfare and Related Programs.—Following a period of decline in previous years, the burden of general relief showed a rising trend during the year ending June 30, 1946. In June 1946 there were 2,315 cases on general relief, with an expenditure of \$72,272 as compared with 2,185 cases in June 1945 with an expenditure of \$62,877. Expenditures for public assistance under the Social Security act were \$314,198 as compared with \$276,873 for June 1945. The total for June 1946 included \$231,640 for old-age assistance; \$72,064 for dependent children; and \$10,494 for aid to needy blind. During the calendar year 1945 a net amount of \$3,095,863 was collected in contributions for unemployment compensation as against \$318,755 paid in benefits to an estimated 3,779 individuals. A total of 4,215 former servicemen and women received benefits to the amount of \$411,123.

On Jan. 1, 1943, there were 242 persons in prison and in reformatories in New Hampshire. The net appropriation for the state prison at Concord for the fiscal year ending June 30, 1947, was \$150,113; and for the Industrial School for Committed Minors at Manchester, \$108,313.

Communication.—At the end of 1943 there were 12,508 mi. of rural roads in New Hampshire, including highways under state, local and federal control. Disbursements from the state highway fund for the fiscal year ending June 30, 1944, amounted to \$4,315,109.68. In 1944 there were 952 mi. of steam railways owned in the state. At the close of the same year there were 27,236 business and 72,670 residential telephones in operation.

Banking and Finance.—As of June 30, 1946, there were in New Hampshire 51 national banks with deposits of \$186,678,000 and resources of \$204,499,000, as compared with 52 banks with deposits and resources, respectively, on June 30, 1945, of \$171,475,000 and \$188,294,000. Fifty-five state-chartered banks reported deposits of \$333,919,000 and resources of \$371,790,000 as compared with \$290,318,000 and \$325,566,000, respectively, on June 30, 1945. There were 25 state-chartered building and loan associations with resources of \$17,800,000. State-chartered savings banks and savings departments of trust companies reported deposits of \$317,925,729 as of June 30, 1946, an increase of \$41,803,410 over the total for June 30, 1945. The

number of savings accounts was 375,836, an increase of 17,226 over the preceding year. Two federal savings and loan associations reported combined assets of \$15,111,527 and shareholders' accounts of \$12,946,025.65. Time deposits in savings departments of national banks within the state amounted to \$41,598,000.

Cash receipts of the state treasury department for the fiscal year ending June 30, 1946, were \$42,738,658.25, cash disbursements \$43,234,164.89; cash balance, June 29, 1946 was \$5,564,215.68. Cash balance, July 1, 1945, was \$6,059,722.32. Gross fixed bond and note debt, June 29, 1946, \$9,390,000; net bond and note debt, \$8,714,237.37.

Agriculture.—In 1945 there were 18,786 farms in New Hampshire with a total acreage of 2,017,049. Acreage of land from which crops were harvested or hay cut, or which was planted in orchards, amounted to 435,602. The total value of farm lands and buildings in 1944 was estimated at \$80,000,000. Cash receipts from farm marketings in 1945 were \$43,167,000, including poultry, \$20,406,000; dairy products, \$12,249,000; and meat animals, truck products, forest products, potatoes, fruit and miscellaneous crops, \$10,512,000. In 1943 the value of products consumed on farms where produced was estimated at \$5,826,000, while in 1945 government payments yielded approximately \$2,000,000.

Leading Agricultural Products of New Hampshire, 1946 and 1945

Crop	1946 (est.)	1945
Corn, bu.	533,000	492,000
Oats, bu.	259,000	272,000
Hay, tons	445,000	472,000
Potatoes, bu.	1,159,000	1,020,000
Apples, bu. (commercial)	367,000	139,000
Maple syrup, gal.	36,000	25,000
Maple sugar, lb.	12,000	9,000

The estimated apple crop for 1946, while much larger than that for 1945, was still only about 50% of the ten-year annual average for 1935-44 of 767,000 bu., frost damage being largely responsible for the low yield. Production of maple sugar and maple syrup, while larger than for 1945, was also far below normal owing to unfavourable weather conditions.

Lumber production in 1944 amounted to 356,000,000 bd.ft. as compared with 392,000,000 bd.ft. in 1943.

Manufacturing.—Estimated value of manufactures in 1943 was \$393,055,000, an increase of 65% over 1939. The number of persons employed in industry (1943) was approximately 102,000.

In 1943 New Hampshire enjoyed an estimated annual income of \$75,000,000 from recreational enterprises, which thus ranked next to manufacturing and ahead of agriculture as a source of income.

Mineral Production.—Principal mineral resources were feldspar, mica, building stone (chiefly granite), brick clays, and sand and gravel. In 1944 New Hampshire ranked second among the states in the production of mica. The output of stone declined greatly during the war years while the production of clay for brickmaking virtually ceased. Total value of minerals produced in 1944 was estimated at \$1,166,000, as compared with \$1,350,000 for 1943. (W. E. Ss.)

New Hebrides: see FRENCH COLONIAL EMPIRE; PACIFIC ISLANDS, BRITISH.

New Jersey. The third state to enter the union, New Jersey is situated on the middle Atlantic coast between New York and Philadelphia. Its 1940 population of 4,160,165 ranked it ninth among the states and the bureau of vital statistics estimated its population at Jan. 1, 1947, to be 4,200,941. Capital, Trenton (1940: 124,697). The largest city is Newark (429,760); second is Jersey City (301,173); the area



ALFRED E. DRISCOLL, Republican governor of New Jersey, was elected Nov. 5, 1946

is 7,836 sq.mi. including 314 sq.mi. of water.

History.—In 1946, Alfred E. Driscoll, the Republican organization candidate, defeated former Governor Harold G. Hoffman in the June primary and in November was elected governor of New Jersey over Judge Lewis G. Hansen, his Democratic opponent, by 221,000.

Election of Driscoll was the first time the Republicans held the governor's office for two successive terms after 1909 and reflected the resurgence of the party nationally. The Repub-

licans increased their pluralities in the legislature, controlling the 1947 assembly by 48 to 12 and the senate by 16 to 5. Re-election of U.S. Senator H. Alexander Smith continued two Republicans in the senate from New Jersey, and the Republican party retained 12 of the state's 14 congressional representatives.

In 1946 legislation was passed permitting the state government to seize and operate all public utilities in which service was interrupted or threatened by virtue of labour disputes, the first such legislation in the nation. As a result, when workers in nine gas production plants went on strike against utility management, the state took over and operated the plants successfully with their regular personnel. Later in the year other strikes in the same plants found the employees unwilling to work for the state, but under Governor Walter E. Edge's direction full production was maintained and within a few days the men were back at work, the issues at stake going to arbitration.

Other legislation enacted saw repeal of the intangible personal property tax and its replacement by a net worth tax, initiation of two major north-south highways traversing the state, increased state road aid to counties and extension of the juvenile delinquency act to include those 18 years of age. When the federal housing program bogged down, the state made an outright appropriation of \$6,000,000 of current funds at a special session of the legislature Sept. 30 and a \$35,000,000 bond issue for veterans' housing was approved at the Nov. election.

As of Jan. 1, 1947, the state's bonded debt stood at \$57,310,000. Sinking fund assets of \$20,000,000 left the net debt at \$37,000,000. In addition a cash surplus exceeding \$30,000,000 was left for the incoming administration.

Education.—In New Jersey there were in 1946 1,594 elementary schools, 288 junior or senior high schools, 20 vocational schools and numerous parochial and private institutions. During 1946 Rutgers was expanded as the state's university at New Brunswick, and the University of Newark was merged with it.

Enrolment in all educational institutions, which had dropped far during the war, increased so rapidly that makeshift arrangements were worked out in all institutions during 1946 to accommodate the clamour for education. Significantly, public attention was called to the low salaries paid New Jersey teachers with all indications being that remedial steps would be taken to increase them.

Social Insurance and Assistance, Public Welfare and Related Programs.—The average monthly grant for old-age assistance in New Jersey in 1946 was \$33.30 and for dependent

children \$65.15. Federal-state grants to the blind averaged \$35.30, and the general relief assistance averaged \$38.09 per family. All represented substantial increases in excess of 1945.

Banking and Finance.—Deposits in 156 state banks, trust companies and savings banks totalled \$2,713,891,000 on Dec. 31, 1946, a drop of \$5,000,000 from Dec. 31, 1945. Government deposits dropped \$168,000,000 to a total of \$207,107,000. Banks in the federal reserve system had 71.2% of all deposits, the 56 nonmember banks having the remainder. Government securities represented 60.5% of the total assets of all New Jersey banks as compared with 61% in 1945. A reduction of \$1,360,000 in the value of real estate owned by banks, or a drop of 57.2%, was noted during the year.

Agriculture.—About 2,000,000 ac., or 40% of New Jersey's land area, is devoted to agriculture. New Jersey stands high in the production of potatoes, grossing about 14,000,000 bu. in 1946, a gain of 2,000,000 more than 1945. Peaches average 1,500,000 bu. annually and 3,300,000 bu. of apples are grown.

A leading poultry state, New Jersey sends about 10,000,000 chickens annually to market; approximately 700,000,000 eggs are produced annually and 250 hatcheries produce 30,000,000 baby chicks. The dairy industry in New Jersey ranks high with approximately 520,000,000 qt. of milk produced yearly from 210,000 cattle.

Manufacturing.—Because of its variegated industries, New Jersey moved quickly to reconvert from wartime economy to peacetime production. While New Jersey suffered from the effect of major strikes elsewhere during 1946, no large-scale work stoppages shut down the state's principal industries. New Jersey is represented in 90% of all industries with more than 8,000 factories and shops employing 200 different classifications of labour.

(W. E. EE.)

New Mexico. Fourth largest state in the southwestern United States, popularly known as the "Sunshine state"; admitted to the union in 1912. Area 121,666 sq.mi. (121,511 sq.mi. land, 155 sq.mi. water); pop. (1940) 531,818; rural 355,417; urban 176,401; native white 477,065; Negro 4,672; foreign-born 15,247. On July 1, 1945, the bureau of the census estimated the civilian population of the state at 535,220.

History.—The administration, legislature and congressional representation were Democratic in 1946. The chief officers of the state elected in the 1946 elections were: governor, Thomas J. Mabry; lieutenant governor, Joe M. Montoya; secretary of state, Mrs. M. A. Romero; auditor, E. D. Trujillo; treasurer, H. R. (Ray) Rodgers; attorney general, Clyde C. McCulloh; superintendent of public instruction, Charles L. Rose; commissioner of public lands, John E. Miles.

Education.—For the school year 1945-46 there were 732 schools. The rural schools enrolled 45,760 pupils; employed 1,455 teachers, average salary \$1,733.30; total expenditures were \$5,326,432.86. Municipal schools enrolled 82,814, employed 2,362 teachers, average salary \$2,037.50 and total expenditures were \$8,394,607.19.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the calendar year 1946, \$256,740.50 was paid out for civilian unemployment benefits; for veterans \$4,151,211. On June 30, 1946, \$219,636 had been spent for old-age and survivors insurance, and \$3,855,822.35 for public assistance.

The penitentiary appropriation was \$157,500 for 598 inmates (Sept. 1); insane asylum, \$415,000, 967 inmates (Nov. 15); School for Mental Defectives \$48,000, 75 inmates; Industrial school \$103,980, 88 inmates (November); Girls' welfare home \$72,000, 118 inmates (December).



GOV. THOMAS J. MABRY, of New Mexico, elected on the Democratic ticket Nov. 5, 1946

Communication.—New Mexico had an estimated 63,090.8 mi. of roads in 1946; 9,453 mi. constituted the state highway system. The state highway department expended \$7,338,460.37. Steam railway companies operated 2,526 mi. of main track (1945). There were 86 airports and approximately 846 mi. of airways operated by three scheduled air carriers. There were about 64,600 telephones.

Banking and Finance.—On June 30, 1946, there were 22 national banks with deposits of \$198,670,000; loans \$43,474,000, investments \$103,891,000; and 20 state banks with deposits of \$67,663,000; loans \$13,975,000; investments \$34,241,000. Total resources of 12 building and loan associations in 1945 were \$5,377,029.42 and of 7 federal savings and loan associations \$5,099,868.99.

The total of all state receipts for the fiscal year ending June 30, 1946, was \$42,057,805.99; expenditures \$38,462,815.30. The gross and net debt were respectively \$18,291,000 and \$18,169,038.96.

Agriculture.—The total value of agricultural production in 1946 was \$67,178,000 (estimate); acreage harvested 1,333,000 (estimate). Livestock was valued at \$99,997,000, Jan. 1, 1946.

Table I.—Leading Agricultural Products of New Mexico, 1946 and 1945

Crop	1946 (est.)	1945
Tame hay, tons	514,000	453,000
Grain sorghums, bu.	1,127,000	587,000
Winter wheat, bu.	2,648,000	2,484,000
Corn, bu.	2,256,000	2,100,000
Beans, bags	308,000	290,000
Cotton, bales	145,000	106,000
Cottonseed, tons	58,000	43,000
Forage sorghum, tons	159,000	157,000

Manufacturing.—Manufactured products were valued at \$25,123,641 in 1939; an average of 3,250 employees received \$2,912,993 in wages.

Table II.—Principal Mineral Products of New Mexico, 1946 and 1945

(Year ending Oct. 31)

Mineral	Value, 1946	Value, 1945
Copper	\$12,927,701	\$17,116,956
Potash	15,035,037	13,620,367
Coal	5,351,388	5,709,027
Zinc	2,840,124	9,193,478
Lead	214,996	663,916
Silver	172,822	256,373
Gold	77,917	125,512

Mineral Production.—Potash was New Mexico's chief mineral in 1946. For the year ending June 30, 1946, 36,410,907 bbl. of oil, valued at \$37,249,052, were produced. (F. D. R.)

New South Wales. A state of the Australian commonwealth, lying in the southeast and occupying 309,432 sq.mi.; pop. (est. June 30, 1945) 2,899,112. Chief cities: Sydney (cap., 1,398,000); Newcastle (120,000). Governor (1946): Lieut. Gen. Sir John Northcott.

History.—The commander of the British empire forces in Japan, Lieut. Gen. Sir John Northcott, was appointed the first Australian-born governor of New South Wales. He succeeded Lord Wakehurst in August.

Following the resignation of the minister of lands, John Tully, who was appointed agent-general in London, a cabinet reshuffle took place in May. W. J. McKell, premier, created a new portfolio, that of tourist activities and migration. One of the first actions of the new cabinet was to approve a scheme for a 20-mi. electric underground rail service to Sydney's suburbs at a cost of some £A25,000,000. There were to be 19 suburban stations: construction had already begun in 1946. In March the premier officially opened the crude oil factory at Clyde. Twelve million gallons of crude oil per annum from N. Borneo and Sarawak were being refined into gasoline, kerosene, diesel and furnace oil.

Crop returns for 1945-46 were good after two seasons of severe droughts, but lack of rain during 1946 caused grave fears for the 1946-47 crops.

Education.—In 1942: number of schools (state) 2,864, (private) 719; teachers (state) 11,112, (private) 3,886; scholars enrolled (state) 350,962, (private) 103,692; average attendance (state) 275,722, (private) 84,718.

Finance.—In 1944-45: revenue £A74,796,875; expenditure £A73,828,125; debt outstanding (June 30, 1945) £A355,050,937. (£A1=\$3.2 U.S.).

Communication.—Roads (1942) 126,325 mi.; railways, government (Sept. 1945) 6,128 mi.; tramways (June 1943) 172 mi.; motor vehicles licensed (Dec. 1945): cars 189,774, commercial vehicles 89,719, bicycles 17,900. Wireless receiving set licences (June 1945) 571,790. Telephones (June 1941): exchanges 2,018; instruments connected 280,161.

Agriculture, Manufacturing, Mineral Production.—Production (in short tons): wheat (1945-46) 1,875,000; butter (1944-45) 35,860; wool, greasy (1944-45) 224,300; maize (1943-44) 70,000; coal (1942) 13,700,000; gold (1942) 77,249 fine oz. Industry and labour 1944-45: factories 11,359; employees (average) 314,678; gross value of output £A387,659,375; unemployment (trade union returns) (Feb. 1946) 1.5%. (W. D. MA.)

Newspapers and Magazines. The year 1946—the first full year of post-World War II reconstruction—was a stormy and difficult period for U.S. newspapers and magazines. Although financial income, in terms of advertising and sales, was unexpectedly high, few periodicals made much profit because of soaring wages and prices, widespread and prolonged strikes of all classes of employees, shortage and rising price of paper, continuing lack of new machinery and materials and much uncertainty over retention of various wartime controls.

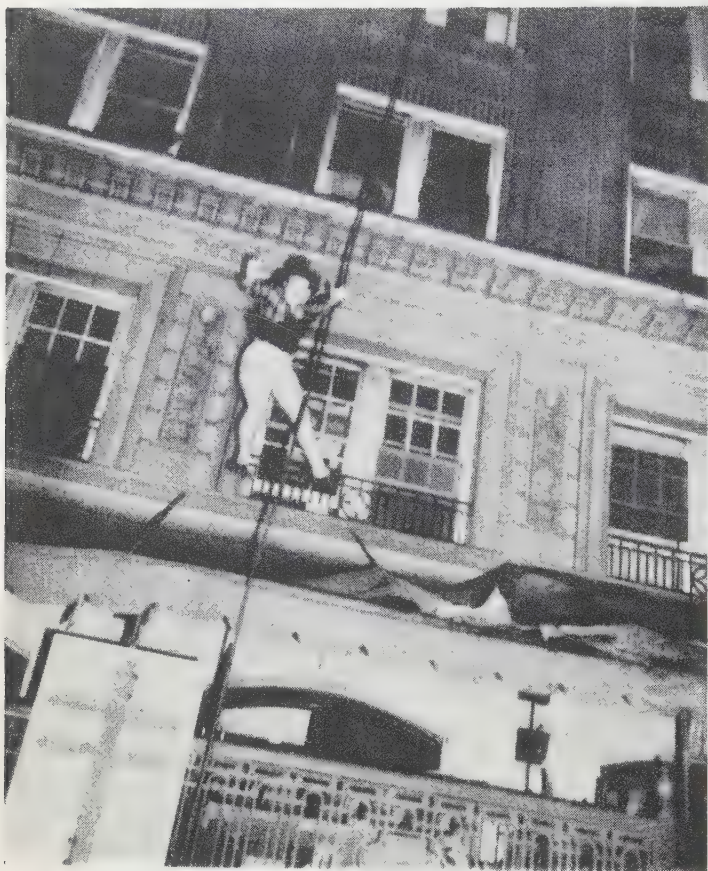
Although the outstanding news events of the year were again the disasters, crimes and political or economic crises of peacetime, the general trend of the news continued to be serious and thoughtful, with no evidence of a postwar spasm of sensationalism; most front pages were heavy with economics, government and foreign affairs, giving little space to the postwar wave of crime and juvenile delinquency going on behind the scenes. In the annual listing of the "Ten Biggest News Stories of the Year," the International News service announced the following: (1) The trial, conviction and execution of the top nazi war criminals, including Hermann Goering's suicide; (2) sweeping Republican victories at the polls; (3) United Nations assembly and Big Four foreign ministers' meetings in New York; (4) Bikini atomic bomb tests; (5) wave of strikes, culminating in trial and conviction of John L. Lewis for contempt, with fines of \$3,500,000 for mine workers and \$10,000 for Lewis; (6) elimination of OPA and other governmental controls; (7) Atlanta, Ga., hotel fire, with largest death toll in history in that type of disaster; (8) forced resignation of Secretary of

Commerce Henry A. Wallace; (9) Winston Churchill's Fulton, Mo., speech on east-west split; (10) Paris peace conference. The United Press listed the same stories, placing the Republican victory first and adding the William Heirens murder story in Chicago.

The paper situation for newspapers was more difficult in 1946 than during the war—in both price and short supply. Three increases during 1946 carried the price from \$68 a ton to \$85—including jumps on July 11, Aug. 8 and Oct. 11. Through a series of seven price increases in five years, newsprint had gone up from \$51 in 1943, adding an estimated \$180,000,000 to the annual newspaper paper bill. Argument against retaining OPA price ceilings continued throughout the year, with most newspapers urging decontrol and higher price to prevent diversion of Canadian paper to Europe, but decontrol did not come until Nov. 10. Meanwhile the shortage was further increased by the coal strike in the spring, a strike of woodcutters in the northwest, reduction of shipments of Swedish wood pulp and curtailment of shipping resulting from a threatened rail strike. Most newspapers lived from hand to mouth in paper supply, borrowing from each other, and the chief sufferers were the smaller dailies and weeklies which buy from jobbers rather than from mills. Newspaper trade papers told of many expedients to save paper—rationing or total elimination of advertising from time to time, curtailment of circulation and omission of editions. For example, the *Raleigh* (N.C.) *News and Observer* printed advertisements vertically in margins of news pages. Some small newspapers were printed on kraft wrapping paper, and in October the *Philadelphia Record* appeared on brown kraft—costing \$95 a ton. The *Milwaukee Journal* tried the solution of buying a paper mill. With another coal strike and reduction of shipping, the situation at the end of the year was even more difficult, and another price rise was expected on Jan. 1.

An epidemic of strikes in almost every department kept the newspapers in turmoil through 1946, and regular editions printed with photographed reproductions of typewritten copy became common; many newspapers bought a new typewriting machine designed for that purpose. Most bitter were the many strikes of the International Typographical union which, under new leadership, announced a militant nationwide policy of "ask-for-the-moon" negotiations, cancelling contracts, refusing arbitration, entrusting all strategy to the I.T.U. executive council, demanding wage increases up to 75%, with weekly pay up to \$100-\$135 and hours down to 30. Increased vacation, holiday and sick-leave pay demands were minor irritants. At its August convention, I.T.U. voted a \$1,000,000 defense fund and boycotted, among others, *Time* and *Life* magazines. In defense, a Florida newspaper took the antiarbitration policy to the U.S. supreme court, and a Canadian group sued I.T.U. for \$250,000 strike damages. Suspended newspapers were a frequent occurrence. Seattle, Wash., had no newspapers for eight weeks ending Jan. 13. All newspapers of Cleveland, O., were tied up 32 days ending in February. The four dailies of Springfield, Mass., suspended Sept. 26, had not resumed on Dec. 31. Seven Canadian newspapers during a 10-month I.T.U. strike published in photographic form. Threat of an I.T.U. strike for \$3.02 an hour hung over Chicago printing shops most of the summer. Strikes of shorter duration in newspaper plants were reported from Erie, Pa., Minneapolis, Minn., Columbus, O., Washington, D.C., Beaumont, Tex., Sandusky, O., Rochester, N.Y., Canandaigua, N.Y. and many other cities. A printers' strike in St. Petersburg, Fla., newspapers was a year old on Nov. 20. A truckers' strike in September reduced to adless pamphlet size most newspapers of New York city. For two weeks in August transmission of foreign news was curtailed by a strike of employees of Press Wireless in New York aided by the larger

BRITANNICA BOOK OF THE YEAR



THE PICTURES on these pages were submitted with hundreds of others in the *Britannica Book of the Year* News Photography Contest for 1946. These were selected as the best in each of the three classifications and were awarded first prize.

FEATURE AND PICTORIAL →

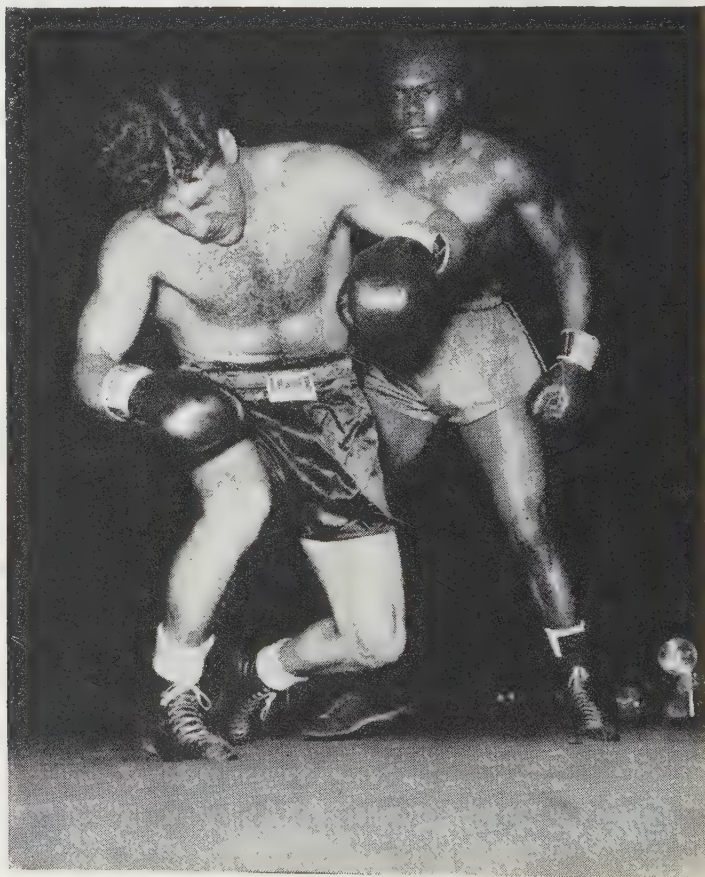
Frank Mastro, International News Photos cameraman, was given the first award for this picture "I'm Hungry," while second prize went to Edward Feeney of the *Chicago Tribune* for "Home from the War" and third prize to Howard Shirkey of International News Photos for "He's so Big," showing a boy seeking his dog

SPOT NEWS ↑

Arnold Hardy, amateur photographer, snapped this dramatic shot "Woman Leaps to Death from Blazing Hotel" and sold it to the Associated Press. It was awarded first prize. Second prize went to William J. Smith of the Associated Press for "Silent John Lewis," and the third award to Frank Q. Brown of the *Los Angeles Times* for "Business as Usual," a murder scene

SPORTS →

John Puslis of the *Chicago Daily News* was awarded first prize for this boxing photograph entitled "Timber-R-R-R." Another boxing scene, "Jumpin' Joe Ready to Let Go," by Matthew Zimmerman of the Associated Press won second place, and the third prize went to Harry Hall of the Associated Press for "Schoendienst Does it the Hard Way," a baseball action shot from the 1946 world series



NEWS PHOTOGRAPH WINNERS



Congress of Industrial Organizations Communications association.

After several quiet years during World War II, the American Newspaper guild in 1946 launched new aggressive policies to organize all noneditorial newspaper employees. At its 13th annual convention in Scranton, Pa., in June, the guild announced it had 23,558 members, voted \$120,000 for organization to double its membership, pledged its support to the C.I.O. Political Action committee, and set out to obtain a minimum salary of \$100 a week for experienced reporters, plus four weeks' vacation, hospitalization and retirement provisions, refusing to recognize differentials of size in cities or newspapers. During the convention, its president, Milton Murray, was discharged by *New York PM* for refusing orders. Earlier in the year the guild had been successful in gaining contracts with the Associated Press and I.N.S. agencies providing large increases. The first effort toward the \$100-a-week goal was a "guinea pig" strike on the *Los Angeles Herald and Express*, which started on Sept. 4, caused the newspaper to suspend and continued three months until Dec. 2 because the guild refused to arbitrate. Next the campaign shifted to Philadelphia, first in the office of the *Inquirer*, whose negotiations hung fire for months, while on Nov. 7 a strike was called in the *Philadelphia Record* and *Camden Courier and Post*, whose owner, J. David Stern, was the first publisher to sign a guild contract in 1934. Although the Stern papers continued to publish, 500 employees were still on strike on Dec. 31. On Oct. 26 the guild refused an offer of a 20% increase by the *New York Times*, and in Norfolk, Va., attempted to organize Negro mechanical workers.

Shortages of materials and machinery continued throughout 1946 and there was little relief in the demand for equipment that had piled up during the war. Manufacturers of printing presses converted promptly from war production but lacked metals to fill the hundreds of orders that had piled up. Mergenthaler Linotype company resumed production on July 29 after a strike of 20 weeks that delayed reconversion. OPA authorized a price increase on printing equipment in January but that was of little assistance. One unexpected shortage involved silver nitrate for photoengraving, and in New York city engravers melted silver dollars to supply their needs.

General prosperity, however, was reported in the newspaper business offices. After a rise of 5.3% in total daily circulations during 1945—to 48,384,188—a further increase of 4.8% came in 1946, in spite of the end of war news. Also the number of new dailies launched exceeded those suspending in 1945 and on into 1946. Between January and September, 251 more dailies increased sales prices so that few were selling for less than five cents. As more consumers' goods became available, advertising broke 1945 records every month; February linage was up 26%; June linage was up 28%; November was up 16%. But a survey showed small daily costs up 11%. The Advertising Research foundation in September published its 101st analysis in the series of continuing reader studies. A survey in August reported 859 daily newspapers prepared to spend \$250,000,000 in new plants and equipment. A new movement to enlist weekly newspapers in the Audit Bureau of Circulation began the year with 414 enrolled and continued to grow. In October circulation managers prepared to defend their newspaper boy system against impending attack.

After extended argument over use of the A.P. and U.P. reports for a foreign short-wave propaganda service, the U.S. state department finally abandoned the project. For the first time in history, 200 newspapermen were allowed to cover a Vatican consistory, held in February, and filled the newspapers with pictures and reports. A belated war drive resulted in the use of 4,779,720 lines of free advertising for famine relief program in

June. Hugh Baillie, of the United Press, startled the world by interviewing Premier Joseph Stalin of the U.S.S.R. and Emperor Hirohito of Japan. Gen. Dwight Eisenhower in July restored full rights to Edward Kennedy, A.P. man who was penalized for premature reporting of the German surrender on May 7, 1945. On March 2, the *Manila (P.I.) Daily Bulletin* resumed publication suspended by the Japanese invasion on Dec. 7, 1941.

The crusade by U.S. newspapermen for world-wide press freedom continued through 1946 with few gains. The United Nations Commission on Human Rights outlined a four-point press freedom proposal in May. The U.S. state department presented a similar proposal to the United Nations assembly in Paris, also threatening to withhold a loan to Poland because of press censorship. The press was admitted to the Paris peace conference, and free press clauses were inserted in peace treaties of Italy, Rumania, Bulgaria, Hungary and Finland. Controversy with Russia over press freedom reached a high pitch late in August, and in September the American Society of Newspaper Editors submitted another proposal to the assembly, while another U.S. group under State Secretary William Benton added its voice. A Philippine resolution on press freedom was adopted by the U.N. general assembly on Dec. 14, and further plans were announced for making St. Paul's Church, Eastchester, N.Y., into the John Peter Zenger Shrine of the Bill of Rights. But it was noted in the U.N. assembly in November that of the 54 United Nations, only 29 had complete press freedom. Meanwhile, the Commission on Freedom of the Press, financed by Time, Inc., and Encyclopædia Britannica, Inc., and headed by Dr. Robert Hutchins of the University of Chicago, finished the study that it had started in Feb. 1944, with a final meeting in September.

Few important newspaper law suits were recorded during the year. In February, the U.S. supreme court declared daily newspapers subject to the wage-hour law, and in June clarified for the *Miami Herald* the newspaper right to criticize judges. The Jan. 1944 judgment in the Associated Press antitrust suit was slightly modified on Jan. 25, 1946; later Rep. Noah M. Mason of Illinois introduced a bill into the house to free mutual newsgathering agencies from the antitrust laws, but the bill did not reach passage.

Facsimile and frequency modulation radio broadcasting were the most notable innovations in the newspaper world. On May 11, the *Chicago Tribune* began broadcasting a four-page radio-transmitted "Fax" edition by FM process. A New York station in July transmitted facsimile news to passengers on an airplane. The *Chicago Sun* put on a long-distance facsimile show in October, but the general use of the novelty, like television, was limited by the small number of receiving sets.

Schools of journalism experienced a great boom because of the G.I. veterans' education program; enrolments almost doubled everywhere. The year saw further steps in a program of accrediting schools fostered by the American Council on Education for Journalism; meanwhile a group of smaller schools pushed a rival program. The Pulitzer school at Columbia university launched a new program of American Press institutes for working newspapermen, and the first three were held during the fall. A survey showed that 21 schools were developing courses in public relations.

Among the magazines the year 1946 saw little change in the larger publications but was marked by the launching of many small periodicals, some which were of short life. The paper situation was acute although about midyear supplies and quality improved rather more than in the newsprint field. Postwar demand for consumer goods led to much increase in commodity advertising in magazines, and the leaders were back to prewar size. In contents, the space taken by war articles began to be filled up with lighter fiction and especially crime mystery stories. The only large magazine launched was *Holiday*, published by Curtis Publishing Co. of Philadelphia, which appeared on Feb. 20. *Life International* was started by Time, Inc., of New York in July. *World Report*, a monthly of foreign news, was launched by David Lawrence, Washington. The *Chicago Star*, a 16-page tabloid weekly, appeared in July. *America's Crime & Mystery Weekly* was launched in Chicago in March. The *Boston Transcript*, a magazine succeeding the newspaper that died in 1940, was announced in April. Among the many new little magazines were *Business Girl* started in Dallas, Tex., in July, and *Tally* launched in Hartford, Conn. *American Mercury* in January bought *Common Sense*. The postal ban against *Esquire* was finally lifted by the U.S. supreme court in February. Time, Inc., bought a paper mill.

(G. M. Hy.)

Great Britain.—The first full year of peace was a year of encouraging development for British newspapers, whose vitality had been strikingly demonstrated even in the restricted war years by an advance in total circulation of more than 6,000,000 copies. From Sept. 22, 1946, the newspapers received an increased allowance of newsprint which was used partly to extend their size and partly to permit sales to be adjusted to allow the public to buy the papers of their choice. Canada and Newfoundland agreed to increase their exports of newsprint to the United Kingdom from 50,000 long tons a year to 150,000. It was hoped that by 1950 they would be sending 450,000 tons. The majority of the newspapers showed considerable increase in circulation after Sept. 22. Among the largest proportional increases were those of two journals catering to widely differing classes of readers, the *Times* and the *Daily Mirror*. The *Times'* increase was from 233,000 to 276,000, or 20% of the inland circulation; the *Daily Mirror's* was about 750,000 copies.

The *Daily Telegraph* gave its increase on the first day as 166,873. The increase in the sales of the *Daily Express* during the first week averaged 333,249, bringing its total circulation to nearly 3,800,000. The *News of the World* announced that its circulation at the end of October was more than 7,400,000 copies. Periodicals and trade journals were granted more paper as from Nov. 1. Magazines revived, transformed or newly established that consolidated their positions during the year were the *Cornhill*, the *Leader* and the *New English Review*.

In April a resolution of the National Union of Journalists urged the government to appoint a royal commission on the ownership, control and financing of newspapers, and in July a motion to this effect was tabled in the house of commons by Labour back-benchers. The motion came before the house in October and was carried by a majority of 113. In the course of the debate Herbert Morrison said that he thought an inquiry was justified but added that its findings would not commit the government to action.

At the beginning of 1946 it was announced that the National Union of Journalists and the Institute of Journalists had balloted in favour of merging the two bodies. Negotiations to accomplish this end went on throughout the year. The sixth Imperial Press conference (the first after 1935) was held in London in June. The delegates, numbering nearly 100, made a tour of the British Isles and of parts of the continent.

On July 8 the title of the *Daily Sketch* was altered to the *Daily Graphic*, previously incorporated as a secondary title. The *Daily Graphic* was founded in 1890 and appeared independently until 1926; the *Daily Sketch* had been published continuously from 1909. The *Observer* of Sept. 29 announced that by a deed of settlement signed on Feb. 27, 1945, its owners had transferred their property to a body of trustees in whom all the shares were vested. The trustees, Viscount Astor, Dr. Thomas Jones and Arthur Mann, had the duty of seeing that the *Observer* was conducted as an independent newspaper. During the year the *Birmingham Post* placed news on its front page for the first time from its foundation in 1857. The *News-Chronicle*, which first appeared as the *Daily News* under Charles Dickens, celebrated its centenary, and the *Daily Mail* reached its jubilee. (See also ADVERTISING.) (D. HN.)

New York. One of the original 13 states of the United States, popularly known as the "Empire state," New York covers an area of 49,576 sq.mi. of which 1,647 are water. With a population of 13,479,142 (federal census, 1940) and an estimated population of 14,036,065 (N.Y.S. Dept. of Health, July 1, 1946, up 4.1%) it retained its place as the most populous state. The foreign-born population in 1940 was 2,853,530 and the urban population 11,165,893. Albany, the capital, had an estimated 1946 population of 134,123. The 1946 population of New York city, more than twice the size of any other city in the country, was estimated at 7,782,839, up 4.4% from 1940: population of Buffalo, the state's second largest city, increased 7.2% to an estimated 617,492. Rome and Geneva showed the largest increases (24%) to 42,431 and 19,275 (estimated) respectively. Among the large cities, estimated 1946 population and percent changes were: Niagara Falls 91,206 (up 16.9%), Elmira 51,968 (up 15.2%), Schenectady 96,313 (up 10.0%), Syracuse 222,183 (up 7.9%), Binghamton 82,885 (up 5.8%), Utica 105,217 (up 4.7%), Rochester 338,503 (up 4.2%), Albany 134,123 (up 2.7%) Troy 70,259 (down 0.1%), Yonkers 141,091, New Rochelle 57,790 and Mount Vernon 66,649 (each down 1.1%).

History.—With expansion of peacetime production, the state's lighter industries reabsorbed many thousands of war workers: during the year following V-J day, industrial employment in New York rose 2.41%. The state's percentage of manufacturing employment (12.7%) remained the same as in 1939. Of 103 federally financed plants, approximately one year after V-J day, 76 had already been disposed of by sale or lease for the manufacture of civilian goods. In the first ten months of 1946, 32,635 stock companies were incorporated in the state, surpassing the previous full year record of 26,817 in 1928.

Surpluses in 1944, 1945 and 1946 amounted to \$156,000,000, \$163,000,000 and \$188,000,000 respectively at the end of each state fiscal year (March 31). As of April 1, 1946, \$138,000,000 of the latest surplus was transferred on recommendation of Gov. Thomas E. Dewey to the Postwar Reconstruction fund, bringing it to a balance of \$451,480,677. A vast state postwar public works program was in the planning stage during the years of the halt in wartime construction. All but the most essential of these projects were being held in abeyance so that

priority could be given to the State Veterans' Emergency Housing program and so that state building construction would not compete for scarce materials with private home builders. The program, as of July 1, 1946, contemplated the expenditure of \$1,362,000,000.

The subject of housing was dealt with by the 1946 legislature by various measures. The sum of \$80,000,000 was appropriated for loans to municipalities and to housing authorities to augment the scope of providing adequate, safe, sanitary, low-cost housing. In New York city emergency projects were sanctioned, aided by removal of certain tax limits, building restrictions, and regulations relating to bond issuance. An additional \$35,000,000 was appropriated toward conversion of existing structures for emergency living quarters.

Consideration of a bonus for veterans was referred to a special bipartisan joint legislative committee which recommended \$400,000,000 toward that end. This proposal was acted upon favourably by the 1946 legislature but had to be passed again by the 1947 legislature and referred to the voting public in November for referendum before taking effect.

The legislature extended commercial business and store rent controls in New York city for another year as well as providing for regulation of residential rents throughout the state, against the possible lapse of federal controls. Also enacted during this session was the Moore plan providing for state aid to localities on a per capita basis instead of through shared taxes.

Revenue receipts for general purposes for the state fiscal year (ended March 31, 1946) totalled \$667,690,414. Of the \$399,874,299 available for state purposes, \$212,110,110 was expended, leaving a balance of \$187,764,189 for surplus. Of this latter amount, \$50,000,000 was transferred to reserve funds and the remainder to the Postwar Reconstruction fund.

The sum of \$108,000,000 was distributed to localities as their share of personal income, franchise, utilities, motor vehicle and motor fuel taxes, alcoholic beverage taxes and licences. In addition the state paid \$160,000,000 to localities for support of common schools, for relief and welfare purposes and other state aid. Of total tax revenues, 41.4% was returned to localities in the form of state aid or shared taxes. Of this amount, New York city received \$127,500,000.

Excises on consumption including motor vehicle and motor fuel taxes, alcoholic beverage taxes and licences accounted for more than 27% of state revenues. General business taxes amounted to 31.4% and personal income tax to 22.5%.

Taxes on business were lightened by a reduction from 4% to 3% of the emergency unincorporated business tax while the emergency 1½% corporation franchise levy was entirely eliminated. Personal income taxes were reduced by one-third from the level of the previous year.

In the 1946 state-wide elections, Gov. Thomas E. Dewey, Republican, was re-elected by a margin of 687,151 votes over his Democratic opponent, U.S. Senator James M. Mead. Other state officers elected were: Joe R. Hanley (Rep.) lieutenant governor; Frank C. Moore (Rep.) comptroller; Nathaniel L. Goldstein (Rep.) attorney general. For U.S. senator Irving M. Ives (Rep.) polled a majority of 251,253 votes over Herbert H. Lehman (Dem.). The state senate for 1947 would consist of 41 Republicans, 14 Democrats and 1 American Labor; the state assembly of 109 Republicans, 40 Democrats and 1 American Labor.

Education.—During the school year ending June 30, 1945, there were 5,389 school districts in the state. There were 1,000 public high schools with a registration of 578,603 while 1,261,413 were enrolled in public elementary schools. The approximate cost of maintaining public schools (including salaries of 71,806 teachers) was \$352,000,000 excluding moneys raised by bonds. In addition to the public schools there were 110 colleges

and universities including 11 teachers' colleges. These higher institutions had a teaching staff of 14,278 instructing 126,985 students excluding those in summer and extension courses. This number increased rapidly as additional facilities became available and as increased enrolment was sought by veterans. As of the fall of 1946 at least 176,000 full-time students were enrolled while as of Jan. 1, 1947, the number had increased to more than 200,000.

Social Insurance and Assistance, Public Welfare and Related Programs.—The number of persons receiving public assistance was 292,153 in Sept. 1946 (as against 239,547 in Sept. 1945 and 244,931 in 1944) for whose relief \$9,781,329 was spent (compared with \$7,195,117 and \$7,012,172 respectively). The amount spent for home relief during Sept. 1946 was \$2,263,520, up 40.7% from 1945; \$4,529,894 for old age assistance, up 17.7%; \$2,838,595 for aid to dependent children, up 75.3%; and \$149,320 for assistance to the blind, up 26.4%. The state operated 26 hospitals, 20 of them for the mentally ill, two for the criminally insane. There were 7 state prisons, 3 reformatories and 3 institutions for defective delinquents.

Communication.—In addition to more than 8,000 mi. of railroads, there were in New York state, exclusive of streets in cities and incorporated villages, 83,496 mi. of highways, of which 70,716 mi. were town and country roads. Of the total, 60,408 were classified as improved. The state maintained a system of more than 450 mi. of canals including the Erie 340; the Champlain 63; the Cayuga-Seneca 27 and the Oswego 24. Including the rivers and lakes which were part of the New York State Barge Canal system, the total length was more than 800 mi. Although no tolls are charged, the canals and waterways yielded a revenue of \$586,000 in 1945 from the use of terminals, the sale of water power and the operation of grain elevators. Air transportation was being developed in New York state with the help of the bureau of aviation in the state department of commerce.

Banking and Finance.—As of Jan. 1, 1946, 131 savings banks had deposits of \$8,292,000,664 and assets of \$9,171,941,067; 117 state banks and 147 trust companies, on June 29, 1946, reported deposits of \$20,433,285,831 and assets of \$22,340,471,774; on the same date the following deposits were listed: 395 national banks \$9,536,070,653, 14 industrial banks \$159,039,657, 5 private banks \$191,316,862.

Agriculture.—Total farm area rose to 17,722,081 ac. under the wartime production program. The 1945 agricultural census listed 153,358 farms. Area of principal crops harvested (excluding orchards—vineyards), although one percent less than that of 1941, amounted to 6,452,000 ac. Milk production was about 8,130,000,000 pounds in 1945—a new high record.

In 1940, New York had 70% of its farms electrified as compared with 33% for the nation.

Table I.—Estimated Cash Receipts From New York State Farm Marketings, 1945 and 1944

	1945	1944
Crops	\$195,035,000	\$220,088,000
Livestock	54,108,000	44,701,000
Dairy products	264,121,000	250,468,000
Poultry	114,833,000	101,474,000
Wool, etc.	3,439,000	2,415,000
	<u>\$631,536,000</u>	<u>\$619,146,000</u>

Manufacturing.—In 1939, according to the biennial manufacturing census (none was taken during World War II) there were 34,506 manufacturing establishments employing 957,844 persons, paying \$1,163,785,198 in wages and producing goods valued at \$7,134,400,147.

Since no later figures on value of manufactures were available than the 1939 census, the status of manufacturing activity is best shown by employment data. Table II (below) compares employment in manufacturing by industry group for Oct. 1946 with that of one year previous, roughly covering the period following V-J day.

Table II.—Estimated Employment in Manufacturing Industries, New York State, 1945-46

	Oct. 1946	Oct. 1945
All manufacturing	1,888,804	1,718,989
Durable goods	652,893	574,992
Lumber and timber	12,121	10,530
Furniture	51,755	45,776
Stone, clay and glass	43,151	36,616
Iron and steel and products	115,639	103,130
Nonferrous metals	70,374	55,054
Machinery except electrical	158,270	129,746
Electrical machinery	106,364	94,825
Transportation equipment (except auto.)	59,159	70,324
Automobiles and equipment	36,060	28,991
Non-durable goods	1,235,911	1,143,997
Food and kindred products	143,645	140,682
Tobacco manufactures	4,045	4,389
Textile-mill products	95,476	83,605
Apparel and other products	408,873	381,744
Paper and allied products	68,210	61,077
Printing and publishing	151,717	135,099
Chemicals and products	92,852	85,576
Petroleum and coal	10,861	10,479
Rubber products	8,369	7,252
Leather and products	81,311	77,320
Miscellaneous manufacturing	170,552	156,774

Table III.—New York State Mineral Production, 1945

	Amount, 1945	Value, 1945
Cement	5,102,160 barrels	\$ 9,009,454
Gypsum	557,902 short tons	1,262,989
Salt	2,862,224 " "	10,327,013
Stone (all kinds)	7,900,560 " "	9,133,781
Emery	7,856 " "	75,977
Ilmenite	220,000 long "	—
Zinc (concentrates)	24,978 short "	5,744,940
Oil	4,648,000 barrels	13,944,000
Iron ore (estimated)	5,000,000 long tons	—

Mineral Production.—The value of the leading mineral products of New York state for the year 1945 are shown in Table III. (H. KE.)

New York City. Unofficial estimates place the 1946 population of New York city at 7,780,000.

When Brig. Gen. William O'Dwyer, Democrat, took office as mayor on Jan. 1, 1946, the city faced many critical postwar problems, most of them the result of or aggravated by conditions arising from the all-out mobilization of manpower and industry during the war years. These problems included labour, salary adjustments, transit rehabilitation, housing, airports, the United Nations, schools, police and budget.

The number of strikes and threats of strikes requiring intervention of the mayor had grown to such proportions that it was necessary to create a separate division of Labour relations. From October to the end of the year it settled 23 disputes. The city provided, on an annual basis, approximately \$56,650,000 for the adjustment of employees' salaries, including increases for teachers and nurses. In addition an annual increase of \$18,500,000 was given to employees of the city's rapid transit system in accordance with recommendations of a special committee. Contracts totalling \$66,041,170 for new subway cars, busses, trolleys, lengthening of stations, remodelling of power plants and other rehabilitation were awarded in 1946.

The city obtained \$80,000,000 in housing loans and \$2,750,000 in housing subsidies from the state for public housing. The federal government, at the city's request for 19,000 units, furnished 8,600 temporary housing units for veterans. Thirteen public housing projects, totalling 18,395 apartments, were in process of construction at the end of the year. Six more, containing 7,618 apartments, were in the planning stage. John Lovejoy Elliott houses, a completely city-aided project was partially completed at year's end. The generous gift of the Rockefeller family and of the city, with respect to the acquisition of property located in mid-Manhattan, was accepted by the United Nations for its permanent site. The city pledged its facilities, resources, talents and efforts to assist in the establishment of a world capital for peace. Plans were begun during the year to complete this project.

Campaigns were successfully waged to stamp out insanitary conditions in food establishments. A ragweed-control program was instituted. The city was sharing the cost of a health insurance plan with its employees. A program was launched to rehabilitate hospitals. Hospital employees' salaries and working conditions were improved.

Provision was made for construction or reconstruction of 22 schools. Expenses for education increased \$15,000,000 because of teachers' salary increases, the hiring of additional teachers and the increase in student enrolment—30,000 school children and 20,000 veterans in the high schools. City colleges had a record enrolment of 51,000, of which 18,000 were veterans. The police force had 15,068 members in Jan. 1946, the lowest after 1926. During 1946, 3,096 patrolmen were appointed, of whom 2,894 were veterans. Many older officers were retired to make room for younger and more aggressive men to increase the force's efficiency.

The tax budget was increased from \$624,303,204 to \$713,867,664. In order to provide funds for salaries of veterans returning to their civil service jobs and to provide long-deferred



U.S. NAVY PERSONNEL manning navy tugboats in New York harbour under a marine guard, when civilian tugboat men were on strike in Feb. 1946

repairs and improvements to city plants, institutions and other facilities, the city was forced to levy special taxes. (See also MUNICIPAL GOVERNMENT.)

New York University. A coeducational institution occupying six centres in various parts of New York city and consisting of two liberal-arts colleges, three graduate schools, seven professional schools and colleges and a division of adult education, with programs of study embracing the liberal and fine arts, business, dentistry, education, engineering, law, medicine and public administration. Although bearing the name of both the state and the city, it is a privately controlled institution with no religious or other affiliations. Its operating revenue in 1945-46 was \$11,695,663.44, derived from student fees, endowments and gifts. The latter exceeded \$2,970,000, with approximately \$660,500 for specialized training and research. A major portion of the year's gifts went toward the projected \$15,000,000 medical centre which the university was undertaking in conjunction with the proposed rebuilding of Bellevue hospital by the city of New York. The largest single gift for this purpose was \$500,000 from John D. Rockefeller, Jr. The year marked the launching of a \$3,000,000 campaign for the development of a new law centre both to house the existing school of law and to expedite the extension of its professional services. The cumulative enrolment of the university for 1945-46, including the summer session of 1945, reached a net total of 47,155 of whom approximately 13,000 were veterans. At the regular commencement exercises in June 1946 degrees and certificates were conferred on 3,327 candidates. The university during the year added to its facilities an 11-story classroom building in its Washington Square centre and opened an emergency collegiate unit in White Plains, N.Y., for 500

veterans and high-school graduates of the area. Dr. Walter W. Wright, professor of prosthetic dentistry and professor of anatomy at the University of Pittsburgh, was appointed dean of the college of dentistry; and Charles M. Edwards, professor of retailing, was named dean of that school. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (H. O. V.)

New Zealand, Dominion of. A British dominion, consisting of a group of islands, lying in the South Pacific to the southeast of Australia. Area: dominion proper 103,415 sq.mi.; other islands, 519 sq.mi.; pop. dominion proper (census 1945) 1,746,319 (including Maoris 98,744); Cook and other Pacific islands (census 1945) 1,289; Tokelau islands 1,388; Western Samoa (mandate) 68,550. Chief cities (pop. census 1945): Wellington (cap., with suburbs 175,189; Auckland (with suburbs, 256,426); Christchurch (112,525); Dunedin City (65,487). Language: English; religion: Christian (1936 figures, excluding Maoris: Church of England 600,786; Presbyterian 367,855; Roman Catholic 195,261; Methodist 121,012). Ruler: King George VI. Governor general: Lieutenant General Sir Bernard Freyberg.

History.—The year 1946 opened with the prime minister, Peter Fraser, in London for the general assembly of the United Nations. In the debate at the United Nations assembly Fraser reiterated his belief that the veto remained a blot upon the charter. He had previously stated that New Zealand would be willing to place Western Samoa under the Trusteeship council of the United Nations.

The finance minister, Walter Nash, arrived in London in April for informal discussions with representatives of the United Kingdom, Australia, South Africa and later Canada. On his return, discussing Pacific bases, he said that New Zealand did not propose the transfer of the sovereignty of any British Pacific

islands, but that did not mean there would not be co-operation with the United States. The main points of the budget presented by Nash on his return were: reduction of income-tax surcharges from 33½% to 15%; elimination of excess profits tax; abolition of sales tax on building materials, clothing, and furnishings; removal of 3% primage duty on imported books and periodicals.

Notable in a year of reconstruction were reports on population and licensing. The parliamentary committee on population concluded that New Zealand should not embark on any large-scale immigration policy immediately, mainly because of housing difficulties. It noted, however, a great demand for operatives in secondary industry and suggested immediate inquiries in Scandinavia, the Netherlands and possibly Poland, since it seemed unlikely that the United Kingdom would be willing to part with the younger and more virile elements of its population. The licensing commission's report, after taking 7,000 pages of evidence, was drastic. Public ownership of breweries and sweeping changes in opening hours were recommended.

The dissatisfaction of the farming community with the government led to a "non-co-operation" movement early in the year which was not conspicuously successful. The produce agreements with Britain made later provided for higher prices based on increased farming costs.

Plans for the first New Zealand cotton mill were announced. Government plans to end the electric power shortage included new hydroelectric stations on the Waikato river.

The Labour government, in power from 1935, held 44 out of 80 seats when the general election took place on Nov. 27. The result of the election was: Labour 42, National 38.

Education.—Dec. 1943: state elementary schools 2,090, scholars 204,060; post-primary scholars 47,620. The University of New Zealand has six constituent colleges, including agricultural colleges at Lincoln and Palmerston North, grouped together as the New Zealand School of Agriculture; university students (1946) 10,700. Total cost of education (year to March 31, 1944) £NZ5,221,389.

Finance.—(In £NZ) Revenue, consolidated fund (est. 1946-47), £100,382,000; expenditure £99,465,000. Revenue, social security fund (est. 1946-47), £38,038,000, including increased contribution from consolidated fund of £18,000,000 compared with £7,000,000 in 1945; expenditure £35,788,000. Note circulation (July 1946) £38,265,815. Reserve (March 1946) (in reserve bank): gold £2,801,878, exchange £81,679,838. Net overseas funds (July 29, 1946) £99,692,118 (highest on record).

Deposits in post office and trustee savings banks (March 31, 1945) £136,266,000. Taxation by general government (year ended March 31, 1946): consolidated fund: customs revenue (excluding gasoline and tire taxes) £8,800,016; beer duty £2,308,600; land-tax £937,395; income-tax £26,465,912; racing taxation £1,555,247; motor vehicles taxation, £2,324,068; sales tax, £4,505,443; other, £1,474,037; total consolidated fund £48,370,718; social security taxation £15,167,308; war taxation £51,416,847. Total taxation £114,954,873, or £67:5:3 per head of population including Maoris. Gross indebtedness of general government (March 31, 1946): £624,511,590, or £355:4:9 per head of population. Exchange rate: £NZ125=£100 sterling; £NZ=324.2 cents U.S.

Aggregate private income 1943-44: Salary and wage payments, £175,900,000; social security benefits and pensions £15,700,000; company income £40,900,000; other £59,800,000. 1944-45: salary and wage payments £176,500,000; social security benefits and pensions £17,200,000.

Trade and Communication.—Imports (1944) £NZ86,686,531; exports (1944) £NZ77,786,946. Communication: road, paved or surfaced 44,812 mi. (including main highways 12,398 mi.); not paved or surfaced 8,631 mi.; railways, 3,504 mi.; passenger journeys (year to March 31, 1946) 32,388,000. Civil aviation: passengers carried on internal air lines (year to March 31, 1946) 66,968; on overseas services 6,100. Freight (internal) 353,514 lb. (external) 99,584 lb. Mail (internal) 428,709 lb. (external) 214,792. Shipping (1945) entered 1,830,469 tons, cleared 1,825,217 tons. Motor vehicles licensed (March 31, 1945) 301,154. Wireless licences 395,139.

Agriculture.—Acreage (1944-45): wheat 188,771; oats 228,470; barley 43,200; maize 14,830; linseed for threshing 4,326; peas for threshing 43,970; potatoes 29,774; onions 1,915; perennial rye-grass 47,287; linen-flax 12,686; Italian rye-grass (including western wolths) 17,547; cocksfoot 15,475; tobacco 2,839. Yields, total and per acre (1944-45): wheat 6,992,204 bu. (38.02); oats 4,209,143 bu. (54.18); barley 1,384,957 bu. (37.11); maize 443,151 bu. (52.30); peas 1,037,551 bu. (23.60); potatoes 138,256 short tons (4.68); onions 19,675 short tons (10.27); perennial rye-grass 13,789,983 lb. (292); Italian rye-grass (including western wolths) 7,783,563 lb. (444); cocksfoot 2,171,639 lb. (140). Live stock (1945): horses 217,689; cattle 4,590,926 (including 1,678,943 dairy cows in milk); pigs 593,828 (including 77,202 breeding-sows); sheep 33,974,612 (including 20,865,858 breeding-ewes). Wool production (1944-45): 372,000,000 lb. (greasy); butter-fat production (1944-45): 430,000,000 lb.

Manufacturing.—1943-44: number of establishments 6,202; total number of employees 117,864; salaries and wages paid £NZ34,433,075; value of products £NZ175,686,689; value of land, buildings, machinery and plant £NZ90,740,357.

Mineral Production.—Production in 1944 included: gold 142,287 oz.; silver 328,281 oz.; (in short tons) arsenic 18; talc 28; asbestos 19; scheelite 160; fuller's earth 117; coal 3,086,567; iron ore 6,640; phosphate 21,924. (A. J. H.P.)

NHA (National Housing Agency): see HOUSING.

Nicaragua. A republic of Central America, situated between Honduras on the north and Costa Rica on the south. Area: 57,145 sq.mi., of which 3,475 sq.mi. is water. Pop. (official est. Dec. 31, 1943) 1,048,642; by the 1940 census it was 983,160. Capital, Managua (1941 off. pop. est., 87,620); other urban centres are Chinandega (15,377); Granada (25,530); Jinotepe (9,556); León (31,799); and Masaya (21,070). Language: Spanish. President in 1946: General Anastasio Somoza.

History.—The year 1946 was dominated by preparations for the presidential election scheduled for Feb. 2, 1947. Pres. Somoza announced on Jan. 6 and again in August that the elections would be free and that he would not be a candidate. The president failed in an attempt in June to obtain a reconciliation between his Nationalist Liberals and the Independent Liberal party. In July and August the latter group formed a coalition with the Conservative party, headed by Gen. Emiliano Chamorro, a former president who returned in May from a ten-year exile. The Conservatives pledged themselves to support a Liberal Independent candidate chosen from among six of their own nomination, and on Sept. 1, the Independent Liberal convention at León selected Dr. Enoc Aguado, a professor of law and former deputy, as the standard-bearer of the coalition. Meeting at the same city, Aug. 12, the Nationalist Liberals divided for a time between Dr. Leonardo Guerrero and Alejandro Abaunza Espinosa, but at the instigation of Pres. Somoza agreed unanimously on Dr. Leonardo Argüello as their candidate. As the year ended the administration was faced with the combined opposition of the Conservatives, Independent Liberals, Socialists, the University Student federation and the Nicaraguan section of the Central American Union party, which Aguado declared represented 89% of the total electorate.

Notwithstanding the intense political activity, the country was relatively quiet during 1946. A university student demonstration against the administration, June 27, was dissolved by the national guard. Several demonstrators were injured, and a general student strike was staged in Managua in protest, but the government remained firm. Pres. Somoza cancelled a proposed trip to the United States to attend his son's graduation at West Point, but flew to Boston early in September for an operation. On Sept. 30, the legislature extended until April 30, 1947, the special emergency powers of the executive department, granted in 1939, which suspended certain constitutional guarantees of personal and economic liberties. The death in August of former president Juan Bautista Sacasa, while in exile, had no effect on the political situation. Labour unrest, due mainly to the high cost of living, continued throughout the year, but strikes were warded off by the government.

Education.—In 1942 primary schools numbered 943, with an enrolment of 63,380 students; intermediate schools, 11, with 2,750 students. The government's literacy campaign gained momentum in 1946 when congress made it the obligation of every literate citizen aged 15 to 70 to teach reading and writing to all illiterates between 12 and 50.

Finance.—The monetary unit is the córdoba, officially maintained in value at 20 cents U.S. The provisional budget for the 1946-47 fiscal year recommended expenditures amounting to 77,359,707 córdobas, a record high (70,391,000 córdobas in 1945-46). The public debt on March 24, 1945, was estimated

at \$4,378,000 (U.S. currency).

Trade and Resources.—Exports for 1945 were valued at \$13,962,728 (U.S.) (\$15,412,455 in 1944); imports, \$12,651,615 (\$10,279,451 in 1944). In the first 9 months of 1946, exports were \$14,758,070; imports, \$10,305,215. The United States took 61% of the exports and supplied 40% of the imports in 1945. Gold exports amounted to \$7,117,155 and silver, \$114,450, a decline from the previous year which continued in 1946 because of lack of mining machinery. Heavy spring rains destroyed an estimated 60% of the coffee harvest in 1946, and a summer drought ruined about 75% of the corn and rice harvests. Wild rubber collection, second in volume to Brazil's yield during the war years, was curtailed in 1946.

Communication.—In 1944 Nicaragua had 258 mi. of railway and about 3,000 mi. of highway, largely unimproved. As of May, 1946, asphalt surfacing was complete on 100 mi. of the national sector of the Pan-American highway, leaving only 47.5 mi. unsurfaced. Motor vehicles registered in 1943 numbered 1,172 passenger cars and 312 trucks and buses. Puerto Somoza, midway between Corinto and San Juan del Sur on the Pacific, was opened to international traffic during the year, and the U.S. naval installations at Corinto were turned over to the national government.

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Nickel. The production of nickel in Canada declined from 137,299 short tons in 1944 to 122,565 tons in 1945, and an estimated 95,400 tons in 1946.

Almost the entire United States supply is derived from imports, mostly from Canada. The domestic output was 988 tons in 1944 and 1,155 tons in 1945, while secondary recovery was 4,321 tons in 1944 and 6,483 tons in 1945. Imports, including metal, matte and oxide, decreased in gross weight from 134,932 tons in 1944 to 122,528 tons in 1945. Nickel content of the 1945 imports approximated 87,600 tons from Canada, 4,400 tons from New Caledonia, 12,200 tons from Cuba and 3,200 tons from England.

Primary nickel consumption in the United States was reported at 96,252 tons in 1945, with year-end stocks of 10,883 tons at consumers' plants and 399 tons in transit; Metals reserve stocks included 18,956 tons of metal in various forms. Consumption was distributed as follows: steel and cast iron 58,570 tons, nonferrous alloys 26,401 tons, high temperature and resistance alloys 3,951 tons, electroplating 6,368 tons, other uses 962 tons.

During the German occupation the Falconbridge matte was treated by International Nickel Co. in Canada, but before the end of 1945 the matte output was being sent to Norway for treatment.

The Patchange plant (the former Finnish development of International Nickel at Petsamo) was being restored after destruction during the German occupation, and mining operations had been resumed. In New Caledonia the contract for the sale of nickel to the United States expired and postwar matte output would go to the smelter in France. Nickel production in Cuba surpassed that of New Caledonia in 1945, Cuba taking the place of third largest producer, after Canada and U.S.S.R. The Cuban operation was financed by the Reconstruction Finance Corp., though operated by a subsidiary of the Freeport Sulphur Co., and in 1946 its postwar disposition was yet to be determined.

(G. A. Ro.)

Nicola, Eñrico de (1877–), Italian statesman, was born Nov. 9. in Naples. Graduated

from Naples university in 1895, with a law degree, he was admitted to the bar and won renown as a criminal lawyer. He was elected to the Italian chamber of deputies in 1909, and was re-elected in 1913, 1919 and 1921. De Nicola was president of the chamber of deputies from 1920 to 1923. When the fascisti elected him to the chamber on their ticket, he refused to take his seat and retired from politics in 1924. In the summer of 1946, Signor de Nicola was elected president of the new Italian republic by the national assembly, winning 396 out of 504 votes. Pres. de Nicola was slated to hold office until the elections of 1947 when a permanent president would be chosen.

Niger: see FRENCH COLONIAL EMPIRE.

Nigeria: see BRITISH WEST AFRICA.

Nimitz, Chester William (1885–), U.S. naval officer, was born Feb. 24 in Fredericksburg, Tex., and was graduated from Annapolis in 1905. During World War I he was chief of staff to the commander of the Atlantic fleet's submarine force. He was promoted to rear admiral, June 23, 1938. On Dec. 17, 1941, after the surprise attack on Hawaii, he was made commander in chief of the Pacific fleet, with the rank of admiral. Nimitz was given command of the Central Pacific theatre and had army and marine units as well as naval forces under his authority. Under his command, U.S. armed forces conquered the Solomons (1942–43), the Gilbert Islands (1943), the Marianas, Marshalls and Palau (1944) and Iwo Island (1945); his naval forces participated in the Philippines campaign (1944–45) and the Okinawa invasion (1945). Nimitz, who was promoted to the rank of admiral of the navy Dec. 15, 1944, attended the Japanese surrender ceremonies aboard the battleship U.S.S. "Missouri" in Tokyo bay (Sept. 2, 1945). Nimitz was of the opinion that the atomic bomb merely emphasized the value of seapower and like the vast majority of naval officers, he opposed the proposed merger of the armed forces. On Nov. 20, 1945, he was named chief of naval operations, succeeding Adm. Ernest J. King. On March 28, 1946, he was named by Pres. Truman to a new military board set up for the purpose of planning national defense. Appearing before the house foreign affairs committee (May 28), Nimitz and Gen. Dwight Eisenhower urged military collaboration with Latin-American countries and Canada.

Nitrogen, Chemical. Chile still remained the only important source of natural chemical nitrogen, but its once dominant position was greatly encroached upon by by-product nitrogen from the coking of coal and by the fixation of atmospheric nitrogen. While this trend had been under way during most of the 1900s it was particularly pronounced during World War II. Of the supply of chemical nitrogen in the United States in 1946, not more than about one-sixth was natural.

The output of synthetic ammonia in the United States increased from 541,079 short tons in 1944 to 548,655 tons in 1945, while by-product ammonia decreased from 236,226 tons to 218,680 tons, leaving the totals substantially unchanged.

Imports of sodium nitrate into the United States increased from 712,434 tons in 1944 to 849,888 tons in 1945, and other forms of imported nitrogen increased in about the same proportion. Chief among other imported nitrogen compounds are calcium cyanamide and ammonium sulphate, but the latter is largely offset by exports.

As of Jan. 1, 1947, there were no data on the amounts of chemical nitrogen going into its various uses. Normally, fertilizers and the chemical industry are the major consumers. During World War II the demand for chemical uses had been

greatly expanded by the large amounts of explosives required for munitions.

(G. A. Ro.)

NLRB: see NATIONAL LABOR RELATIONS BOARD.

NMB: see NATIONAL MEDIATION BOARD.

Nobel Prizes: see PRIZES OF 1946.

Noel-Baker, Philip John (1889–), British statesman, was born Nov. 1. He was graduated from Cambridge university with an M.A. degree in 1913. During World War I, he drove an ambulance for the Friends' ambulance unit, serving in France and Italy, and was cited for valour.

Noel-Baker was a member of the British delegation to the Paris Peace conference in 1919. He joined the faculty of the University of London as professor of international relations in 1924 and was Labourite member in the house of commons (1929–31). Returned to commons in the 1936 elections, he was appointed in 1942 as parliamentary secretary to Lord Leathers, minister of war transport in the Churchill coalition cabinet. Following the Labourite victory in the 1945 general elections, Clement Attlee named Noel-Baker minister of state and to membership in the privy council.

Noel-Baker, who headed the British delegation on the executive committee of the U.N. preparatory commission, defended his government's policy in the London sessions of the U.N., declaring, Feb. 17, 1946, that the discussions strengthened Anglo-Soviet relations and warning that if "we allow the U.N.O. to perish . . . then the pages of our history are numbered." On June 14, he succeeded Harold Laski as chairman of the Labour party executive and on Oct. 4, he was appointed secretary of air in the cabinet.

North Borneo: see BORNEO.

North Carolina. A south Atlantic coast state, popularly known as the "Old North state" or the "Tar Heel state," North Carolina is one of the original 13 states of the union; area 52,712 sq.mi. (49,142 sq.mi. land, 3,570 sq.mi. water); pop. (1940) 3,571,623 of which 974,175 (27.3%) were urban, 2,597,448 (72.7%) rural and 1,005,501 (28.2%) nonwhite. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 3,534,545. Capital, Raleigh (46,897); other cities: Charlotte (100,899); Winston-Salem (79,815); Durham (60,195); Greensboro (59,319); Asheville (51,310).

History.—Like the nation, North Carolina in 1946 experienced high prices and income, economic prosperity, scarcities and industrial unrest. The C.I.O. and A.F. of L. carried on drives to organize the state's industrial workers. North Carolina did not contribute to the national Republican landslide in November. The new legislature which was to meet on Jan. 8, 1947, would have the usual overwhelmingly Democratic majority; and the state's congressional delegation continued solidly Democratic. The voters approved an amendment to make the constitution equally applicable to men and women as to jury service, suffrage and in other respects. There was widespread public agitation for increased teachers' salaries and a good health program involving medical centres in every county, a hospital and four-year medical school at the university, assistance to medical students and to indigent hospital patients—the two chief problems facing the legislature in January. In April was held the final convocation of the sesquicentennial celebration of the university which was chartered in 1789 and opened its doors to students in 1795. In August the State Baptist convention accepted the Z. Smith Reynolds foundation's offer of a \$10,-

500,000 endowment for Wake Forest college on condition that the college be moved from Wake Forest to Winston-Salem. Governor R. Gregg Cherry appointed William B. Umstead of Durham to fill the unexpired term in the United States senate of Josiah W. Bailey who died in office.

State officers in 1946 were R. Gregg Cherry, governor; L. Y. Ballentine, lieutenant governor; Thad Eure, secretary of state; George Ross Pou, auditor; C. M. Johnson, treasurer; Clyde A. Erwin, superintendent of public instruction; Harry McMullan, attorney-general; W. P. Stacy, chief justice.

Education.—In 1944–45 there were 3,480 public elementary schools with 19,827 teachers and principals and 683,746 enrolled pupils; 978 public high schools with 6,088 teachers and principals and 129,080 enrolled pupils; these were operated at a cost of \$50,088,131, approximately three-fourths of which was contributed by the state government. The state provided bus transportation for 300,904 school children at an average cost of \$11.96 per pupil.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Oct. 1946 public grants amounting to \$496,973 were made to 34,466 persons for old-age assistance; \$192,090 to 6,635 families for aid to dependent children; \$56,561 to 2,667 blind persons; and \$35,799 to 2,685 cases for general relief (by the county governments). During the year ending June 30, 1946, the total amount of public relief funds distributed was \$8,238,689, and during the first 11 months of 1946 unemployment benefits amounted to \$4,091,129. In 1946 the state maintained 9 charitable institutions with 9,608 inmates on Nov. 1; 9 correctional institutions with 783 inmates; and state highway prison camps with 6,161 prisoners.

Communication.—In 1946 the state highway and public works commission maintained 11,298 mi. of state highways, of which 9,936 mi. were hard-surfaced; and 50,126 mi. of county roads, of which 2,612 mi. were hard-surfaced. There were 4,581 mi. of railroads, 324 mi. of city bus routes, 10,277 mi. of passenger bus routes and 11,525 mi. of freight vehicle routes in 1944.

Banking and Finance.—On June 30, 1946, there were 45 national banks with resources of \$477,776,000, and 183 state banks with deposits of \$1,215,364,000 and resources of \$1,295,801,000. On Jan. 1, 1946, there were 147 building and loan associations operating under state charters with total assets of \$102,019,790. In 1945–46 state receipts were \$273,639,057; disbursements, \$249,142,264. On June 30, 1946, the state gross bonded and net debts were \$100,091,500 and \$28,599,890 respectively. The assessed value of property was \$2,884,364.459 in 1945. In the state general fund there was a cash surplus of about \$48,000,000 at the end of 1946.

Table I.—Leading Agricultural Products of North Carolina, 1946 and 1945

Crop	1946 (est.)	1945	Value, 1946
Tobacco, lb.	904,270,000	813,810,000	\$451,119,000
Cotton, bales	420,000	428,000	69,090,000
Corn, bu.	58,914,000	55,100,000	108,402,000
Tame hay, tons	1,256,000	1,366,000	32,028,000
Peanuts, lb.	306,475,000	304,000,000	33,406,000
Wheat, bu.	6,307,000	5,712,000	14,002,000
Sweet potatoes, bu.	7,680,000	6,615,000	18,432,000
Irish potatoes, bu.	12,080,000	8,784,000	14,375,000
Oats, bu.	12,870,000	10,312,000	13,900,000
Soybeans, bu.	2,862,000	2,700,000	8,014,000
Lespedeza seed, lb.	40,900,000	41,500,000	4,049,000
Peaches, bu.	3,160,000	2,172,000	6,478,000
Apples, bu.	1,716,000	252,000	3,861,000
Pecans, lb.	1,433,000	2,504,000	582,000

Agriculture.—The total value of agricultural production harvested from about 9,800,000 ac. in 1946 was approximately \$800,000,000, of which tobacco accounted for \$451,119,000 and cotton \$108,402,000. North Carolina produced 47% of all the tobacco and 75% of all flue-cured tobacco grown in the United States. The cash income of North Carolina farmers in 1945 was \$526,691,000 from crops; \$116,750,000 from livestock and live-

stock products; and \$9,366,000 from government payments. The value of the lands and buildings on the 278,276 farms in 1940, 44% of which were operated by tenants, was \$736,708,125.

Manufacturing.—In 1939 manufacturing establishments numbering 3,225 employed 270,210 wage earners at wages of \$199,289,501 and made products valued at \$1,421,329,578. The principal industries were tobacco products, cotton goods and furniture. Estimated industrial production in 1946 was about \$2,000,000,000.

Mineral Production.—The mineral production for North Carolina in 1944 was \$22,199,000. In quantity production of mica, feldspar and bromine, North Carolina ranked first among the states; but in value of all minerals produced, it ranked 32nd in 1944. The value of gold produced in 1943 was \$4,585.

Table II.—Principal Mineral Products of North Carolina, 1945, 1944, 1943 and 1942

Mineral	Value, 1945	Value, 1944	Value, 1943	Value, 1942
Stone	\$3,044,135	\$5,975,951	\$5,376,600	\$3,774,472
Clay products		2,700,000	3,000,000	4,000,000
Sand and gravel	1,503,422	1,405,917	1,823,516	2,491,820
Feldspar (crude)		778,007	656,182	533,448
Mica	633,250	2,280,910	2,288,691	991,194

BIBLIOGRAPHY.—U.S. census; *Minerals Yearbook*; reports of state agencies. (A. R. N.)

North Carolina, University of. The University of North Carolina at Chapel Hill, provided for in the state constitution of 1776, chartered in 1789 and opened in 1795, completed in 1946 the sesquicentennial celebration of its founding. Enrolment at the beginning of the 1946 fall quarter was 65% above 1941. Construction was begun on three new dormitories and 354 housing units for married veteran students and faculty members. Emergency housing for more than 600 students was also provided.

Gifts during the year 1946 included more than \$1,000,000 from John Motley Morehead for the construction of a planetarium, the income from \$250,000 provided by James A. Gray for a professorship of Bible and related courses, \$75,936 from the General Education board for six special projects and more than \$75,000 from other donors. The Business foundation was formed by private individuals to assist the school of commerce and other university agencies in providing educational services and research for business and industry. A similar Pharmaceutical foundation was also incorporated.

Revisions in the general college curriculum in the spring of 1946 made the foreign language requirement more flexible, introduced the fine arts and reduced elective courses. Important additions to the instructional and research resources of the university included a department of mathematical statistics and a department of regional planning, a bureau of business service and research and a communications centre. The University Research council began participating in a five-year program to stimulate research and creative activities among college teachers. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (F. P. G.)

North Dakota. A west north central state of the United States, admitted to the union Nov. 2, 1889. Popular name, "Flickertail State." Land area, 70,054 sq.mi.; water area, 611 sq.mi. Population (1940), 641,935; rural 510,012; urban 131,923. The bureau of the census estimated population July 1, 1944, as 528,071. Cap., Bismarck (15,496). Chief cities, Fargo (32,580); Grand Forks (20,228); and Minot (16,577).

History.—The Garrison dam was expected to increase the possible resources and population of the state appreciably. The Republican Organizing committee gained majorities in both house and senate of the 1947 legislature in the 1946 election. As

a result of that election the chief state officers were: governor, Fred G. Aandahl; lieutenant governor, C. P. Dahl; secretary of state, Thomas Hall; auditor, Berta E. Baker; treasurer, H. W. Swenson; attorney-general, Nels G. Johnson; superintendent of public instruction, G. B. Nordrum; commissioner of insurance, Otto Krueger; commissioner of agriculture and labour, Math Dahl; tax commissioner, John Gray; public service commissioners, C. W. McDonnell, S. S. McDonald and Ben C. Larkin.

Education.—School teaching positions for the year ending June 1946 were 6,528; elementary 4,986; high school 1,542; enrolment, elementary, 87,173; high school, 27,418; buildings, 2,933 one- and two-room; 240 graded elementary; 415 combinations (elementary-high school); 3,588 schools in session (1946-47). Institutions for higher education (fall of 1946) had teaching staffs, state university, 147; agricultural college, 124; other state colleges, 208. Enrolment, university, 2,683; agricultural college, 2,370; other, 3,362. Total staff 479; enrolment, 8,415.

Social Insurance and Assistance, Public Welfare and Related Programs.—Public assistance, in the year to Nov. 30, 1946 was \$5,174,313; average number aided per month, 11,370; types of aid: old-age, \$3,705,630 with 8,756 persons; care of dependent or foster home children, \$1,205,747 with 1,832 persons; blind, \$50,012 with 117 persons; other, \$212,924 with 665 persons. Cost of operating four charitable and four correctional institutions, biennium to June 30, 1947, \$4,500,000. Average number of patients (1946): feeble-minded, 960; blind, 30; deaf, 90; tubercular, 235; correctional institutions, 2,500.

Communication.—Highway mileage, state, 7,223; rural, 107,377. Spent for construction of state highways, \$2,071,470.72; and for maintenance of state highways, \$2,016,966.65. No additional apportioned to counties. Railway mileage, 5,272.

Banking and Finance.—On June 29, 1946, 1 trust company and 108 state banks had resources of \$284,161,000; deposits, \$270,008,000. Resources, 42 national banks (4 with trust powers) \$227,655,000; deposits \$217,531,000. Six federal savings and loan and 12 state building and loan associations Dec. 31, 1945, had resources of \$23,153,629 and share capital of \$20,486,654. State treasury receipts, year to June 29, 1946, \$38,130,067; expenditures \$34,299,509; bonded debt \$18,949,250.

Agriculture.—Farm acreage in crops (1945), 17,291,445. Gross farm income (1946) of \$587,694,577 averaged \$8,453 for 69,524 farms; of this, livestock and its products made \$206,724,867; crops, \$481,405,710; and soil conservation payments, \$6,816,480.

Leading Agricultural Products of North Dakota, 1946 and 1945

Crop	1946	1945
Spring wheat (other than durum), bu.	107,460,000	129,920,000
Durum wheat	32,364,000	31,968,000
Corn	25,542,000	26,950,000
Oats	62,764,000	82,484,000
Barley	46,600,000	53,760,000
Rye	2,058,000	2,418,000
Flax	5,334,000	13,348,000
Potatoes	17,760,000	23,660,000
Hay, tons	2,736,000	3,438,000

Manufacturing.—Estimated number of employees in non-agricultural establishments in North Dakota, Sept. 1946, was 82,600; and in manufacturing, 6,200 employees, estimated yearly wages in manufacturing in 1946 were \$12,000,000. Value of creamery butter produced (1946), \$34,340,265; in 1945 it was \$22,492,780.

Mineral Production.—Production of lignite coal, to June 29, 1946, was 2,610,544 tons; value, \$4,068,209. Employment, 627 miners, 320 others. New mines, 12; reopened, 6; closed, 39. Natural gas, 16 wells, to Nov. 30, 1946, produced 277,747,000 cu.ft.; yield from 13 wells, calendar year 1945, was 216,773,000 cu.ft. (A. V. O.)

Northern Ireland: *see* IRELAND, NORTHERN.

Northern Rhodesia: *see* RHODESIA, NORTHERN.

Northern Territory OF AUSTRALIA. Area 523,620 sq.mi.; pop. (June 30, 1940): aboriginals, full-blooded 13,901; half-caste 902; white (est. June 30, 1945) 5,223. Capital: Darwin (pop. Dec. 31, 1941, 4,400).

History.—The government announced that its postwar plans for the administration of the territory included the establishment of an advisory council modelled on that of New Guinea. It was to consist of seven official members nominated by the administrator and appointed by the governor general and six elected members. Election of members would take place at the same time as the election of the Northern Territory member to the commonwealth house of representatives.

An expedition promoted by the Northern Territory Development committee and including expert geologists, soil surveyors, botanists and agrostologists began a comprehensive survey of the economic resources of the Territory.

Finance.—Revenue (1943-44), ordinary, £A53,125; from Central Australian ry., £A2,031,250; from North Australian railway, £A875,000. Expenditure (1943-44), ordinary appropriation £A289,062; new works, etc., £A117,187. (£A1=\$3.21 U.S.)

Production and Communication.—Production (1939-40): pastoral industry, £A587,500; gold, £A234,375; wolfram, £A46,875; pearl shell, £15,938. Railways, government (Dec. 31, 1944) 508 mi. (W. D. MA.)

Northrop, John Howard (1891-), U.S. biochemist, was born on July 5 in Yonkers, N.Y. After obtaining his Ph.D. from Columbia university in 1915, he received an appointment as assistant at the Rockefeller Institute for Medical Research, becoming a member of the institute in 1924. He subsequently was Jesup lecturer at Columbia, 1938, Hitchcock professor at the University of California, 1939, and Thayer lecturer at Johns Hopkins, 1940. He served as captain with the U.S. army's chemical war service in World War I. Prof. Northrop was a member of the National Research Council's Committee on Proteins and a consultant to the National Defense Research committee during World War II. His research in enzymes and virus proteins led to his award of the Nobel prize in chemistry, on Nov. 14, 1946. He shared the award with Prof. James Batcheller Sumner, who received half; and with Prof. Wendell M. Stanley who, like Prof. Northrop, received one-quarter.

Northwestern University. An institution of higher learning at Evanston and Chicago, Ill. The university comprises the following divisions: the college of liberal arts, the graduate school, the technological institute and the schools of music, education, speech, commerce and journalism, all located in Evanston (a suburb of Chicago) on a campus bordering Lake Michigan; the medical, law and dental schools and the evening departments of the university, all on Chicago's near north side, on a campus six blocks from the loop business district.

For the academic year ending Aug. 31, 1946, the university awarded 2,600 degrees and diplomas, the faculty numbered 1,724, the bound volumes in libraries increased to 790,000 and the gifts received totalled \$1,269,835.

During the year a new program for the education of teachers was established in the school of education. The purpose of the program is to develop in the student those understandings and skills which are the attributes of the educated citizen as well as the successful teacher. It attempts to do this by a balanced

emphasis upon the following three elements: (1) liberal education, (2) professional education and (3) education in those specialized subjects which the student expects to teach.

The enrolment of the university for the fall of 1946 totalled 22,788 students, consisting of 9,723 students studying full-time and 13,065 studying part-time. Veterans represented approximately 55% of the total enrolment.

To accommodate the large influx of veterans the university erected 146 temporary housing units at a cost of \$700,000. The university was also erecting a \$2,000,000 apartment building to house both faculty and students, and nine houses, out of a total of 75 that were planned, for a faculty subdivision adjacent to the Northwestern university golf course.

The university continued to make plans for its 100th anniversary in 1951. The plans propose a broad development of all schools, including the establishment on the Chicago campus of a \$100,000,000 centre for medical teaching and research. Two new hospitals had already been announced for this centre: the Mercy hospital, to be erected at a cost of \$10,000,000, and a \$10,000,000 veterans' hospital for the study and treatment of cancer. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

Northwest Territories. The Northwest Territories comprise the mainland portion of Canada lying north of the 60th parallel of latitude between Yukon territory on the west and Hudson bay on the east, together with the islands lying between the mainland of Canada and the north pole, and those in James bay, Hudson bay and Hudson strait. Area, 1,309,682 sq.mi.; pop. (1941 census) 12,028; est. pop. (1946), 15,000; seat of government, Ottawa, Ont. For administrative purposes, the Territories in 1918 were subdivided into the provisional districts of Mackenzie, Keewatin and Franklin. The Northwest Territories act (1927) provided for a territorial government composed of a commissioner, a deputy commissioner and five councillors appointed by the governor in council. The Northwest Territories council in 1946 was composed as follows: commissioner, Charles Camsell; deputy commissioner, R. A. Gibson; members of council: A. L. Cumming, K. R. Daly, R. A. Hoey, S. T. Wood.

Education.—The education of white, native and half-breed children in Mackenzie district was carried on at day and residential schools operated by church missions at the larger settlements, and at public schools situated at Fort Smith and Yellowknife, all of which received financial assistance from the government. A school inspector was appointed by the Northwest Territories administration in 1946 to co-ordinate all educational services in the Territories.

Transportation and Communication.—Inland water transportation on the Mackenzie river system from railhead at Waterways, Alta., to points in Mackenzie district was provided by four companies, two of which maintained passenger services. Regular commercial air services, which also carried mail, were maintained from Edmonton, Alta., to the principal settlements. An air service from Peace River, Alta., to Yellowknife, N.W.T., was also inaugurated. Construction of a new all-weather highway to link Hay River settlement on Great Slave lake with railhead at Grimshaw, Alta., was commenced in May 1946, and good progress had been made at the end of the year. Medical centres, trading posts, etc., in the eastern arctic were served by the annual Eastern Arctic patrol on R.M.S. "Nascopie" from Montreal, Que., which also carried mail. Auxiliary boat services from railhead at Churchill, Man., were also provided. Radio communication was maintained between important settlements and trading posts in the Territories and outside points through government and private commercial radio stations.



PROSPECTORS camping out in a heated tent at Yellowknife, Northwest Territories, during a gold rush in the surrounding bush country in April 1946

Agriculture, Lumbering and Fisheries.—Limited agricultural and horticultural operations were carried on at most of the settlements in Mackenzie River valley. A site was selected at Fort Simpson for the establishment of an experimental sub-station by the dominion department of agriculture. Sawmills in the vicinity of Slave River delta operated to meet the demand for lumber at Yellowknife. Commercial fishing on Great Slave lake—inaugurated in 1945—was continued in 1946. A catch of more than 2,000,000 lbs., principally lake trout and whitefish, was obtained.

Fur Trade.—The trapping of fine furs continued to provide the chief occupation of the native population. Estimated value of pelts harvested for the year ended June 30, 1945, was \$1,743,710. Fur trading was controlled by regulation and was open only to those who had been issued permits and who had established permanent posts. Of the white residents only those who under the regulations were included in an established eligible list were permitted to hunt and trap, and such individuals required an annual licence. Reindeer herding in the Mackenzie delta region was continued in the interests of the native population.

Mineral Production.—Mineral development in 1946 included the production of gold, silver, pitchblende concentrates, from which radium and uranium are extracted, and petroleum. Yellowknife continued to be the centre of gold-mining activity, and an event of interest was the reopening of the mill serving the Con and Rycon mines, where gold production was suspended in Sept. 1943. Gold production was resumed on Aug. 20, 1946, and at the end of October 3,961 fine oz. of gold and 1,138 oz. of silver had been produced. Production at the Negus mine, reopened in 1945, was 12,308 oz. of gold and 3,378 oz. of silver for the 10-month period ended Oct. 31, 1946. Development on a broad scale was continued at Giant Yellowknife and Crestaurum mines, which, with several other properties, were rapidly being brought to production stage. On Oct. 31, about 20,000 mineral claims in Yellowknife district were in good standing, of which 4,000 were granted in 1946.

Development of a hydroelectric power project to serve the Yellowknife mining district was undertaken by the dominion

government on Snare river, about 90 mi. from Yellowknife settlement. At the end of 1946 two diversion tunnels and one coffer dam had been completed by the contractors. Construction of the dam and powerhouse was planned for 1947.

Production of pitchblende concentrates was continued at the mine of Eldorado Mining and Refining, Ltd. (1944) at Port Radium on Great Bear lake. The concentrates were shipped by water and rail to the company's refinery at Port Hope, Ont. for reduction. During the year the company constructed landing strips for aircraft at Sawmill bay on Great Bear lake and on Bear river to facilitate transportation. Operations were undertaken by International Uranium mines with a view to reopening their property at Contact lake, southeast of Port Radium.

Crude oil production was continued by Imperial Oil, Ltd., at Norman Wells on Mackenzie river, and at the end of October a total of 170,198 bbl. had been obtained. Much of this oil was processed at the Norman Wells refinery and shipped by barge to Eldorado mine and to Yellowknife, where consumption of petroleum products, including fuel oil, reached a new high. Explorative drilling for oil was continued by Imperial Oil, Ltd. in the Mackenzie river basin.

(R. A. G.)

Norway. A democratic monarchy of northern Europe, bounded N. by the Arctic ocean, E. by Finland, the U.S.S.R. and Sweden, S. and W. by the North sea. Area 124,556 sq.mi.; pop. (est. 1945) 3,040,000. Capital, Oslo (253,124). Other principal cities, with 1930 populations, are Bergen (98,303); Trondheim (54,458) and Stavanger (46,780). Religion, Lutheran Christian. Ruler in 1946: King Haakon VII. Prime minister: Einar Gerhardsen.

History.—The aftermath of World War II, with its physical distraction and social disintegration, left Norway with a myriad of complex problems. The 9,000 children of German fathers and Norwegian mothers had to be provided for in a way which would not brand innocents as outcasts. Traitors had to be dealt with firmly but fairly. About 60,000 had been members of the Norwegian nazi party, Norsk Samling. Investigation awaited them all, and trial awaited perhaps 16,000. One mass trial in Trondheim of the notorious Rinnan gang resulted in 30 sentences—11 for death, 19 for terms of from 2½ years to life at hard labour. By June about 200 death sentences had been handed down in the country as a whole. Passive members of the party were being let off easily, often with fines. Collaborationists and war profiteers were being fined heavily. The famous author, Knut Hamsun, was fined 500,000 kr. (approximately his entire property) and was sent to a home for the aged. Henry Johansen, husband of Kirsten Flagstad, died in a hospital, but on account of his nazi-earned lumber profits, his estate was fined 16,000,000 kr. Flagstad herself was not permitted to leave the country until the very end of the year.

Rebuilding of devastated areas and bombed cities was proceeding vigorously. In the scorched-earth section of northern Norway shelters were being erected rapidly in a great national effort, and 15,000 evacuees were expected to return to Nord Troms and Finnmark by Jan. 1, 1947. Many workers in the south voluntarily put in an extra shift each week to provide additional materials for the rebuilding. Mines and housing on Spitsbergen had been destroyed, but reconstruction had proceeded far enough that it was expected the island would produce 50,000 tons of coal in 1946 and 300,000 tons in 1947. Televaag, the Norwegian Lidice, was being rebuilt, as were the bombed sections of Bergen, Kristiansund, Aalesund and other towns. Some of the mysterious flying bombs landed in central Norway, but fell harmlessly into Lake Mjoesan.

Food was a continuing problem, but rations indicated that

the Norwegians were living somewhat better than the British.

Norway's world-mindedness was increased through the country's own troubles. It was the Norwegian Carl J. Hambro, president of the assembly of the League of Nations, who presided at the demise of that organization. And it was another Norwegian, Foreign Minister Trygve Lie, who became secretary-general of the United Nations. Succeeding Trygve Lie as foreign minister was Halvard Lange, of the Labour party, who had added to his knowledge of foreign affairs in a German concentration camp. A corps of 4,000 Norwegians was training to take over a section of Germany as the occupying authority. Fully convinced that thorough-going co-operation of all nations large and small was the only hope for world peace, Norway was playing its part as fully as it knew how.

In its economic and social structure Norway was building boldly for the future. In April the American Overseas Airlines established an Oslo-New York service; in November the Norwegian Air Lines, Inc., received permits to fly between Norway and New York or Chicago, with intermediate service to the United Kingdom and other countries. Scandinavian Airlines was in process of opening also direct routes to South America. The famed Norwegian merchant marine was ordering large tankers and other ships to restore its prewar eminence on the seas (*see* the section on trade and communication). Norsk Hydro was expanding its facilities to produce 20,000 additional tons of nitrogen for export. The government also approved a far-reaching plan for building an electro-iron works at Mo on the Rana river, close to the Arctic circle. Before World War II, about 90% of Norway's iron and steel had to be imported, largely from Germany. Oslo's modernistic city hall was being completed and new buildings for the University of Oslo.

A huge increase of 60% in Norway's social security budget was asked by the minister for social affairs, Sven Oftedal. In addition to increased payments for present government obligations the minister hoped to obtain grants of 200 kr. yearly for each child after the first in a family.

Completion of trade negotiations with the U.S.S.R. was announced in December. The agreement provided for the exchange of Norwegian fish for potash and chemicals. During 1946 Norway shipped about 140,000 bbl. of herring and 1,500 tons of whale fat to the U.S.S.R. Earlier negotiations had settled amicably the new Soviet-Norwegian frontier in the north created by the Soviet acquisition of Petsamo from Finland.

Closer Norwegian-U.S. relations were envisaged in both the economic and cultural realm. One of the small but valuable cargoes of 1946 was 842 mink transported from a Michigan farm to Norway by the American Overseas Airlines. U.S. films, on the other hand, were meeting difficulties in Norway (as elsewhere), partly because the Norwegian government was attempting to aid the local film industry to double its output and taxed all foreign films 40%. Of about 800 students abroad, more than 400 were in the United States.

Both right and left political groups in Norway were co-operating to strengthen and improve the country. Unemployment was practically unknown, and labour peace seemed assured by long-term contracts and agreements for cost-of-living adjustments. Wage rates had increased 30% after the liberation in 1945, although neither wages nor profits had become high enough to support the prewar living standard.

Education.—In 1942-43 there were 297,770 students and 10,825 teachers in the elementary schools; 35,523 students and 2,688 teachers in the middle schools and gymnasias. The 11 schools of university rank had a combined enrolment (1937-38) of 4,998. In Sept. 1946 the numbers had mushroomed and 6,000 students appeared at Oslo university alone, 2,700 of them entering freshmen. The total state budget for educational pur-

poses in 1939-40 was 65,364,000 kr.

Finance.—The monetary unit is the krone (20.16 U.S. cents in Sept. 1946). Budgetary income for 1943-44: 1,449,898,000 kr.; expenditures 2,110,682,000 kr. Public debt (1945) 6,544,-836,000 kr. Notes in circulation (1945) 1,478,000,000 kr; (end of Sept. 1946) 1,765,000,000 kr. Gold reserve (end of Sept. 1946) 240,000,000 kr. Commercial bank deposits (1945) 3,447,-000,000 kr.; (end of Sept. 1946) 3,442,000,000 kr. Savings bank deposits (1945) 3,179,000,000 kr.; (end of Sept. 1946) 3,148,-000,000 kr.

Trade and Communication.—In 1945 trade was, of course, in a very abnormal situation with about four months of war and eight months of reconstruction. Imports amounted to 1,206,338,000 kr., and exports 328,017,000 kr. Of the imports 360,750,000 kr. came from Sweden, 211,740,000 kr. from Great Britain, 149,260,000 kr. from Denmark and 142,570,000 from the United States. Of the exports 117,690,000 kr. went to Germany, 83,380,000 kr. to Denmark and 49,675,000 kr. to Sweden.

Norway, on a per capita basis, was the world's greatest seafaring nation. Its merchant marine had been of tremendous service during World War II, but lost 60% of its capital stock. The years 1945 and 1946 saw some of the losses recouped. In 1945 the number of ships was 4,098 and the gross tonnage was 2,727,000. Norwegians had £70,000,000 credit in British insurance firms and were eager to use it for new vessels. Some German ships were granted Norway and many orders were being placed in Sweden, Denmark and Britain, in the hope of building the fleet up to 4,000,000 tons by 1948. In Sweden alone Norway placed orders for 126 ships. During the war the entire merchant fleet abroad was operated by the maritime agency "Nortraship," with headquarters in New York; settlement by the government with the shipowners granted them 3,197,000 kr., plus the profound thanks of the nation to all the seamen.

Telephones (1944) numbered 327,000, and there were 17,-385 mi. of telegraph lines. In 1943 registered automobiles numbered 81,591 (a decline of 26,000 from 1938). Railways had 2,608 mi. of track (all but 85 mi. were state-owned), carried 46,437,951 passengers and 6,253,428 metric tons of goods. Three diesel-electric trains were under construction in 1946. Radio receivers (1938) numbered 400,623.

Agriculture.—Agricultural production for 1944, in metric tons, was as follows:

	1944	Tons		1944	Tons
Wheat		52,806	Wheat and rye mixed . . .		7,678
Rye		3,899	Peas		1,025
Barley		49,697	Turnips and cabbages . . .		731,849
Oats		104,109	Hay		2,113,921

The livestock census for 1939 (prior to the wartime reductions) showed: 203,931 horses, 1,455,016 cattle, 1,743,802 sheep and 361,953 pigs.

Fisheries.—The total catch of fish in 1938 was 1,174,000 short tons, plus 1,089,000 tons of whale oil; of the fish, 763,000 tons were herring of various kinds. The 1944 catch was considerably smaller than normal and the Germans demanded 75%-95% of it. Conditions improved in 1945, with a pack of 340,000 cases and a good market in Britain and the United States.

Manufacturing.—As of 1943 there were 4,928 industrial establishments, with 146,652 workers, which produced goods valued at 2,506,079 kr.

The general production index figure was 106 for June 1946, as compared with 105 for 1938 and 109 for 1939. Production committees, based on a U.S. wartime system, aided in maintaining high outputs. Employment by March 1946 was up to 170,900, only 2,100 less than in 1939.

Mineral production.—Total mineral production, 1943, was valued at 49,575,000 kr. The chief products and the value of each were:

	Weight	Value
Silver ore	12,303,000 kg.	709,000 kr.
Copper	21,216,000 "	9,406,000 "
Sulphur pyrites	808,779,000 "	23,252,000 "
Nickel	15,679,000 "	1,506,000 "
Titanium	285,191,000 "	8,830,000 "
Zinc and lead	9,075,000 "	1,403,000 "
Molybdenum	386,000 "	4,159,000 "

(F. D. S.)

Nose: see EAR, NOSE AND THROAT, DISEASES OF.

Notre Dame, University of. Postwar transition highlighted 1946, including the announcement in July of Rev. John J. Cavanaugh, C.S.C., as 14th president of the university, succeeding Rev. J. Hugh O'Donnell, C.S.C. The accelerated wartime 3-semester program ended on July 1, with the resumption of the annual commencement exercises and the announcement of a school year of two 18-week semesters and, beginning in 1947, an 8-week summer session.

Enrolment increased from 2,855 in January to a record capacity-taxing 4,500 in December. First provision for married students on the campus came with completion in December of some of the units in the veterans' temporary housing project.

Wartime research began to be revealed, including anti-malarial drug discoveries and vital contributions to bacteriological warfare research. Creation of a mediaeval institute, first of its kind in the United States, was announced in July, headed by Rev. Gerald Phelan, former president of the Mediaeval institute in Toronto, Ontario.

Carlton J. H. Hayes, historian, was named the 64th Laetare medalist.

Fleet Adm. Chester Nimitz visited Notre Dame on May 15 for a special convocation conferring the honorary L.L.D. awarded to him in 1943. Samuel Cardinal Stritch, George Sokolsky and alumnus-columnist Paul Mallon received honorary degrees at the June commencement.

Alumni activity was stressed with resumption of the class reunions at commencement, a new record in both amount and participation in the fourth annual alumni fund; the national conference on the campus in November of the 77 presidents of all Notre Dame alumni clubs in the U.S. and the appointment of Joseph M. Byrne, Newark, N.J., as an alumnus lay trustee of the university. The 23rd annual Universal Notre Dame Night on April 29, and the 9th Universal Communion Sunday on Dec. 8, were successful national alumni programs.

Limited facilities and record early registration caused the closing of enrolment for September of 1947 as 1946 ended. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (J. E. AR.)

Nova Scotia. One of the three maritime provinces of Canada, Nova Scotia entered the union in 1867. The area is 21,428 sq.mi., including 325 sq.mi. fresh-water lakes; pop. 577,962 (1941 census), 621,000 (dominion bureau statistics 1946 est.). The capital is Halifax (70,488 in 1941, 126,480 in 1943); other cities are Sydney (28,305), Glace Bay (25,147). Administered by a lieutenant governor, an executive council and a 30-member legislative assembly, Nova Scotia is represented federally by 12 members of parliament and 10 senators.

History.—During 1946 premier Angus Macdonald continued to lead a Liberal administration. The rural school system was consolidated; a \$250,000 fund was created to make cheap long-term loans to tourist resort operators to increase their facilities; a former army camp at Debert was converted into a provincial agriculture school.

Agriculture.—Nova Scotia apple farmers raised 1,800,000 barrels worth \$7,000,000. A \$250,000 apple cold storage plant,

most modern in North America, was erected at Coldbrook with provincial financial assistance. A fish-packers' strike began in December, but the year's catch was fair. Construction of provincially financed draggers began.

Industry and Communication.—Industrially, however, 1946 was black with strikes and shutdowns. Construction bogged with shortages of bricks, tile, steel, lumber. Unemployment ran high with about three workers applying for each vacancy. The government-sponsored Nova Scotia Research foundation, established in the spring, got into action but produced no early plans to cure the industrial paralysis with technology.

Some employment slack was taken up by the provincial government's highway program: \$11,816,000 were earmarked to pave existing roads, \$4,000,000 to build new ones. The federal government spent \$60,000 on borings as the first concrete step towards constructing the long-delayed \$14,000,000 Canso Strait causeway. Another transportation event of significance was the Royal Dutch Airlines' choice of Sydney as a port-of-call on its Amsterdam-New York city line.

Finance.—By Nov. 30, 1946, the federal government had 15,000 claims for damage from the July, 1945, Halifax naval magazine explosion. On Dec. 31 the federal government discontinued its \$30,000 special annual wartime grant to Halifax to augment its war-burdened health budget. (C. CY.)

Nursery Schools: see EDUCATION.

Nutmegs: see SPICES.

Nutrition: see DIETETICS; FOOD RESEARCH; VITAMINS.

Nuts. Pecan production in the U.S. declined 44% in 1946 to 77,155,000 lb. compared with 138,082,000 lb. in 1945 and an average of 105,746,000 lb., 1935-44. The large crops of 1944 and 1945 depleted the strength of the trees, weather was unfavourable and insect damage serious. Production declined in all states except Florida. The Georgia crop dropped more than half. Both improved varieties and seedlings declined—the former 40% and the latter 47%.

Walnut production declined in California to 59,000 tons compared with a crop of 64,000 tons in 1945 and an average of 55,420, 1935-44. The Oregon crop was the largest on record, 8,500 tons compared with 6,900 tons in 1945 and an average of 4,680 tons, 1935-44.

The 2 states, California and Oregon, returned a crop of 67,500 tons compared with 70,900 tons in 1945 and an average of 60,100 tons, 1935-44. The California crop suffered from hot, dry weather.

The California almond crop made a record of 35,100 tons compared with the previous record of 23,800 tons produced in 1945 and an average of 14,700 tons, 1935-44.

The total filbert crop of Oregon and Washington made the high record of 8,950 tons in 1946, compared with an average

U.S. Pecan Production by States, 1946 and 1945

(In thousands of pounds)

State	Improved varieties		Wild varieties	
	1946	1945	1946	1945
Georgia	13,000	30,954	3,000	5,896
Alabama	5,110	7,216	1,614	1,804
Texas	3,400	3,870	19,100	28,380
Florida	2,650	2,371	2,030	1,863
Louisiana	2,250	1,840	245	7,360
Mississippi	2,020	3,300	142	2,700
North Carolina	1,433	2,504	1,876	310
Oklahoma	1,400	1,000	6,750	20,000
South Carolina	1,275	2,961	7,600	443
Arkansas	345	882	1,155	4,018
Missouri	20	60	600	1,800
Illinois	3	21	137	1,029

of 3,896 tons. Most of the crop was grown in Oregon, which harvested 7,800 tons compared with an average of 3,354 tons, 1935-44.

Tung nut production in 1946 was 47,300 tons, 28% more than the previous record of 1945 and 77% more than the crop of 1944. Mississippi led with a crop of 20,000 tons in 1946 with Louisiana second with 14,000 tons. Florida produced 10,500 tons while Georgia was beginning with a crop of 1,500 tons and Alabama with 1,300 tons. A very small quantity was produced in Texas. (See also COCONUTS; PEANUTS.)

(J. C. Ms.)

Nyasaland: see BRITISH EAST AFRICA.

Nylon: see RAYON AND OTHER SYNTHETIC FIBRES.

Oats. The 1946 oat crop in the U.S. was the second record crop of this grain, only 1.7% below the high record in 1945. Oat production in 1946 was estimated at 1,509,867,000 bu. compared with 1,535,676,000 bu. in 1945 and the average of 1,129,441,000 bu., 1935-44. The acreage was 3.6% more than 1945 at 43,648,000 ac. compared with an average of 36,711,000 ac., 1935-44. The yield in 1946 was 34.6 bu. per acre compared with 36.6 bu. in 1945 and the average of 30.7 bu., 1935-44.

U.S. Oats Production, 1946 and 1945

		(In bushels)			
State	1946	1945	State	1946	1945
Iowa	220,476,000	204,936,000	Tennessee	6,492,000	6,370,000
Minnesota	192,168,000	242,640,000	Washington	6,144,000	6,450,000
Illinois	168,693,000	155,112,000	California	5,700,000	5,115,000
Wisconsin	124,758,000	152,337,000	Colorado	5,610,000	7,700,000
South Dakota	100,398,000	143,377,000	Alabama	5,537,000	6,526,000
Michigan	71,890,000	60,200,000	Wyoming	4,514,000	4,920,000
Nebraska	71,708,000	76,828,000	Virginia	4,260,000	3,976,000
North Dakota	62,764,000	86,222,000	Kentucky	3,213,000	2,200,000
Ohio	62,235,000	49,385,000	Maine	2,840,000	2,627,000
Missouri	60,884,000	28,709,000	Louisiana	2,640,000	3,668,000
Indiana	56,160,000	57,582,000	West Virginia	1,792,000	1,908,000
Kansas	40,556,000	16,940,000	Utah	1,763,000	2,000,000
Texas	36,366,000	41,332,000	Vermont	1,530,000	1,408,000
New York	32,360,000	19,227,000	New Jersey	1,440,000	1,092,000
Pennsylvania	30,033,000	24,583,000	Maryland	1,254,000	1,110,000
Oklahoma	24,780,000	20,976,000	New Mexico	900,000	946,000
South Carolina	20,097,000	18,921,000	Florida	720,000	900,000
Georgia	16,404,000	17,722,000	Arizona	336,000	372,000
North Carolina	12,870,000	10,312,000	Nevada	308,000	351,000
Mississippi	11,160,000	14,880,000	Massachusetts	259,000	196,000
Montana	10,509,000	9,667,000	New Hampshire	259,000	272,000
Oregon	9,782,000	8,054,000	Connecticut	252,000	180,000
Arkansas	7,650,000	8,208,000	Delaware	155,000	155,000
Idaho	7,216,000	7,353,000	Rhode Island	32,000	31,000

Yields were unusually high in the east north central states, Michigan harvesting 45 bu. per acre, Illinois 43 bu., Wisconsin 44 bu. and Iowa 39 bu. New York had an unusual yield of 40 bu. per acre and Washington made the record of 50 bu. in the west.

The price of oats to farmers was about 70 cents per bushel through 1945 advancing slowly in 1946 to 85 cents in July and then declining to about 80 cents in October to the end of the year. Stocks of oats on Oct. 1 were below those of 1945 but 27% more than average. The use of oats was high because of the scarcity of corn and other feeds.

(J. C. Ms.)

Obituaries. The following is a list of men and women who died during 1946. An asterisk (*) marks those for whom biographical notices are to be found in regular alphabetical position.

Name	Birth date	Death date
ABBOTT, CLINTON GILBERT, U.S. ornithologist	Apr. 17, 1881	Mar. 5, 1879?
ADAM, LAJOS, Hungarian surgeon, educator		Nov. 7, 1879?
ADAMS, JOSEPH QUINCY, U.S. Shakespearean scholar	Mar. 23, 1881	Nov. 10, 1879?
ADLER, ELKAN NATHAN, British international lawyer, historian	July 24, 1861	Sept. 15, 1868
ADSHHEAD, STANLEY DAVENPORT, British town planner, educator		Apr. 12, 1868
AIKEN, ALFRED LAWRENCE, U.S. insurance executive	July 6, 1870	Dec. 13, 1857?
ALBERT, ERNEST, U.S. landscape painter		Mar. 25, 1857?
*ALEKHINE, ALEXANDER, French chess champion	Nov. 1, 1892	Mar. 24, 1884
ALEXANDROV, ALEXANDER VASSILIEVICH, Russian composer		July 8, 1884
ALLEMAN, GELLERT, U.S. chemist	July 23, 1871	Sept. 6, 1874?
ALLEN, CROMBIE, U.S. newspaperman		Mar. 1, 1874?
*ALLEN, SIR HUGH PERCY, British musician	Dec. 23, 1869	Feb. 20, 1890
*ANANDA MAHIDOL, king of Siam	Sept. 20, 1925	June 9, 1890
ANDERSSON, GUNNAR ALBIN, Swedish labour leader		Oct. 19, 1870
ANDRADE, ANTONIO CARLOS RIBEIRO DE, Brazilian statesman		Jan. 2, 1870
ANDREWS, CHARLES OSCAR, U.S. politician		Sept. 18, 1877?
ANGIER, ROSWELL PARKER, U.S. psychologist	Oct. 21, 1874	June 24, 1883?
ANGLESEY, MARCHIONESS OF (MARJORIE MANNERS), British peeress		Nov. 3, 1883?
*ANTONESCU, ION, Rumanian soldier, statesman	June 2, 1882	Jan. 1, 1889?
APPELIUS, MARIO, Italian journalist		Dec. 28, 1889?
ARGÜEDAS, ALCIDES, Bolivian diplomat, writer	July 15, 1879	May 6, 1879

Name	Birth date	Death date
*ARLISS, GEORGE, British actor	Apr. 10, 1868	Feb. 5, 1868?
AROSEMENA, CARLOS CONSTANTINO, Panamanian patriot		July 11, 1868?
ARTHUR, SIR GEORGE ICOMPTON ARCHIBALD, British biographer	Apr. 30, 1860	Jan. 14, 1879
AYRES, LEONARD PORTER, U.S. economist	Sept. 15, 1879	Oct. 29, 1879
*BAGLEY, WILLIAM CHANDLER, U.S. educator, editor	Mar. 15, 1874	July 1, 1870
BAIKOV, ALEXANDER A., Russian metallurgist		Apr. 7, 1870
BAILEY, CHARLES JUSTIN, U.S. army officer	June 21, 1859	Sept. 21, 1859
BAILEY, SIR JOHN MUNIR, son South African mining millionaire	June 15, 1900	Feb. 13, 1873
BAILEY, JOSIAH WILLIAM, U.S. politician	Sept. 14, 1873	Dec. 15, 1873
BAILEY, THOMAS L., U.S. politician	Jan. 6, 1888	Nov. 2, 1888
*BAIRD, JOHN LOGIE, British inventor	Aug. 13, 1888	June 14, 1888
BAIRD, SIR WILLIAM, British surveyor	Apr. 10, 1881	Dec. 29, 1881
*BAKER, RAY STANNARD ("DAVID GRAYSON"), U.S. author and journalist	Apr. 17, 1870	July 12, 1870
BAKER, STEPHEN, U.S. banker	Aug. 12, 1859	Dec. 31, 1859
BAKH, ALEXI NIKOLAYEVICH, soviet biochemist		May 13, 1856?
BALDWIN, LEWIS WARRINGTON, U.S. railroad executive	Feb. 26, 1875	May 14, 1875
BANKES, SIR JOHN ELDON, British jurist	Apr. 17, 1854	Dec. 31, 1854
*BANKHEAD, JOHN HOLLIS, Jr., U.S. politician	July 8, 1872	June 12, 1872
*BANNERMAN, HELEN, British author		Oct. 13, 1872
BANTA, ARTHUR MANGUN, U.S. zoologist	Dec. 31, 1877	Jan. 2, 1877
*BANTOCK, SIR GRANVILLE, British composer	Aug. 7, 1868	Oct. 16, 1868
BARBOUR, THOMAS, U.S. naturalist	Aug. 19, 1884	Jan. 8, 1884
BARRY, JEREMIAH HAYES, Canadian jurist	May 21, 1858	Mar. 23, 1858
BARRY, WILLIAM BERNARD, U.S. politician		Oct. 20, 1902
*BARTLETT, ROBERT ABRAM, U.S. explorer	Aug. 15, 1875	Apr. 28, 1875
BARTON, JOHN, U.S. actor		Dec. 23, 1877
BARTON, SIR SIDNEY, British diplomat	Nov. 26, 1876	Jan. 20, 1876
BATEMAN, HARRY, British mathematician	May 29, 1882	Jan. 21, 1882
BATES, SIR PERCY ELLY, British shipping magnate	May 12, 1879	Oct. 16, 1879
BATH, THOMAS HENRY THYNNE, 5TH MARQUESS OF, British M.P.	July 16, 1862	June 9, 1862
BEARD, MARY, U.S. nurse	Nov. 14, 1876	Dec. 4, 1876
BEATTIE, SIR JOHNNI CARRUTHERS, British scientist	Nov. 21, 1866	Sept. 10, 1866
BECKWITH, THEODORE DAY, U.S. bacteriologist	Dec. 8, 1879	July 18, 1879
*BEERY, NOAH, Sr., U.S. actor	Jan. 17, 1884	Apr. 1, 1884
BELL, JAMES CARLETON, U.S. psychologist	Dec. 11, 1872	Feb. 27, 1872
BELL, WILLIAM HENRY, British composer, conductor	Aug. 20, 1873	Apr. 2, 1873
BELLANCA, DOROTHY J., U.S. labour leader		1894?
BENTON, ELBERT JAY, U.S. educator	Mar. 23, 1871	Mar. 28, 1871
BERGSTROM, FRANCIS WILLIAM, U.S. chemist	Jan. 10, 1897	Mar. 29, 1897
BERL, ERNST, U.S. chemist	July 7, 1877	Feb. 16, 1877
BERMAN, LOUIS, U.S. endocrinologist	Mar. 15, 1893	May 16, 1893
BERTHAUME, EUGENE, Canadian publisher		1881?
BETTS, EDWARD C., U.S. army officer	June 9, 1890	May 6, 1890
BINDLOSS, HAROLD, British novelist		1866
BINGLEY, BLANCHE (MRS. GEORGE HILYARD), British tennis star		1863?
BIRMINGHAM, THOMAS LEIGHTON WILLIAMS, ARCHBISHOP OF, British clergyman	Mar. 20, 1877	Apr. 1, 1877
BJORKMAN, OLAF, U.S. sculptor	July 15, 1886	Feb. 24, 1886
BLAISDELL, FRANK ELLSWORTH, U.S. biologist	Mar. 13, 1862	July 6, 1862
BLISS, COLLINS PECHIN, U.S. educator	Apr. 28, 1866	Dec. 27, 1866
BLOMBERG, WERNER VON, German army officer	Sept. 2, 1878	Mar. 13, 1878
BOARDMAN, MABEL THORP, U.S. welfare worker		1860?
*BOETTO, PIETRO, CARDINAL, Italian prelate	May 19, 1871	Jan. 31, 1871
BOELI, ERNESTO, Italian composer		1856?
*BOGOMOLETS, ALEXANDER ALEXANDROVITCH, Russian biologist		1881
BOISEVAIN, CHARLES HERCULES, U.S. physician	Oct. 18, 1893	Oct. 18, 1893
BOND, CARRIE JACOBS, U.S. composer	Aug. 11, 1862	Dec. 28, 1862
BONTE, GEORGE WILLARD, U.S. designer, author	May 16, 1873	Mar. 13, 1873
*BOWES, EDWARD, U.S. radio showman	June 14, 1874	June 13, 1874
BOYD, ERNEST, U.S. author	June 28, 1887	Dec. 30, 1887
*BOYNTON, PERCY HOLMES, U.S. educator	Oct. 30, 1875	July 8, 1875
BRADLEY, EDWARD RILEY, U.S. turfman		1859?
*BRAGDON, CLAUDE, U.S. architect	Aug. 1, 1866	Sept. 17, 1866
BRAY, WILLIAM CROWELL, U.S. chemist	Sept. 2, 1879	Feb. 24, 1879
BREDIUS, ABRAHAM, Netherlands art historian		1355?
BREWSTER, ELSHA HUME, U.S. jurist	Sept. 10, 1871	Apr. 29, 1871
BRISTOL, EDWARD NEWELL, U.S. publisher	Apr. 22, 1860	Mar. 2, 1860
BRITTEN, FRED ALBERT, U.S. congressman	Nov. 18, 1871	May 4, 1871
BROOKE, C. F. TUCKER, U.S. educator		1883?
BROOKE, ZACHARY NUGENT, British educator	Feb. 1, 1883	Oct. 7, 1883
BROOKS, ALLAN, Canadian bird illustrator		1869
BROWN, LADY (RICMONDI) LILIAN, British explorer		1883?
BROWN, ROSCOE CONKLING ENSIGN, U.S. journalist	Aug. 23, 1867	Dec. 13, 1867
BROWNE, GEORGE ELMER, U.S. artist	May 6, 1871	July 13, 1871
BROWNIGG, SIR W. DOUGLAS S., British army officer	Apr. 21, 1886	Feb. 7, 1886
BRUCE, JAMES DEACON, U.S. physician	Oct. 4, 1872	Sept. 5, 1872
*BRUCE, WILLIAM CABELL, U.S. senator and author	Mar. 12, 1860	May 9, 1860
BUCKLAND, WILLIAM WARWICK, British educator		1859
BUQUET, HAROLD SPENCER, U.S. film director	Apr. 10, 1891	Feb. 13, 1891
BUDD, EDWARD GOWEN, U.S. industrialist	Dec. 28, 1870	Nov. 30, 1870
*BUELL, RAYMOND LESUE, U.S. editor, writer, educator	July 13, 1896	Feb. 20, 1896
BURDENKO, NIKOLAI H. C., Russian surgeon		1878
BURDICK, WILLIAM LIVESY, U.S. educator	Mar. 22, 1860	June 11, 1860
BURGIN, WILLIAM OLIN, U.S. politician		1878?
BURKHART, HARVEY J., U.S. dentist		1861?
RUKNETT, CHARLES THEODORE, U.S. psychologist, educator	June 24, 1873	Jan. 31, 1873
BUSCH, ADOLPHUS 3RD, U.S. industrialist		1891?
BUSCH, MAE, U.S. actress		1901?
BUTLER, MARY, U.S. artist		1864?
BUTTERWORTH, CHARLES EDWARD, U.S. actor		1897
*CACCIA DOMINIONI, CAMILLO, CARDINAL, Italian prelate		1877
CADMAN, CHARLES WAKEFIELD, U.S. composer	Dec. 24, 1881	Dec. 30, 1881
CADMAN, PAUL FLETCHER, U.S. economist	Nov. 4, 1889	Nov. 11, 1889
CALENDER, SIR GEOFFREY ARTHUR ROMANIE, British naval historian		1875
CAIZA, GUIDO, Italian archaeologist	Apr. 21, 1888	Nov. 6, 1888
CAMPBELL, COLIN CLYDE, Canadian editor		1861?
CARCANO, RAMÓN JOSÉ, Argentine statesman	Apr. 12, 1860	June 2, 1860
CARNEGIE, LOUISE WHITFIELD (MRS. ANDREW), U.S. philanthropist		1857
CARPENTER, CLARENCE WILLARD, U.S. pathologist	Mar. 7, 1857	June 24, 1857
CARR, ALEXANDER, U.S. actor	Sept. 23, 1888	Feb. 21, 1888
*CARTIER DE MARCHIENNE, BARON EMILE DE, Belgian diplomat	Mar. 7, 1878	Sept. 19, 1878
CARTOTTO, ERCOLE, U.S. artist	Nov. 30, 1871	May 10, 1871
CASO, ANTONIO, Mexican lawyer, educator, writer	Jan. 26, 1889	Oct. 3, 1889
CASNER, JOSEPH COMPTON, U.S. army officer	Dec. 19, 1883	Mar. 6, 1883
CATTIER, FELICIEN, Belgian banker, educator	Nov. 18, 1869	July 8, 1869
*CAVAN, FREDERIC RUDOLPH LAMBERT, 10TH EARL OF, British army officer	Mar. 5, 1869	Feb. 4, 1869
CAVENDISH, R. HON. LORD RICHARD (FREDERICK), British M.P.	Oct. 16, 1865	Aug. 28, 1865
CHAILLAUX, HOMER L., U.S. American Legion Americanism director	Jan. 31, 1871	Jan. 7, 1871
	1897?	Feb. 18, 1897?

Name	Birth date	Death date	Name	Birth date	Death date
CHALMERS, PHILIP OWEN, U.S. diplomat	June 22, 1899	Feb. 15	GREGG, JAMES EDGAR, U.S. clergyman, educator	Nov. 24, 1875	Feb. 23
CHAPAIS, SIR JOSEPH AMABLE THOMAS, Canadian statesman	Mar. 23, 1858	July 15	*GREISER, ARTHUR, German politician	1897	July 21
CHEATHAM, KITTY (CATHARINE SMILEY BUGGE), U.S. singer	1864?	Jan. 5	GRIFITH-BOSCAWEN, SIR ARTHUR SACKVILLE TREVOR, British statesman	Oct. 18, 1865	June 1
CHILDS, SIR IBORLASE ELWARDI WYNDHAM, British army officer	Dec. 15, 1876	Nov. 27	GRISWOLD, GRACE HALL, U.S. entomologist	Dec. 14, 1872	Jan. 22
*CLAPHAM, SIR JOHN H., British historian	1873	Mar. 29	GROVES, ERNEST RUTHERFORD, U.S. educator, sociologist	May 6, 1887	Aug. 28
CLEMENT, LEWIS H., U.S. composer, conductor	1864?	Mar. 28	GUERIN, JULES, U.S. artist	1866	June 13
COLTON, JOHN, U.S. playwright	1886?	Dec. 28	GUILD, COURTENAY, U.S. editor, publisher	Dec. 6, 1863	Apr. 24
COLWYN, FREDERICK HENRY SMITH, 1ST BARON, British industrialist, politician	Jan. 24, 1859	Jan. 26	*HACKZEL, ANDERS WERNER ANTTI, Finnish diplomat	1881	Jan. 15
CONTI, ITALIA, British actress, teacher	1872?	Feb. 8	HAGERMAN, AUGUSTA, U.S. author	1870?	May 19
COOKE, HERWARD LESTER, U.S. educator	Mar. 26, 1879	Sept. 30	HAGERTY, JAMES EDWARD, U.S. educator	1869?	Nov. 10
*COWLES, GARDNER, U.S. publisher	Feb. 28, 1861	Feb. 28	HAMILTON, CLAYTON (MEEKER), U.S. author	Nov. 14, 1881	Sept. 17
COWLES, WILLIAM HUTCHINSON, U.S. newspaper publisher	Aug. 14, 1866-	Jan. 15	HAMILTON, GEORGE E., U.S. educator, lawyer	Mar. 5, 1855	May 24
CRAWFORD, PORTER JAMES, U.S. public health administrator	May 29, 1895	Dec. 27	HAMMAN, LOUIS, U.S. physician, educator	Dec. 21, 1877	Apr. 28
CROSS, SAMUEL HAZZARD, U.S. educator	July 1, 1891	Oct. 14	HAMMOND, THOMAS J., U.S. jurist	1877?	July 23
CULLEN, COUNTEE, U.S. Negro poet	May 30, 1903	Jan. 9	*HANSSON, PER ALBIN, Swedish statesman	Oct. 28, 1885	Oct. 5
CUMMINS, ALEXANDER GRISWOLD, U.S. clergyman	Apr. 8, 1869	Sept. 22	HARDY, A.B.C., U.S. industrialist	1869?	Nov. 22
CUNLIFFE, JOHN WILLIAM, U.S. educator, author	Jan. 20, 1865	Mar. 18	HARE, JAMES H., U.S. news photographer	Oct. 3, 1856	June 24
CUNNINGHAM, HARRY, U.S. columnist, cartoonist	July 19, 1865	May 10	HARRIS, WILLIAM, JR., U.S. theatrical producer	July 22, 1884	Sept. 2
CURRIER, THOMAS FRANKLIN, U.S. librarian	Feb. 26, 1873	Sept. 13	*HART, WILLIAM S., U.S. actor	Dec. 6, 1872	June 23
*CUNRY, JOHN STEUART, U.S. artist	Nov. 14, 1897	Aug. 29	HART, ROLLIN LYNDE, U.S. author, editor	1870?	June 17
DADDY, WALTER EDWARD, U.S. surgeon	Apr. 6, 1886	Apr. 19	HATCH, HARRY C., Canadian industrialist, turfman	Apr. 12, 1884	May 8
DAVEY, MARTIN L., U.S. politician	July 25, 1884	Oct. 31	HATCHER, ORIE LATHAM, U.S. educator, author, social worker	?	Apr. 3
DAVIES, DAVID PERCY, British newspaper editor	Oct. 25, 1891	Mar. 15	HATTON, AUGUSTUS RAYMOND RUTAN, U.S. educator	Sept. 27, 1873	Nov. 12
DEALEY, GEORGE BANNERMAN, U.S. publisher	Sept. 18, 1859	Feb. 26	HATTON, FREDERICK, U.S. playwright, drama critic	July 30, 1879	Apr. 13
DECELL, JOHN LLOYD, U.S. clergyman	Aug. 12, 1887	Jan. 18	*HAUPTMANN, GERHART, German author	Nov. 15, 1862	June 8
DE FALLA, MANUEL, Spanish composer	Nov. 23, 1876	Nov. 14	HAUSHOFER, KARL, German geopolitician	Aug. 27, 1869	Mar. 10
DE FOREST, HOWARD, U.S. botanist	Nov. 2, 1877	Apr. 4	HAUSER, GEORGE HAYTER CHUBB, 1ST BARON, British industrialist	Aug. 29, 1848	Nov. 2
DE LABILLIERE, PAUL FULCRAND DELACOUR, British clergyman	1879	Apr. 28	HEADLEE, THOMAS J., U.S. entomologist	Feb. 13, 1877	June 14
DELANO, EDITH BARNARD, U.S. author	1875?	Sept. 8	HEAGERTY, JOHN JOSEPH, Canadian government official	Dec. 26, 1879	Feb. 7
DE LA ROCQUE, FRANCOIS, French politician	1885?	Apr. 28	HEALY, ROBERT E., U.S. jurist	Mar. 25, 1883	Nov. 17
DESAI, BHULABHAI JIVANJI, Indian politician and lawyer	1877	May 5	HEATH, SIR (HENRY) FRANK, British educator	Dec. 11, 1863	Oct. 5
DESPAU, CHARLES, French sculptor	1874?	Oct. ?	HENRY, MELLINGER EDWARD, U.S. educator, song collector	1873?	Jan. 31
DEWART, WILLIAM THOMPSON, JR., U.S. newspaper publisher	1909?	Jan. 3	HERMAN, RAPHAEL, U.S. manufacturer, peace prize donor	Dec. 15, 1865	Apr. 7
DIXON, MAYNARD, U.S. artist	Jan. 24, 1875	Nov. 14	*HERTZ, JOSEPH HERMAN, British rabbi	Sept. 25, 1872	Jan. 14
*DIXON, THOMAS, U.S. author	Jan. 11, 1864	Apr. 3	HERTZLER, ARTHUR EMANUEL, U.S. surgeon	July 26, 1870	Sept. 12
DONAHUE, VICTOR, U.S. politician	July 7, 1873	Apr. 8	HEWETT, EDGAR LEE, U.S. archaeologist	Nov. 23, 1865	Dec. 31
DONALD, WILLIAM HENRY, Australian politician and journalist	1875?	Nov. 9	HILL, GEORGE WASHINGTON, U.S. business executive	Oct. 22, 1884	Sept. 13
DOVE, ALBERT G., U.S. painter	1880?	Nov. 23	HILL, LUTHER LEONIDAS, U.S. surgeon	Jan. 22, 1862	Apr. 4
DREXEL, ANTHONY JOSEPH, U.S. banker, sportsman	Oct. 19, 1887	Feb. 23	HILL, PATTY SMITH, U.S. educator	Mar. 27, 1868	May 25
DRUMMOND-HAY, LADY GRACE MARGUERITE HAY, British journalist, aviatrix	1895?	Feb. 12	*HILLMAN, SIDNEY, U.S. labour leader	Mar. 23, 1887	July 10
DUBOIS, LOUIS, French government official	1859?	Jan. 25	HILZ, MARYSE, French aviatrix	1902?	Jan. 31
DUKE, WILLIAM WADDELL, U.S. physician	Oct. 18, 1882	Jan. 10	HITCHCOCK, CURTICE, U.S. publisher	Mar. 4, 1892	May 3
*DUNHILL, THOMAS FREDERICK, British composer	Feb. 1, 1877	Mar. 13	HOETZSCH, OTTO, German historian	Feb. 14, 1876	Aug. 27
DUNN, FANNIE WYCHE, U.S. educator	Jan. 17, 1879	Jan. 17	HOFFMAN, FREDERICK LUDWIG, U.S. statistician	May 2, 1865	Feb. 23
DURELL, FLETCHER, U.S. educator	Dec. 17, 1859	Mar. 25	HOHLER, SIR THOMAS BEAUMONT, British diplomat	Mar. 15, 1871	Apr. 23
DWIGHT, ARTHUR SMITH, U.S. mining and metallurgical engineer	Mar. 18, 1864	Apr. 1	HOLBROOK, SIR ARTHUR (RICHARD), British publisher	Apr. 28, 1850	Dec. 24
DWYER, WILLIAM V., U.S. sports promoter	1883?	Dec. 10	HOLLIS, ROY C., U.S. newspaper executive	1890?	Aug. 29
EAGLETON, WELLS PHILLIPS, U.S. surgeon	Sept. 18, 1865	Sept. 11	*HOMMA, MASAHARU, Japanese army officer	1888?	Apr. 3
EBY, KERR, U.S. artist	Oct. 19, 1889	Nov. 18	*HOPKINS, HARRY LLOYD, U.S. politician	Aug. 17, 1890	Jan. 29
EDDY, THOMAS STEWART, U.S. clergyman	1878?	June 1	HOPPIN, FREDERICK STREET, U.S. writer, publisher	1875?	Feb. 12
EDGEIT, EDWIN FRANCIS, U.S. journalist, author	Jan. 2, 1867	Mar. 12	HORMEL, GEORGE ALBERT, U.S. industrialist	Dec. 4, 1860	June 5
EDWARDS, ARTHUR TUDOR, British surgeon	1890?	Aug. 25	HORSLEY, JOHN SHELTON, U.S. surgeon	Nov. 24, 1870	Apr. 7
ELIOT, PHILIP HERBERT, British clergyman	1862	Apr. 1	HOWARD, SYDNEY, British comedian	Aug. 7, 1885	June 12
ELLEHAMMER, JACOB C. H., Danish aviation pioneer	1871?	May 20	HOWE, HARLAND BRADLEY, U.S. jurist	Feb. 19, 1873	Apr. 22
ELY, FREDERICK BURCHARD, U.S. geologist	1879?	Mar. 28	HOWLAND, CHARLES ROSCOE, U.S. army officer	Feb. 16, 1871	Sept. 21
EPFINGER, HANS, Austrian surgeon	Dec. 26, 1880	Sept. 25	HURLEY, CHARLES FRANCIS, U.S. politician	Nov. 24, 1893	Mar. 24
ESENWEIN, JOSEPH BERG, U.S. editor	May 15, 1867	Nov. 1	HUTCHISON, GRAHAM SETON, British soldier, novelist	Jan. 20, 1890	Apr. 3
ESSER, JOHANNES FREDERICUS SAMUEL, Netherlands plastic surgeon	1878?	Aug. 9	HUTCHISON, SIR JAMES, New Zealand editor, journalist	1867	June 12
EULOGIUS, METROPOLITAN, Archbishop of Russian Orthodox Church in Paris	Apr. 10, 1868	Aug. 8	IGLEHART, DAVID STEWART, U.S. shipping executive	Sept. 4, 1873	May 14
EUSTIS, DOROTHY HARRISON, U.S. humanitarian	May 30, 1886	Sept. 8	IMBS, BRAVIG, U.S. newspaperman	?	May 30
FABER, EBERHARD, U.S. pencil manufacturer	Mar. 14, 1859	May 16	IMREY, BELA, Hungarian politician	1891	Feb. 28
FAIK, MAURICE, U.S. industrialist, philanthropist	Dec. 15, 1866	Mar. 18	INGERSOLL, ERNEST, U.S. naturalist, author	Mar. 13, 1852	Nov. 13
FERGUSON, GEORGE HOWARD, Canadian politician	June 18, 1870	Feb. 21	INGERSOLL, WILLIAM HARRISON, U.S. industrialist	Mar. 22, 1880	Aug. 23
FERRISS, EMERY NELSON, U.S. educator	July 17, 1882	Jan. 8	INGLIS, JOHN J., Irish artist	1867?	Sept. 2
*FIELDS, W. C. (CLAUDE WILLIAM DUKENFIELD), U.S. comedian	Jan. 29, 1880	Dec. 25	*INGRAM, ARTHUR FOLEY WINNINGTON, British prelate	Jan. 26, 1858	May 26
FISHMAN, JACOB, U.S. editor	Apr. 10, 1878	Dec. 21	JACKSON, JOSEPH FRANCIS AMBROSE, U.S. writer, historian	May 20, 1867	Mar. 4
FISKE, JONATHAN PARKER B., U.S. inventor	1865?	Nov. 15	JAMES, ALEXANDER, U.S. artist	Dec. 22, 1890	Feb. 28
FITCH, EDWARD, U.S. educator	May 27, 1864	Apr. 15	*JEANS, SIR JAMES HOPWOOD, British mathematician	Sept. 11, 1877	Sept. 17
FITZGERALD II, JOHN DRISCOLL, U.S. educator	May 2, 1873	June 8	JEFFRIES, MAUD, U.S. actress	Dec. 14, 1869	Sept. 26
FLEISHER, BENJAMIN WILFRID, U.S. editor	Jan. 6, 1870	Apr. 29	JENKINS, ARTHUR, British M.P.	1891?	Apr. 25
FLEXNER, SIMON, U.S. pathologist	Mar. 25, 1863	May 2	JENKINS, WALTER F., U.S. Salvation Army officer	1862?	Feb. 13
FOLEY, JAMES A., U.S. jurist	1882	Feb. 11	*JODL, ALFRED, German army officer	1892?	Oct. 16
FONTENAY, VISCOMTE JACQUES DE, French diplomat	Mar. 14, 1864	Mar. 27	JOHNSON, HELEN LOSSING, U.S. writer, artist	1865	Jan. 4
FORD, SEWELL, U.S. author	Mar. 7, 1868	Oct. 26	JOHNSON, HERBERT, U.S. cartoonist	Oct. 30, 1878	Dec. 4
FOSTER, WILLIAM GARNETT, U.S. editor	Nov. 11, 1884	Sept. 26	JOHNSON, ("JACK") JOHN ARTHUR, U.S. boxer	Mar. 31, 1878	June 10
FOUCHARDIER, GEORGES DE LA, French columnist, humorist	?	Feb. 11	JOHNSON, OSCAR JOHN, U.S. educator, clergyman	Oct. 8, 1870	Mar. 9
FOUST, JULIUS ISAAC, U.S. educator	Nov. 23, 1865	Feb. 15	*JOHNSON, WALTER, U.S. athlete	Nov. 6, 1887	Dec. 10
*FRANK, HANS, German jurist, politician	May 3, 1900	Oct. 16	JOHNSTON, WILLIAM M. ("LITTLE BILL"), U.S. tennis champion	1895?	May 1
*FRANK, KARL HERMANN, German politician	1898	May 22	JONES, EUGENE, U.S. astronomer	1863?	Sept. 30
FREUND, ERNST, Austrian physician	Dec. 15, 1863	June 2	*JONES, GEORGE CLARENCE, Canadian naval officer	Oct. 24, 1895	Feb. 8
*FRICK, WILHELM, German politician	Mar. 12, 1877	Oct. 16	JOYCE, WILLIAM (LORD HAW HAW), British fascist	Apr. 24, 1906	Jan. 3
FRY, JOHN HEMMING, U.S. artist	July 7, 1860	Feb. 24	JUDD, CHARLES HUBBARD, U.S. educator	Feb. 20, 1873	July 18
GAFFEY, HUGH J., U.S. army officer	Nov. 18, 1895	June 16	KAGGY, RUDOLF, U.S. educator, author	1905?	May 13
GAG, WANDA, U.S. illustrator, author	Mar. 11, 1893	June 27	*KALININ, MIKHAIL IVANOVICH, Russian statesman	Nov. 20, 1875	June 3
*GALEN, CLEMENT AUGUST CARDINAL, COUNT VON, German Catholic prelate	Mar. 16, 1878	Mar. 22	*KALTENBRUNNER, ERNST, Austrian politician	1901	Oct. 16
GARDINER, ALFRED GEORGE, British author, editor	1865	Mar. 3	KEANE, RICHARD VALENTINE, Australian politician	1880?	Apr. 26
GARDINER, JOHN STANLEY, British zoologist	Jan. 24, 1872	Feb. 27	*KEITEL, WILHELM, German army officer	Sept. 22, 1882	Oct. 16
GARSIDE, ALSTON H., U.S. cotton economist	1886?	Apr. 25	KEMP, JAN CHRISTOFFEL GREYLING, South African army officer, politician	1872?	Dec. 31
*GASPARRI, ENRICO, CARDINAL, Italian prelate	July 25, 1871	May 20	KEMP, WILLIAM WEBB, U.S. educator	Feb. 6, 1873	May 14
GATES, CALEB FRANK, U.S. educator	Oct. 18, 1857	Apr. 9	*KEYNES, JOHN MAYNARD KEYNES, 1ST BARON, OF TILTON, British economist	June 5, 1883	Apr. 21
GAUMONT, LEON ERNEST, French film producer	May 10, 1864	Aug. 11	*KEYSERLING, HERMANN, COUNT, German philosopher	July 20, 1880	Apr. 26
GAY, CHARLES RICHARD, U.S. financier	Sept. 14, 1875	Mar. 23	KING, LORENZO H., U.S. clergyman	Jan. 2, 1878	Dec. 17
GAY, EDWIN FRANCIS, U.S. economist	Oct. 27, 1867	Feb. 8	KINGSBURY, EDWARD MARTIN, U.S. newspaperman	July 16, 1854	Jan. 23
GILLANDERS, JOHN GORDON, Canadian jurist	Aug. 26, 1895	May 15	KNOWLES, WILLIAM F., U.S. agricultural economist	1888?	Mar. 16
GINISTY, CHARLES, French clergyman	1864?	Jan. ?	KOBRIN, LEON, U.S. dramatist	Mar. 15, 1873	Mar. 31
*GIASS, CARTER, U.S. politician	Jan. 4, 1858	May 28	KOCH, EDWARD WILLIAM, U.S. educator	Jan. 8, 1882	Feb. 9
GIENN, THOMAS KEARNEY, U.S. banker	Jan. 21, 1868	Oct. 11	KREINHEDER, OSCAR, U.S. educator	1877?	Mar. 26
*GIENNON, JOHN JOSEPH, CARDINAL, U.S. prelate	June 14, 1862	Mar. 9	KREISINGER, HENRY, U.S. fuel engineer	Feb. 17, 1876	May 7
GIUNTENKAMP, HENDRIK, U.S. artist	Sept. 10, 1887	Mar. 19	LABY, THOMAS HOWELL, Australian scientist, educator	1880	June 22
*GOERING, HERMANN WILHELM, German politician	Jan. 12, 1893	Oct. 15	LANCHESTER, FREDERICK WILLIAM, British engineer	Oct. 23, 1868	Mar. 8
GOLDTHWAITE, NELLIE ESTHER, U.S. chemist	Feb. 4, 1863	Nov. 25	LANDMAN, ISAAC, U.S. rabbi, editor	Oct. 24, 1880	Sept. 3
GORDON, PEYTON, U.S. jurist	Apr. 30, 1870	Sept. 17	LANGDON-BROWN, SIR WALTER, British physician, educator	Aug. 13, 1870	Oct. 3
*GORT, JOHN STANDISH SURTEES PRENDERGAST VEREKER, 6TH VISCOUNT, British army officer	July 1886	Mar. 31	LANGVIN, PAUL, French physicist	1872	Dec. 19
GOULD, ARTHUR ROBINSON, U.S. industrialist	Mar. 16, 1857	July 24	LAREDO BRU, FEDERICO, Cuban statesman	Apr. 23, 1875	July 7
*GOURAUD, HENRI JOSEPH ETIENNE, French army officer	Nov. 17, 1867	Sept. 16	LARGO CABALLERO, FRANCISCO, Spanish politician	1869	Mar. 23
*GRANVILLE-BARKER, HARLEY GRANVILLE, British dramatist	Nov. 25, 1877	Aug. 31	LAUGHIN, GEORGE MC CULLY, JR., U.S. steel executive	Feb. 25, 1873	Mar. 9
GRAY, JOHN HENRY, U.S. economist	Mar. 11, 1859	Apr. 4	LAZZERI, ANTHONY MICHAEL ("TONY"), U.S. baseball player	Dec. 6, 1903	Aug. 7
GRAYSON, NEIKIRK KEFAUVER, U.S. educator	Aug. 31, 1900	Jan. 4	LEDBETTER, SAMUEL LABAN, U.S. surgeon	Feb. 26, 1886	Mar. 10
			LEGGETT, OLIVER ELLES, British naval officer	1876	Mar. 18
			LEIGH, RICHARD HENRY, U.S. naval officer	Aug. 12, 1870	Feb. 4
			LEWIS, ETHELREDA, British author	?	Aug. 1
			LEWIS, GILBERT NEWTON, U.S. scientist	Oct. 23, 1875	Mar. 23

Name	Birth date	Death date	Name	Birth date	Death date
LEWISOHN, MRS. LUDWIG (BOSWORTH CROCKER), U.S. author	?	Apr. 8	POWELL, LYMAN PIERSON, U.S. author, editor	Sept. 21, 1866	Feb. 10
LIBMAN, EMANUEL, U.S. physician	1872	June 28	POWER-O'MALLEY, MICHAEL AUGUSTIN, Irish landscape painter	1878?	July 3
LIEBERT, ARTHUR, German philosopher	1878	Nov. ?	PRESTES DE ALBUQUERQUE, JULIO, Brazilian lawyer, politician	Mar. 15, 1882	Feb. 9
LIGGETT, LOUIS KROH, U.S. business executive	Apr. 4, 1875	June 5	PRETTYMAN, CORNELIUS WILLIAM, U.S. educator	July 21, 1872	Aug. 9
LIEH-CHUN, Chinese army officer, politician	1880?	Feb. 20	PRIETO, JENARO, Chilean writer	1888?	Mar. 5
LITTLE, RICHARD HENRY, U.S. columnist, newspaper correspondent	1869?	Apr. 27	QUEEN, JOHN, Canadian labour leader	Feb. 11, 1882	July 14
LOCKER-LAMPSON, GODFREY, British diplomat, M.P.	June 19, 1875	May 1	RAGLAND, ("RAGS") JOHN MORGAN LEE, U.S. comedian	1905?	Aug. 20
*LORENZ, ADOLF, Austrian surgeon	Apr. 21, 1854	Feb. 12	*RAIMU, JULES, French actor	1883?	Sept. 20
LOW, MARY FAIRCHILD, U.S. artist	Apr. 5, 1858	May 23	RANKIN, SIR GEORGE CLAUDE, British jurist	Aug. 12, 1877	Apr. 8
OWE, WILLIAM BAIRD, U.S. newspaper executive	Jan. 27, 1871	Aug. 3	RATHBONE, ELEANOR FLORENCE, British politician	1872?	Jan. 2
LUCE, ROBERT, U.S. politician	Dec. 2, 1862	Apr. 7	REIGART, JOHN FRANKLIN, U.S. educator, civic leader	1863?	Apr. 22
LYON, THOMAS STEWART, British editor, utilities executive	Sept. 22, 1866	June 1	RENOULT, RENÉ, French politician	1867	Apr. 27
MC CLUNG, CLARENCE ERWIN, U.S. zoologist	Apr. 5, 1870	Jan. 17	REQUENA, RAFAEL, Venezuelan archaeologist, anthropologist, physician	Oct. 24, 1879	Apr. 20
MC GILL, JOHN THOMAS, U.S. chemist	Oct. 13, 1851	Apr. 11	RHYS, ERNEST, British author, editor	July 17, 1859	May 25
MC GOVERN, FRANCIS EDWARD, U.S. politician	Jan. 21, 1866	May 17	*RIBBENTROP, JOACHIM VON, German statesman	Apr. 30, 1893	Oct. 16
MAC KINNON, SIR FRANK DOUGLAS, British lord justice	Aug. 8, 1868	Mar. 5	RICHARDS, ALFRED ERNEST, U.S. educator	Mar. 11, 1874	Sept. 25
MC LEOD, JOHN ANDREW, Canadian banker	May 26, 1874	May 4	RICHARDSON, HENRY HANDEL (HENRIETTA ROBERTSON), British novelist	?	Mar. 20
MC NAIR, JAMES DUNCAN, U.S. clergyman	Nov. 17, 1874	June 26	RICHMOND, ADMIRAL SIR HERBERT, British naval historian	Sept. 15, 1871	Dec. 15
MC RAE, ALEXANDER DUNCAN, Canadian businessman, politician	Feb. 3, 1862	Aug. 24	RIEDEL, KARL HEINRICH, U.S. conductor	Aug. 4, 1866	Feb. 2
*MC REYNOLDS, JAMES CLARK, U.S. jurist	Oct. 10, 1907	Jan. 20	RILEY, BEN, British M.P., labour leader	Nov. 15, 1876	Jan. 28
MACE, HAROLD L., U.S. army air force officer	1857	Jan. 24	RINTLEN, ANTON VON, Austrian jurist and politician	Nov. 10, 1888	June 27
MACHRAY, ROBERT, British journalist, writer	1862?	Apr. 30	RIOS MORALES, JUAN ANTONIO, president of Chile	1866?	Feb. 28
MACLIN, EDWARD HAMILTON, Canadian publisher	Nov. 20, 1903	Mar. 8	ROBINSON, MAURICE HENRY, U.S. economist	1867?	June 18
MACLEAN, BERNICE LOUISE, U.S. zoologist, biologist	?	Oct. 23	RODIER, PAUL, French textile designer	July 4, 1874	June 13
MACURDY, GRACE HARRIET, U.S. educator	Mar. 30, 1870	May 19	ROLIN, HENRI, Belgian jurist	Jan. 1, 1869	Apr. 9
MADDEN, JOHN FITZ, U.S. army officer	Jan. 5, 1873	Jan. 31	ROSENAU, MILTON JOSEPH, U.S. sanitarian, educator	1893	Oct. 16
MAGEE, CARLTON COLE, U.S. newspaperman	July 17, 1886	Feb. 22	*ROSENBERG, ALFRED, German politician	1890	July 21
MAHONEY, MERCHANT MICHAEL, Canadian diplomat	?	Feb. 22	ROSENFIELD, PAUL, U.S. music and art critic	Dec. 18, 1862	Sept. 3
MAKINE, JAMES CARDWELL, Canadian jurist	May 14, 1888	Feb. 8	*ROSENTHAL, MORIZ, Polish pianist	Feb. 28, 1884	Oct. 12
MANDER, LIONEL HENRY MILES, British actor, author	Sept. 14, 1866	Feb. 12	ROSS, CARMON, U.S. educator	1880?	Dec. 25
MANNING, ISAAC HALL, U.S. physician, educator	1877?	Feb. 2	ROTHSCHILD, BARON ROBERT DE, French banker	Sept. 17, 1871	Dec. 5
MANSHOUT, THEODOR JOACHIM, Netherlands government official	Aug. 2, 1880	Nov. 17	ROWE, LEO S., U.S. publicist	Oct. 4, 1884	Dec. 10
MANTON, MARTIN THOMAS, U.S. jurist	July 10, 1862	Mar. 3	*RUNYON, (ALFRED) DAMON, U.S. author, journalist	July 2, 1867	Dec. 20
MARBURG, THEODORE, U.S. publicist	1883	Dec. 14	RUSSELL, FRANK RUSSELL, BARON, OF KILLOWEN, British jurist	Dec. 21, 1874	Apr. 17
MARCHBANK, JOHN, British labour leader	Feb. 4, 1897	Dec. 14	SACASA, JUAN BATISTA, Nicaraguan statesman	Aug. 17, 1870	Nov. 15
MARCHAM, SIR HENRY VAUGHAN, British government official	July 29, 1863	Oct. 13	SACHS, JOSEPH, U.S. inventor, engineer	Sept. 27, 1863	Aug. 18
MARKS, JAMES CHRISTOPHER, U.S. organist-composer	Aug. 12, 1872	June 30	SAMPEY, JOHN RICHARD, U.S. theologian	July 29, 1874	June 17
MARSHALL, BENJAMIN TINKHAM, U.S. educator	Feb. 18, 1881	Feb. 22	SANDS, WILLIAM FRANKLIN, U.S. diplomat	Sept. 22, 1869	Apr. 17
MARSHALL, RAY GIFFORD, U.S. newspaperman	Apr. 6, 1867	May 21	SATTERFIELD, DAVE EDWARD, JR., U.S. lawyer, politician	Sept. 11, 1894	Dec. 27
MARSHON, SIR CHARLES, British biblical archaeologist	Sept. 27, 1902	Feb. 7	*SAUCKEL, FRITZ, German politician	Oct. 27, 1894	Oct. 16
MARTIN, ARTHUR T., U.S. educator	1866?	Nov. 30	SAVORIN LOHMAN, BONIFACIUS CHRISTIAAN DE, Netherlands legislator	May 8, 1879	Mar. 18
MARTIN, GEORGE MADDEN (MRS. ATTWOOD R. MARTIN), U.S. author	1864	June 13	SAWYER, PAUL BACKUS, U.S. utilities executive	1891	Apr. 8
MARTIN, LOUIS, French bacteriologist	Jan. 15, 1863	Aug. 5	SAXON, LYLE, U.S. author, historian	Nov. 25, 1864	Nov. 26
*MARX, WILHELM, German statesman	Mar. 5, 1868	June 4	SCHMEDEMAN, ALBERT GEORGE, U.S. politician, diplomat	Aug. 8, 1872	Mar. 27
MATSUI, BARON KEISHIRO, Japanese diplomat	Mar. 3, 1880	June 27	SEARS, AMELIA, U.S. social worker	Jan. 26, 1861	Sept. 20
MATSUOKA, YOSUKE, Japanese statesman	Apr. 10, 1873	May 31	*SEIBERLING, CHARLES WILLARD, U.S. industrialist	Oct. 29, 1888	Sept. 11
MAURICE, ARTHUR BARTLETT, U.S. author	June 22, 1885	July 23	SEIL, GILBERT EDWARD, U.S. chemist	Aug. 14, 1860	Oct. 23
MAXTON, JAMES, British politician	June 3, 1860	Dec. 1	SETON, ERNEST THOMPSON, Canadian author	July 22, 1892	Oct. 16
MAXWELL, GEORGE HEBARD, U.S. lawyer, erosion expert	Jan. 28, 1876	Apr. 15	*SEYSS-INQUART, ARTHUR, Austrian politician	July 27, 1867	June 19
MAXWELL, WILLIAM ROY, Canadian air officer	Jan. 26, 1904	Mar. 9	SHEAFFER, WALTER A., U.S. pen manufacturer	Feb. 26, 1857	Feb. 24
MEADER, FRED MARLIN, U.S. health expert, bacteriologist	Nov. 21, 1883	Mar. 5	SHELDON, CHARLES MONROE, U.S. clergyman, writer	Feb. 4, 1886	Apr. 1
MECHAU, FRANK, JR., U.S. artist	July 14, 1880	Nov. 18	SHELDON, EDWARD BREWSTER, U.S. playwright	Nov. 29, 1867	May 10
MECHAU, GEORGE ZERDIN, U.S. jurist	Feb. 2, 1871	Apr. 12	SHEPHERD, JAMES AFFLECK, British artist, author	June 25, 1877	Sept. 10
*MEEK, DONALD, British character actor	Nov. 2, 1886	Mar. 13	SHREVE, RICHMOND HAROLD, U.S. architect	July 18, 1879	May 24
MEREDITH, ALBERT BARRETT, U.S. educator	1893	July 17	SINCLAIR, JOSEPH H., U.S. geologist	?	Nov. 14
MERIVALE, PHILIP, British actor	1867?	Mar. 10	SINCLAIR, MAY, British novelist	1891?	Dec. 29
*MIKHAILOVICH, DRAJA, Yugoslav army officer	1907?	May 21	SINCLAIR, WILLIAM EWING, U.S. physician	?	Apr. 20
MILES, C. AUSTIN, U.S. composer, author	1881?	Feb. 17	SKEDDINGTON, HANNAH SHEEHY, Irish suffragist	Apr. 11, 1911	Feb. 2
MILLER, NORMAN M. ("BUS"), U.S. naval air hero	1881?	Nov. 24	SKIDMORE, HUBERT STANDISH, U.S. author	Aug. 18, 1873	June 6?
MITCHELL, EARLE, U.S. actor	July 20, 1895	Nov. 24	SLEZAK, LEO, Czechoslovak opera singer	Jan. 21, 1874	Mar. 20
*MOHOLY-NAGY, LASZLO GYORGY, U.S. painter, designer	1878	July 6	SMITH, FREDERICK MADISON, U.S. clergyman	Feb. 13, 1897	Nov. 28
MOORE, TOM, Canadian labour leader	May 19, 1883	June 9	SMITH, JAMES GERALD, U.S. economist	Oct. 18, 1865	Mar. 2
MORGAN, WILLIAM THOMAS, U.S. educator	Apr. 26, 1856	Nov. 25	SMITH, LOGAN PEARSALE, British essayist and critic	July 30, 1879	Feb. 24
MORGENTHAU, HENRY, Sr., U.S. diplomat, financier	1867	Oct. 2	SNYDER, JOHN BUELL, U.S. congressman	May 5, 1873	May 14
MOŚCICKI, IGNAZY, Polish statesman and scientist	Aug. 23, 1872	Nov. 10	SOILAND, ALBERT, U.S. physician	Dec. 10, 1869	Mar. 18
MOSS, SANFORD ALEXANDER, U.S. mechanical engineer	June 25, 1884	Apr. 29	SOUTHAM, FREDERICK NEIL, Canadian newspaper publisher	Jan. 5, 1873	Apr. 10
MOTE, CARL HENRY, U.S. lawyer, utilities executive	May 11, 1889	July 11	*SOUTHWOOD, JULIUS SALTER ELIAS, VISCOUNT, British newspaper publisher	May 13, 1876	Apr. 6
*NASH, PAUL, British painter	1862?	Dec. 15	SPRAGUE, ALBERT ARNOLD, U.S. business executive	1858?	Nov. 9
NATHAN, MAUD, U.S. social worker	Mar. 28, 1869	Feb. 13	SPRECKELS, CLAUD AUGUST, U.S. industrialist	1877?	Mar. 9
NELSON, WILLIAM ALLAN, U.S. educator	Aug. 13, 1889	Oct. 7	STARR, FREDERICK C., U.S. artist	May 10, 1875	Mar. 5
NEVINSON, CHRISTOPHER RICHARD WYNN, British artist	Mar. 10, 1885	Dec. 15	STATHAM, SIR CHARLES ERNEST, New Zealand politician	Feb. 3, 1874	July 27
NOELTE, ALBERT, U.S. composer	?	Nov. 10	STELLA, JOSEPH, U.S. artist	June 13, 1880	Nov. 5
NORTON, GEORGE FREDERIC, British composer	1865?	July 4	*STERNER, ALBERT, U.S. artist	Oct. 22, 1860	Feb. 28
NOWAK, JULIAN, Polish statesman, educator	Jan. 26, 1858	Dec. 24	STEVENS, EDWARD FLETCHER, U.S. architect	Jan. 1, 1864	July 13
NOYES, THEODORE WILLIAMS, U.S. editor	June 19, 1879	Oct. 4	STIEGLITZ, ALFRED, U.S. photographer	Mar. 19, 1883	Oct. 12
*NUGENT, JAMES ALEXANDER, U.S. educator	Jan. 29, 1878	June 23	STILWELL, JOSEPH W., U.S. army officer	1873	Mar. 24
*OLDFIELD, BERNIE ("BARNEY") ELI, U.S. racing driver	Jan. 12, 1860	Feb. 3	*STIRBEY, PRINCE BARBU, Rumanian statesman	Oct. 11, 1872	Apr. 22
OMAN, SIR CHARLES WILLIAM CHADWICK, British historian	1872?	May 9	STONE, HARLAN FISKE, U.S. jurist	Dec. 15, 1866	Feb. 4
*OPPENHEIM, (EDWARD) PHILLIPS, British novelist	1873	Apr. 1	STRAWN, SILAS HARDY, U.S. lawyer	Feb. 22, 1885	Oct. 16
ORKNEY, (CONSTANCE MACDONALD GILCHRIST), COUNT-ESS OF, British actress	1878?	May 16	*STREICHER, JULIUS, German politician	Mar. 4, 1880	Jan. 10
*ORSENIGO, CESARE, Italian prelate	1867?	May 22	*STRONG, GEORGE VEAZEY, U.S. army officer	July 1, 1869	Sept. 26
PAGE, HARRY, U.S. horticulturist	1882?	Jan. 4	STRUNK, WILLIAM, U.S. educator	1895?	Jan. 5
PAGES, JULES, U.S. artist	1882?	Jan. 4	SUTTON, SIR BERTINE ENTWISLE, British air marshal	1886	Sept. 28
PARKINSON, RICHARD FRANCIS, Canadian newspaper executive	1882?	Jan. 4	*TAI LI, Chinese secret police head	?	Mar. 17?
PARRADO Y GARCIA, AUGUSTIN CARDINAL, Archbishop of Granada	Oct. 5, 1872	Oct. 8	*TALMADGE, EUGENE, U.S. politician	Sept. 23, 1884	Dec. 21
PATTEE, ERNEST NOBLE, U.S. chemist	July 21, 1864	Jan. 17	*TARKINGTON, (NEWTON) BOOTH, U.S. author	Feb. 2, 1895	Feb. 22
*PATTERSON, JOSEPH MEDILL, U.S. publisher and editor	Jan. 6, 1879	May 26	TAYLOR, CHARLES VINCENT, U.S. biologist, educator	Feb. 22, 1889	Nov. 18
PEIRCE, HAYFORD, U.S. archaeologist	1883?	Mar. 4	TAYLOR, EARL BURT, U.S. educator	1887	Dec. 7
PERCY, JAMES FULTON, U.S. surgeon	Apr. 1, 1870	Sept. 3	*TEARUCHI, COUNT JUICHI, Japanese army officer	1879	June 12
*PERTH, ARCHBISHOP OF, (HENRY FREWEN LE FANU), British cleric	1869	Mar. ?	THOMPSON, EDWARD JOHN, British writer, historian	1885?	Apr. 28
PESQUIDOUX, COUNT JOSEPH DE, French novelist	1860?	Oct. 17	*THORNE, WILL, British M.P.	Oct. 8, 1857	Jan. 2
PETTIT, THOMAS, U.S. tennis star	Sept. 27, 1870	Nov. 22	THURSTON, HENRY WINFRED, U.S. social worker, author	Feb. 28, 1861	Sept. 19
PEW, J. EDGAR, U.S. industrialist	June 2, 1872	Jan. 22	TIGHE, DIXIE, U.S. journalist	1905?	Dec. 31
PHILAN, JOHN J., U.S. athletic commissioner	Aug. 11, 1865	Oct. 4	TILZER, HARRY VON, U.S. song writer, publisher	1873	Jan. 10
PINCOT, GIFFORD, U.S. politician	Sept. 24, 1866	Mar. 8	TIXIER, ADRIEN, French politician	1893	Feb. 18
PLACZEK, SIEGFRIED, German neurologist	Oct. 24, 1875	Sept. 30	TOCH, MAXIMILIAN, U.S. chemist, art expert	July 17, 1864	May 28
PLUMMER, HENRY CROZIER, British astronomer	Apr. 22, 1868	Sept. 21	TOTTENHAM, SIR ALEXANDER ROBERT LOFTUS, British colonial officer	July 31, 1873	Dec. 13
POINDEXTER, MILES, U.S. politician	1895?	Jan. 18	TOWNLEY, SIDNEY DEAN, U.S. astronomer	Apr. 10, 1867	Mar. 16
*POLLOCK, LEW, U.S. song writer	Mar. 4, 1880	Aug. 17	TRITTON, SIR WILLIAM ASHBE, British mechanical engineer	Dec. 28, 1874	Sept. 24
*POLLOCK, CHANNING, U.S. playwright	Feb. 16, 1871	Mar. 24	TSCHUDY, HERBERT BOUVAIR, U.S. artist, museum curator	July 2, 1867	Apr. 15
*PONSONBY, ARTHUR AUGUSTUS WILLIAM HARRY PONSONBY, 1ST BARON, OF SHULBREDE, British author, politician	July 8, 1872	Aug. 17	TUBBS, ARTHUR LEWIS, U.S. playwright, music critic	Dec. 10, 1890	Mar. 8
PORTER, CLAUDE R., U.S. jurist	Jan. 5, 1859	Jan. 24	TUTTLE, HENRY EMERSON, U.S. artist	Nov. 10, 1878	June 14
PORTER, FRANK CHAMBERLIN, U.S. theologian	Feb. 19, 1868	Nov. ?	UBICO, JORGE, Guatemalan politician, army officer	Dec. 3, 1876	Oct. 4
PORTMAN, SEYMOUR BERKELEY PORTMAN, 6TH VISCOUNT British peer	1878	Feb. 23	UTLEY, GEORGE BURWELL, U.S. librarian	Mar. 19, 1882	Dec. 16
POTEMKIN, VLADIMIR PETROVICH, Russian diplomat			*VALENTINE, LEWIS JOSEPH, U.S. police official	Sept. 15, 1876	Dec. 10
			VANAMEE, GRACE DAVIS, U.S. suffragist		

Name	Birth date	Death date
VAN THINH, NGUYEN, president provisional government Cochín-China	?	Nov. 10
VARMA, SIR RAVI, maharajah of Cochín	1865?	Jan. 31
VARNUM, WILLIAM HARRISON, U.S. artist, educator	Jan. 27, 1878	July 4
*VICKERY, HOWARD LEROY, U.S. naval officer	Apr. 20, 1892	Mar. 21
*WAESCHE, RUSSELL RANDOLPH, U.S. coast guard officer	Jan. 6, 1886	Oct. 17
WALDEN, BENJAMIN H., U.S. entomologist	?	Jan. 6
WALDEN, THOMAS EVELYN-ELLIS, 8TH BARON HOWARD DE British peer, author, painter	1880?	Nov. 5
*WALKER, JAMES J., U.S. politician	June 19, 1881	Nov. 18
WALKER, MARLBOROUGH S. ("LOU"), U.S. editor	1888?	Nov. 9
WALLACE, REGINALD MC DONALD, Canadian politician	1876?	May 2
WARBURG, MAX M., U. S. banker, philanthropist	June 5, 1867	Dec. 26
WARNER, WILLIAM BISHOP, U.S. publisher	Dec. 20, 1874	May 4
WASHBURN, ROBERT, U.S. writer	Jan. 4, 1868	Feb. 26
WASHINGTON, GEORGE, U.S. coffee manufacturer	1871?	Mar. 29
WEAVER, PAUL JOHN, U.S. music director	July 8, 1889	Oct. 14
WELLS, GABRIEL, U.S. bibliophile	Jan. 24, 1861	Nov. 6
WELLS, HERBERT GEORGE, British author	Sept. 21, 1866	Aug. 13
*WHEELLOCK, LUCY, U.S. educator	Feb. 1, 1859	Oct. 2
*WHITAKER, JOHN THOMPSON, U.S. journalist	Jan. 25, 1906	Sept. 11
WHITE, GEORGE EDWARD, U.S. educator, missionary	Oct. 14, 1861	Apr. 27
*WHITE, STEWART EDWARD, U.S. novelist	Mar. 12, 1873	Sept. 18
WHITMAN, RALPH, U.S. naval officer	Apr. 7, 1880	Feb. 3
WILKINSON, THEODORE STARK, U.S. naval officer	Dec. 22, 1888	Feb. 21
WILLIAMS, VALENTINE, British journalist, author	Oct. 20, 1883	Nov. 20
WILLS, WILLIAM HENRY, U.S. politician, industrialist	Oct. 26, 1882	Mar. 6
WILSON, FRANCIS MAIRS HUNTINGTON, U.S. writer	Dec. 15, 1875	Dec. 31
WILSON, HUGH ROBERT, U.S. diplomat	Jan. 29, 1885	Dec. 28
WILSON, MORRIS W., Canadian banker	Mar. 1, 1863	May 13
WINSTON, CHARLES BRUCE, British actor, designer	Mar. 4, 1879	Sept. 27
WOLFE, HARRY PRESTON, U.S. newspaper publisher, industrialist	Apr. 26, 1872	Jan. 10
WOOLLEY, ALICE STONE, U.S. physician	?	Nov. 16
WRIGHT, WALTER LIVINGSTON, U.S. educator	Feb. 3, 1872	Jan. 17
*YOST, FIELDING HARRIS, U.S. football coach	Apr. 30, 1871	Aug. 20
*YOUNG, VINCENT, U.S. composer	Sept. 27, 1898	Apr. 5
YOUNG, JAMES BARCLAY, U.S. diplomat	Feb. 14, 1884	Nov. 16
YOUNGER, JAMES YOUNGER, 2D VISCOUNT, OF IECKIE, British peer	May 19, 1880	Dec. 3

Obstetrics: see GYNAECOLOGY AND OBSTETRICS.

Occupational Therapy for the Wounded: see MEDICAL REHABILITATION OF DISABLED VETERANS.

Oceanography. With the termination of military security many additions to knowledge of the oceans appeared, notably the Japanese survey of the western Pacific ocean which covers a hitherto imperfectly known region roughly the size of the North American continent. This huge mass of data composed of approximately 40,000 hydrographic stations is in usable form but lacks interpretation and co-ordination with other observations of the same kind. It was expected that this process would be carried out by the new oceanographic division of the U.S. Navy Hydrographic office. The chief reasons for the establishment of this important co-ordinating agency in oceanography were: the limitations imposed by the thermal structures in the sea on underwater sound apparatus, the necessity of reliable foreknowledge of swell and surf conditions, and the combined meteorological and oceanographic problems of finding aircraft or personnel adrift. Underwater sound, aside from its purely military uses, yielded continuous bathymetric traces from large areas of the oceans and has revealed a number of previously unknown bottom features, especially in the Pacific ocean.

Submarine geophysics, through the employment of seismic methods and much more efficient core sampling devices, was being extended from the land into the margins of the ocean basins.

Marine biology advanced by a successful study of the controlling factors of phytoplankton production which combines the older descriptive approach with the application of biostatistical analysis. The distribution and attachment habits of fouling organisms were also intensively studied, along with the effectiveness of antifouling paints. (See also MARINE BIOLOGY.)

BIBLIOGRAPHY.—"Oceanography in Japan," *Transactions American Geophysical Union*, vol. 27, no. 4; "Recent Developments in Oceanography at the U.S. Navy Hydrographic Office," *ibid*; *Wind, Waves and Swell*, Hydrographic Office Miscellaneous No. 11, 275; *Breakers and Surf*, Hydrographic Office No. 234; "Drowned Ancient Islands of the Pacific Basin," *American Journal of Science*, vol. 244, no. 11; "Recent Results in Submarine Geophysics," *Bulletin Geological Society of America*, vol. 57; "Factors Controlling Phytoplankton Populations on Georges Bank," *Journal of Marine Research*, vol. 6. (C. O'D. I.)

ODT: see DEFENSE TRANSPORTATION, OFFICE OF.

OES (Office of Economic Stabilization): see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Office of Defense Transportation: see DEFENSE TRANSPORTATION, OFFICE OF.

Office of Economic Stabilization: see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Office of Education, U.S.: see EDUCATION; FEDERAL SECURITY AGENCY.

Office of Price Administration: see PRICE ADMINISTRATION, OFFICE OF.

Office of the Coordinator of Inter-American Affairs: see INTER-AMERICAN AFFAIRS, THE INSTITUTE OF.

Office of War Mobilization and Reconversion: see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Ohio. A north central state of the United States, popularly known as the "Buckeye state." It officially became a state of the union on Feb. 19, 1803. Area 41,222 sq.mi., including 100 sq.mi. of water; pop. (1940) 6,907,612, of whom 2,294,626 were rural and 4,612,986 urban; native white 6,047,265, foreign-born white 519,266, Negro 339,461, other races 1,620. Capital, Columbus (306,087). Other cities of more than 100,000 were Cleveland (878,336), Cincinnati (455,610), Toledo (282,349), Akron (244,791), Dayton (210,718), Youngstown (167,720) and Canton (108,401). In 1944 the bureau of the census estimated the population of the state at 6,836,667.

History.—Thomas J. Herbert, Republican of Cleveland, was elected governor in the Nov. 1946 election, polling 1,166,550 votes to 1,125,997 cast for Gov. Frank J. Lausche, Democrat of Cleveland. Former Gov. John W. Bricker, Republican of Columbus, defeated Sen. James W. Huffman, Democrat of Columbus, in the race for the U.S. senate seat, 1,275,774 votes to 947,610. Elected at the same time were: Paul M. Herbert (Rep.) as lieutenant governor, Edward J. Hummel (Rep.) as secretary of state, Don H. Ebright (Rep.) as treasurer of state, Hugh S. Jenkins (Rep.) as attorney general and George H. Bender (Rep.) as congressman-at-large.



THOMAS J. HERBERT, elected Republican governor of Ohio Nov. 5, 1946

Before taking office Gov.-elect Herbert announced the following appointments: Chester W. Goble of Columbus as adjutant general, Frank Farnsworth of Waterville as agriculture director, Dale Dunifon of Columbus as commerce director, H. D. Defenbacher of Columbus as finance director, Murray D. Shaffer of Mansfield as highway director, Charles L. Sherwood of Columbus as welfare director and William J. Rogers of Cleveland as industrial relations director.

The general assembly met in special session on June 24 to tackle some of the state's postwar problems. The principal measures it adopted before adjournment on July 8 were those restoring civil service rights to war veterans; appropriating \$5,000,000 for the use of local governments; and making additional appropriations of \$4,469,869 for operation of the state

universities, \$750,000 for poor relief, \$2,577,420 for operation of the welfare department and \$1,150,000 for construction and improvements of state hospitals.

Education.—In 1946 Ohio had 3,127 elementary schools with an enrolment of 693,996 and a teaching staff of 21,810; 1,383 secondary schools, with an enrolment of 435,317 and a teaching staff of 19,580. Voters of the state approved 142 school bond issues totalling \$31,735,000 out of 197 proposed totalling \$46,692,000. Of 635 special school tax levies submitted, 627 were approved. Clyde Hisson was state director of education in 1946.

Ohio has six state universities: Ohio State university at Columbus, Ohio university at Athens, Kent State university at Kent, Miami university at Oxford, Bowling Green State university at Bowling Green and Wilberforce university at Wilberforce.

Social Insurance and Assistance, Public Welfare and Related Programs.—The average number of recipients of general relief in Ohio in 1946 was 15,920 and total relief granted was \$6,749,315. The average number receiving aid for the aged was 117,316 and they received a total of \$46,541,895; aid to dependent children 8,241 cases receiving a total of \$5,887,183; aid to the blind 3,094 cases receiving a total of \$1,099,747. Estimated weeks of unemployment compensated in 1946 were 5,714,239 and the benefit payments were estimated at \$110,103,711. At the close of the year Ohio had a record-breaking fund of \$489,193,000 from which to pay unemployment benefits.

Ohio had 9 hospitals for the insane with approximately 20,500 inmates, 4 institutions for the feeble-minded with approximately 5,850 inmates, 4 penal institutions with a population on Dec. 1, 1946, of 7,166 and 2 industrial schools with a population on the same date of 1,099.

Total cost of operating and maintaining the institutions under the department of public welfare in 1946 was approximately \$17,000,000.

Communication.—Ohio had 86,779 mi. of highways in 1946 outside municipalities. Of this total 16,156 mi. were classified as state, 28,763 mi. as county and 41,861 mi. as township. Total state expenditures on highways in 1946 were \$44,272,964. Of this total \$27,522,964 represented 347 road improvement contracts, \$15,250,000 labour and material provided by highway department employees and \$1,500,000 replacement of obsolete equipment.

The state had 8,400 mi. of railroads, 300 airports and landing fields, 3,116 mi. of airways within its boundaries and 1,800,000 telephones.

Banking and Finance.—There were 439 state and private banks in Ohio with deposits (Sept. 30, 1946) of \$4,013,836,046 and resources of \$4,289,959,834. There were 238 active national banks in the state with deposits (Sept. 30, 1946) of \$2,985,369,000 and resources of \$3,192,638,000. State-chartered savings and loan associations numbered 506 with total resources (June 30, 1946) of \$979,038,713. There were 127 federal savings and loan associations with total assets (estimated as of Dec. 31, 1946) of \$527,200,000.

The state budget for the 1945-46 biennium was \$391,499,969. At the close of 1946 the state surplus was approximately \$160,000,000. Of this \$60,000,000 represented money appropriated by the general assembly but not spent while \$100,000,000 was unencumbered. Sales tax revenue in 1946 went to a record high of \$108,018,679.

Agriculture.—The total harvested acreage of principal crops in 1946 was 10,601,000; in 1945, 10,712,000. Total value of agricultural production in the state in 1945 was \$753,008,000. Of this amount \$514,028,000 came from livestock and livestock products, \$209,387,000 from crops and

\$29,593,000 from government payments. Total value of Ohio crop production in 1946 was estimated at \$553,888,000.

Weather conditions in Ohio generally were favourable to agriculture in 1946. Frequent heavy rains in some sections kept fields waterlogged and delayed planting. Later in the year some dry areas developed in the northern section of the state. These conditions reduced yields of some crops but the lateness of the killing frosts lengthened the growing season and made up for them in part. Soybeans and apples were the crops hardest hit.

Manufacturing.—The total value of manufactures in Ohio in 1939 was \$4,584,665,659, total employment 686,089, total wages and salaries paid \$1,033,426,673. The Ohio bureau of unemployment compensation reports that between Jan. 31, 1945, and Jan. 31, 1946, 4,039 employers either established new businesses or expanded businesses already established. In that period the number of covered employers grew from 50,544 to 54,583.

Mineral Production.—The total value of mineral production in Ohio in 1945, exclusive of pig iron, coke and ferro-alloys, was \$196,663,000. In

Table II.—Principal Mineral Products of Ohio, 1945 and 1944

Mineral	Value, 1945	Value, 1944
Pig Iron	\$258,959,815	\$294,265,267
Bituminous coal	92,911,000	89,699,797
Coke	70,381,885	70,781,105
Natural gas	24,490,000	26,783,000
Clay and clay products	22,657,684	13,340,809
Stone	13,966,710	15,292,705
Lime	11,693,615	11,876,409
Ferro-alloys	11,166,247	14,426,924
Sand and gravel	7,985,018	8,866,549
Cement	7,356,271	5,957,819
Petroleum	7,240,000	6,560,000
Salt	3,997,759	4,076,481

1944 the comparable figure was \$192,052,000. Although total production of coal fell off slightly in 1945 in Ohio, the production by strip-mining methods increased almost 30%. (P. By.)

Ohio State University. An institution of higher education at Columbus, Ohio. Formally established as a land-grant institution in 1870, it opened its doors on Sept. 17, 1873, to a student body of 17. The university admits both women and men. It has ten colleges: agriculture, arts and sciences, commerce and administration, dentistry, education, engineering, law, medicine, pharmacy and veterinary medicine; a graduate school; and eight special schools: aviation, fine and applied arts, home economics, journalism, music, nursing, optometry and social administration. Graduate work is offered through the doctor of philosophy degree. New curricula continued in 1946 to prepare students for work in naval science, dental hygiene, international relations, medical technology, occupational therapy and rehabilitation of the handicapped. Latest additions to the physical plant were a 400-acre airport and a research laboratory. The university operates on a four-quarter plan, enabling most students to complete their studies in three calendar years. (For statistics of endowment, enrolment, faculty, etc., see UNIVERSITIES AND COLLEGES.) (H. L. B.)

Oil: see PETROLEUM.

Oils and Fats, Vegetable and Animal: see VEGETABLE OILS AND ANIMAL FATS.

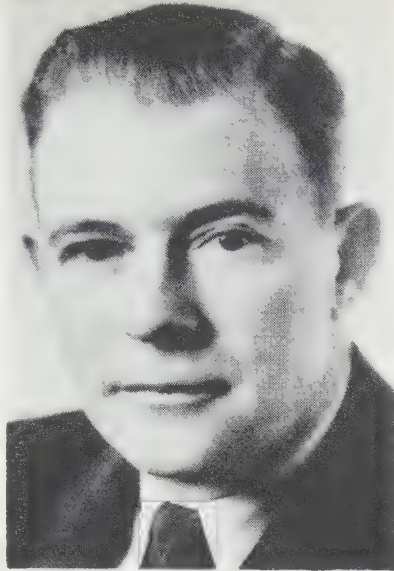
Oklahoma. A west south-central state, admitted as the 46th state, Nov. 16, 1907. The name "Oklahoma" is from the Choctaw Indian words meaning "red people" and was first applied to the Indian territory in 1866. The popular name "Sooner state" was from the term "sooner" used in referring to a person who entered and staked a claim sooner than the law allowed when the first public lands in the Indian territory were opened by the run for homesteads, April 22, 1889. Area, 69,283 sq.mi., including water surface, of which 387 sq.mi. are in 188 artificial lakes of more than 10 ac. in size and 71,000 farm ponds of less than 10 ac. Pop. 2,336,434 (1940), of which approximately 62% was rural. Approximately 87% was white, 7% Negro, 4% Indian, 2% foreign-born. On July 1, 1944, the bureau of the census estimated the civilian population of Oklahoma at 2,064,679. Oklahoma City (1940 census) (204,424), the capital, and Tulsa (142,157) are the two largest cities.

Table I.—Leading Agricultural Products of Ohio, 1946 and 1945

Crop	1946	1945	Value, 1946
Corn, bu.	178,409,000	175,134,000	\$240,852,000
Wheat, bu.	48,522,000	57,483,000	95,103,000
Oats, bu.	62,235,000	49,385,000	49,788,000
Barley, bu.	502,000	690,000	678,000
Rye, bu.	289,000	472,000	526,000
Buckwheat, bu.	340,000	306,000	486,000
Popcorn, lb.	27,495,000	60,000,000	907,000
Hay, tons	3,895,000	3,868,000	64,268,000
Soybeans, bu.	16,254,000	19,386,000	42,585,000
Tobacco, lb.	21,203,000	22,492,000	7,722,000
Sugar beets, tons	224,000	208,000	2,413,000*
Apples, bu.	3,078,000	984,000	8,926,000
Peaches, bu.	533,000	750,000	1,439,000
Pears, bu.	141,000	238,000	338,000
Grapes, tons	15,400	6,400	2,310,000
Cherries, tons	2,480	2,580	673,000
Potatoes, bu.	7,560,000	7,021,000	13,230,000

*1945.

History.—In the state elections, Nov. 1946, the total vote cast for 5 candidates for governor was 494,599 votes, the Democratic candidate, Roy J. Turner, who had a total vote of 259,491, carrying the state by a majority of 32,065 over the Republican candidate, Olney F. Flynn, who had a total vote of 227,426 votes. Other executive officers elected by the Democrats for the four-year term were: James E. Berry, lieutenant governor; Wilburn Cartwright, secretary of state; A. S. J. Shaw, state auditor; Mac Q. Williamson, attorney general; John D. Connor, state treasurer; Oliver Hodge, state superintendent of public instruction; Charles G. Morris, state examiner and inspector; Jim Hughes, commissioner of labour; Buck Cook, commissioner of charity and corrections; Donald F. Dickey, commissioner of insurance; Joe C. Scott, president state board of agriculture; John M. Malloy, chief mine inspector, and Ray C. Jones, member of corporation commission. Holdover members of the corporation commission (both Democrats) were Ray O. Weems and Reford Bond.



ROY J. TURNER, Democratic governor of Oklahoma, was elected Nov. 5, 1946

Education.—The total enrolment in Oklahoma public schools (term of 1945-46) was 517,070 pupils, with 17,863 teachers, including 116,946 pupils in senior high schools. Cost of maintaining elementary and secondary schools in the state amounted to \$44,244,242 for 1945-46. State institutions of higher learning included the University of Oklahoma (Norman), the Oklahoma Agricultural and Mechanical college (Stillwater), the Oklahoma College for Women (Chickasha), an agricultural and mechanical college (Goodwell), a Negro university (Langston), an institute of technology (Weatherford) and five colleges primarily for teacher training (Ada, Alva, Durant, Edmond, Tahlequah). There were 18 two-yr. junior colleges recognized by the state board of education, including 6 state-owned junior colleges, 1 military academy and 4 independent junior colleges with church affiliations. There were also six independent senior colleges with church affiliations.

Social Insurance and Assistance, Public Welfare and Related Programs.—On Jan. 1, 1947, the department of public welfare reported 91,769 persons receiving old-age assistance with an average of \$42.18 each per month; 24,371 families receiving aid, with an average of \$45.08 per family, for 58,941 dependent children; and 2,241 blind persons receiving an average of \$42.83 each. The state department of public health reported that 70% of the state's population lived in 42 counties and 2 municipalities, all of which had made local funds available for matching state and federal moneys in order to maintain full-time health services. State-supported hospitals, eleemosynary, penal and reformatory institutions were two tuberculosis sanatoriums, eight hospitals (including mental), two orphanages, three schools for deaf and blind, four schools of correction, one penitentiary and one sub-penitentiary.

Communication.—Oklahoma spent in the period 1919-47 (ending Dec. 31, 1946) the sum of \$217,520,546 on improve-

ment of approximately 10,062 mi. of highway. Total mileage in 1946 was approximately 101,000. Railroad and electric mileage totalled 6,173 mi., not including sidings.

Agriculture.—Total harvested acreage of crops in 1946 was 13,268,000 ac. compared with 12,999,000 ac. in 1945 and 12,901,000 ac. in the 10-yr. (1935-44) average. The wheat acreage was the largest in history. Commercial truck crops were produced in greater volume, the total value of 6 commodities being \$1,931,000 compared with \$1,890,000 in 1945. The state department of agriculture estimated Dec. 1, 1946, the value of livestock on farms at \$204,523,950, the estimated value the year before being \$193,108,000.

Leading Agricultural Products of Oklahoma, 1946 and 1945

	1946	1945*
Wheat, bu.	88,262,000	73,875,000
Corn, bu.	25,882,000	22,644,000
Oats, bu.	24,780,000	20,976,000
Peanuts, bu.	119,340,000	87,875,000
Broomcorn, tons	16,100	11,600
Grain sorghums (forage and silo), tons	1,439,000	1,398,000
Grain sorghums, bu.	7,314,000	7,632,000
All hay, tons	1,512,000	1,741,000
Cotton, bales	260,000	285,000

*Revised April 1946 by U.S. department of agriculture.

Manufacturing.—Total pay rolls for covered employment in Oklahoma for 1945-46, ending September, was \$129,174,518, with a monthly average of 55,908 persons employed. In addition to the manufacture of petroleum by-products the manufacture of lumber, cement and products from glass sands in Oklahoma were big industries.

Mineral Production.—Minerals produced in Oklahoma include petroleum, natural gas, natural gasoline, liquefied petroleum gases, asphalt, zinc, lead, coal, stone, sand and gravel, clay and salt; the total value of minerals produced in the state for the year ending Dec. 1944 was \$253,284,000. Figures for the year ending Dec. 1, 1946, reported the production of 137,582,295 bbl. of petroleum in Oklahoma. (M. H. W.)

Old-Age Insurance: see SOCIAL SECURITY.

Old-Age Pension: see RELIEF; SOCIAL SECURITY. See also under various states.

Oldfield, Berna (Barney) Eli (1878-1946), U.S. racing driver, was born on Jan. 29 in Wauseon, O. He was a bicycle racer in his youth but by 1902 was a race driver on the dirt tracks. Shortly after meeting Henry Ford he drove the automobile magnate's famous racing car, the "999," over a 5-mile course for a clocked time of 5.28 minutes. A year later, on June 15, 1903, he piloted the same car to a new world's record, becoming at the same time the first man to travel a mile a minute in an automobile. On March 16, 1910, he drove an imported Blitzen Benz over the sands of Daytona Beach to establish an official speed record of 131.724 mi. an hour. Oldfield was one of the best known speed racers of his day and his reputation lived on long after his retirement in 1918. However, his interest in this hazardous sport did not wane and in 1932, he planned an attempt to race an automobile 300 mi. an hour. This ambition was never realized. He spent his last years as safety adviser and as a campaigner for safe driving. He died at Beverly Hills, Calif., on Oct. 4.

Oleomargarine: see MARGARINE.

Olive Oil: see VEGETABLE OILS AND ANIMAL FATS.

Olives: see FRUIT.

Oman and Muscat (Masqat): see ARABIA.

Ontario. One of the two central provinces of Canada, Ontario was admitted to the union in 1867. The area is 412,582 sq.mi., with 12% fresh water; pop. 3,787,655 (1941 census), 62% urban; 1946 off. est. of pop., 4,004,000. The

chief cities (1941 census pop.) are Toronto, the provincial capital (667,457); Hamilton (166,337); Ottawa (154,951); Windsor (105,311). Administered by a lieutenant governor, an executive council and a 90-member legislative assembly, Ontario is represented federally by 82 members of parliament and 24 senators.

History.—Progressive-Conservative Premier George A. Drew continued in office, some cabinet portfolios were switched and Lieut. Gov. Albert Matthews (appointed 1937) retired and Ray Lawson was installed.

Two noteworthy laws passed at the 1946 session of the legislature were the Farm Products and Grades act which licensed all persons engaged in marketing farm produce, and the Minimum Wage act for men. Other reforms included special courses for guards and prisoners to improve conditions in provincial penal institutions and free prenatal examination of expectant mothers by physicians of their own choice. After 2 yr. of operation the department of planning and development announced that 15 planning areas had been approved, 90 new European and American trading agencies established and 18 British manufacturing outlets opened in the province. Two important royal commissions—one on forestry and the other on milk production and marketing—heard briefs and collected evidence.

Industry.—Industrially the year was marred by more than 20 prolonged strikes that lost more than 400,000 man-working days. Major industries affected were steel, brass, rubber, electrical apparatus, logging, shipping. Despite this fact in a year-end survey the provincial government noted that Ontario continued to lead all Canada in production of important goods.

Agriculture.—The biggest Ontario tobacco crop in history drew attention to the increasing importance of that specialized kind of Ontario farming, which in 1946 ranked second to livestock and grain production. Further expansion was forecast with construction of a \$2,000,000 highly modern processing plant at Aylmer, the heart of the tobacco lands. A novelty was air shipment of purebred cattle to Cuba, Puerto Rico and other Latin American countries.

Mining.—Ontario mining also expanded during the year with aircraft continuing to play a stellar role. A \$1,500,000-contract was let to map a large section of northern Ontario by air for the department of lands and forests. An air-borne magnometer, a war-invented instrument to locate submerged submarines, was used to locate buried mineral-bearing ores. (C. Cv.)

Education.—The total enrolment of all educational institutions during the period 1943-44 was 745,923. The total revenue of provincially controlled schools in 1944 was \$55,268,313. The University of Toronto, with its seat at Toronto, is the provincial university.

Communications.—In March 1945 Ontario had 56,768 mi. of surfaced road and 16,235 mi. of earth road. The number of motor vehicles of all kinds registered in 1944 was 675,957. There were 10,479 mi. of railroads in 1944.

OPA: see PRICE ADMINISTRATION, OFFICE OF.

Opera: see MUSIC.

Opium: see DRUGS AND DRUG TRAFFIC.

Oppenheim, E(dward) Phillips (1866-1946), British novelist, was born in London. He studied at a grammar school in Leicester but left while in the sixth form to help his father. He worked days in his father's leather firm and spent his nights writing fiction. He sold his first short story in 1884; and his first novel, *Expiation*, was published two years later. He then wrote a number of thrillers which caught the fancy of a wealthy New York

businessman. The overseas admirer bought out the Oppenheim leather business at the turn of the century and made the novelist a director at a large salary, an arrangement which left Oppenheim free to devote the major part of his attention to his writing. Between 1900 and 1914, he wrote a number of novels dealing with espionage and intrigue, the most notable of which were *A Maker of History* (1906), *The Betrayal* (1904) and *The Great Secret* (1907). In these works he established a reputation as a top-notch producer of escapist stories of high adventure and international intrigue. In glamorous settings, such as the Casino at Monte Carlo, polished urbane heroes engaged in secret but risky missions and won lovely heroines. The formula was deceptively simple and the novels were ingeniously and artfully written. During World War I Oppenheim served with the British Intelligence, and after the armistice he resumed his writing. His output was prodigious and he produced some 150 books besides many plays. His best-known novel was *The Great Impersonation* (1920). Among his other works are: *The Mysterious Mr. Sabin* (1901), *The Mischief Maker* (1913), *Mr. Grex of Monte Carlo* (1915), *The Great Prince Shan* (1922), *Prodigals of Monte Carlo* (1926), *The Million Pound Deposit* (1930), *The Spymaster* (1938), *The Last Train Out* (1941) and *Mr. Mirakel* (1942). He also wrote a large number of short stories. He died at his home at St. Peter Port on the Channel island of Guernsey on Feb. 3.

Oranges: see FRUIT.

Oregon. A Pacific northwest state of the United States, admitted to the union Feb. 14, 1859, the 33rd state. Area 96,981 sq.mi., including 631 sq.mi. of water; pop. (1940) 1,089,684. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 1,214,226. Capital, Salem (1940 census) (30,908); chief city, Portland (305,394). Governor in 1946, Earl Snell. Secretary of state, Robert S. Farrell, Jr.

History.—The biggest problem during 1946 was the loss of the shipbuilding pay roll in the Portland metropolitan area. In 1944 the Portland-Vancouver shipyards employed nearly 132,000 people. By the end of 1945 the number of employees had fallen to about 31,500 and at the end of 1946 to 3,000. Sound expansion took place, however, in agriculture, stock raising, horticulture and particularly in food preservation and elaboration. There was good development in these allied industries in nearly all parts of Oregon.

The demand for lumber and plywood showed a heavy increase. Many new mills were put in operation and in consequence many new logging operations were established. Of especial significance was the profound interest displayed by government and commercial foresters in the sustained yield program and in tree farms and reforestation.

Pay roll totals, both for Portland and upstate, made a very satisfactory showing when compared with prewar years. It was estimated that the 1946 figure would run to about \$450,000,000 for the state at large, against \$170,000,000 for 1940 and \$581,000,000 for 1944, the peak year of World War II. The 1946 upstate pay roll amounted to more than three times the figure for 1940. In 1946 a great many medium and small industries either established themselves in Oregon or expressed their intention of doing so.

Despite water-front strikes in most of the maritime area of the state, there was a substantial resurgence in water-borne commerce, particularly in the foreign classification. Portland alone shipped nearly 1,000,000 tons of general cargo to foreign countries. Included in the total were such staples as lumber, wheat, flour, processed foods, coal, machinery and phosphate rock. Inbound cargo included copra, burlap, coffee and similar products.

Oregon farmers in 1946 gathered crops from the largest area in the history of the state, and the tonnage of crops harvested also was the greatest on record. According to the U.S. department of agriculture reporting service, crops were gathered in 1946 from 3,184,000 ac. of land. This area produced field crops, tree fruits, forage seed, vegetable and berry crops and is to be compared with 2,677,000 ac. harvested in 1939. In 1946 the farms of the state produced 4,658,000 tons of crops, compared with 3,569,000 tons in 1939. In 1946 record crops were harvested of sugar beets, potatoes, truck crops, pears, sweet cherries, walnuts, filberts and some of the berries.

The state-wide housing shortage was but slightly improved in 1946. More than \$125,000,000 worth of housing permits were issued by the Oregon Federal Housing authority during the life of the housing priority system between Jan. 15 and Dec. 24. These permits were to house 18,200 family units, but shortages in labour and material kept nearly two-thirds of the units from being completed. Nearly 6,800 priorities were issued for the Portland area alone, and of these only about 1,900 units were completed in 1946. However, during the last 60 days of the year there was considerable improvement in construction progress.

At the election on Nov. 5, 1946, Oregon, traditionally Republican, elected the candidates on that ticket by almost a clean sweep. Gov. Earl Snell and Secretary of State Robert S. Farrell, Jr., were re-elected by large majorities. Four Republican representatives in congress were also re-elected and a state senate and house of representatives nearly completely Republican. By popular vote an amendment to the state constitution was adopted revoking a provision in the organic act of 1859 which prohibited Chinese from holding Oregon real estate. An act was passed providing for more liberal public school support, but it was expected that the new law would require additional legislation by the 1947 legislature to make its provisions effective. Efforts of public electric power champions to establish public power districts in eight counties failed of popular approval.

Education.—During the school year 1945-46 there were 254,754 pupils in public schools, including 62,393 in high schools. There were 8,204 teachers. For the school year 1945-46 the value of school properties, including buildings, grounds and equipment, was \$66,494,410. The superintendency of public instruction, an elective office, was held in 1946 by Rex Putnam.

Communications.—As of Dec. 31, 1945, there were 4,806 mi. of primary highways in Oregon, of which 4,612 mi. were improved with various types of surfacing. As of Dec. 31, 1945, there were 3,618 mi. of steam railways, not including second main track, sidings, etc.

Finance.—As of Dec. 1, 1945, Oregon's state gross bonded debt was \$18,517,590, against which there were sinking funds and other applicable assets amounting to \$15,581,391, leaving a balance of debt of \$2,936,199.

Agriculture.—Total cash income of Oregon farmers in 1945 was \$299,357,000, of which \$9,160,000 represented government

entered the city in 1945, moved to Eichstaett, Germany, south of Nuernberg, where he died on April 1.

Osteopathy. The most important advance during 1946 was the implementation of that part of public law 293 (79th U.S. congress) which made osteopathic services available in veterans' hospitals. Under this law osteopathic physicians and surgeons were made eligible for appointment to the department of medicine and surgery of the Veterans' administration. The six osteopathic colleges in Chicago; Des Moines, Ia.; Kansas City and Kirksville, Mo.; Los Angeles, Calif.; and Philadelphia, Pa., and the 58 osteopathic intern-training hospitals were approved by the Veterans' administration as meeting educational standards for the training of doctors qualified to treat veterans.

Another forward step in recognition of the osteopathic school of practice was seen in the provisions of public law 658 which authorizes federal departments and agencies to establish health-service programs with osteopathic physicians expressly eligible to render the professional services involved. This law neither supplanted nor conflicted with an amendment to the U.S. Employees' Compensation act under which, from 1937, employees of the government had been entitled to treatment for occupational injury and illness by osteopathic physicians.

Capacity freshman classes entered osteopathic colleges in the fall of 1946. Approximately 76% of these were veterans seeking professional training under the G.I. Bill of Rights.

During 1946 there was an acceleration of the campaign for funds started in 1942 for the enlargement of the physical plants and providing increased faculties and equipment in all of the approved colleges of osteopathy. Improvements and a few additions were made to the teaching units despite the shortage of materials.

As of Nov. 1, 1946, membership in the American Osteopathic association was 7,852 or 70% of a possible total of 11,145 practising osteopathic physicians. The number of hospitals on the register of the American Osteopathic association was 187, including 58 approved for intern training. These hospitals had a total of 5,490 beds and 1,383 bassinets. (R. E. D.; R. G. Hu.)

Ostland: see UNION OF SOVIET SOCIALIST REPUBLICS.

Osubka-Morawski, Edward Boleslaw (1904?-), Polish government official, was a member of the "P.P.S." (the Polish Socialist party) before the outbreak of World War II. He had been associated with the Warsaw housing co-operative and was active, although not widely known, in the co-operative movement. In 1943, Osubka-Morawski left the P.P.S. to join a more leftist faction, the R.P.P.S. (the Polish Socialist Workers party) and published an underground paper during the German occupation. Later, he left for Moscow and on July 23, 1944, he became head of the Polish Committee of National Liberation, the organization set up to administer the areas of Poland freed by the Red army. He was selected as premier of the Polish Provisional government (Dec. 31, 1944) and was retained in that post in the permanent government formally installed in Warsaw (June 28, 1945). An advocate of government ownership of all industry of "national importance," he favoured encouragement of private enterprise in the new Poland but asserted that all production and distribution should be regulated by the government. With regard to land reform, he was categorically committed to the abolition of all large estates in Poland, except for land owned by the church. Although he had previously opposed a single list of candidates for the national elections, he criticized Vice Premier Stanislaw Mikolajczyk on March 3, 1946,

Principal Agricultural Products of Oregon, 1946 and 1945

Crop	1946 (est.)	1945
Corn, bu.	1,172,000	1,384,000
Oats, bu.	9,782,000	7,818,000
Barley, bu.	9,452,000	6,402,000
All wheat, bu.	25,168,000	20,889,000

(L. A. McA.)

Orsenigo, Cesare (1873-1946), Italian prelate, was born on Dec. 13. He served as apostolic nuncio to the Netherlands, 1922-25, and to Hungary, 1925-30, and in 1930 succeeded Eugenio, Cardinal Pacelli (now Pope Pius XII), as papal nuncio to Berlin. Mgr. Orsenigo, who resided in Berlin until a few weeks before the Red army troops

for refusing to bring the Peasant party into the government bloc. On May 11, Osobka-Morawski declared that the government would outlaw all "fascist groups" within the Peasant party.

Ottawa. The capital of Canada is at the confluence of the Ottawa and Rideau rivers in Ontario and covers 8.3 sq.mi. Pop. (1941 census) 154,951; (1946) 190,985 living in the city, 29,790 in suburbs. The houses of parliament are on a high cliff overlooking the Ottawa river. Other notable public buildings are the National Art gallery, Supreme Court, Parliamentary library, Dominion Archives, Royal Mint, Bank of Canada and Rideau hall, residence of the governor-general. Ottawa had 212 industries in 1946, the chief connected with wood products. L'Université d'Ottawa was in 1946 the only officially bilingual university in Canada.

In 1946 Jacques Greber, French city-planning expert, was engaged with 13 architects to convert the capital area (including the city of Hull, Que., across the Ottawa river) into a World War II memorial. Parliament voted \$3,000,000 over 10 yr. for improvements; plans included the transfer of heavy industries, the building of new bridges and driveways and the addition of 16,000 ac. of Gatineau Valley parkland. (C. Cy.)

Outdoor Advertising: see ADVERTISING.

Outer Mongolia: see MONGOLIA.

OWM (Office of War Mobilization): see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

OWMR: see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Oxford University. At the end of the academic year in June 1946 undergraduates at Oxford numbered 4,147 (3,219 men and 928 women), as against 2,333 in June 1945. The number of men in residence in Michaelmas term 1946 was 5,290, and of women 990. Many of the men were B.A.s who, having taken war degrees, returned to complete normal undergraduate courses. In Oct. 1946 the vice-chancellor, as a result of inquiries made in all the colleges, was able to state that men returning from the services easily readapted themselves to university discipline and showed themselves to be keen and capable at their academic work, although some found the first steps difficult.

An important development took place in colonial studies. To meet modern demands, a committee appointed by the secretary of state, with the duke of Devonshire as chairman, recommended a comprehensive academic study of subjects bearing upon colonial problems over a period of 15 months after selection for the service, followed by a tour of duty in the colony, and then by a further six months' course. All cadets would spend about half the initial course at Oxford or Cambridge and the rest of that course at London university. They would be divided between the three universities for the second course.

Building was begun on new laboratories for forestry and botany, and the enlargement of an old building for geology. On Oct. 24, 1946, the king and

queen opened the New Bodleian library. The building was erected at a cost of £376,500, of which £225,840 was received from the Rockefeller foundation which had contributed a sum of \$2,300,000 for this and other library purposes.

The following heads of houses and professors were appointed: provost of Queen's, Sir O. S. Franks; rector of Lincoln, K. A. H. Murray; provost of Worcester, J. C. Masterman; principal of St. Hugh's, E. E. S. Procter; professor of Italian studies, A. P. d'Entreves; professor of physics, M. H. L. Pryce; professor of natural philosophy, S. N. Chapman; professor of poetry, C. M. Bowra; professor of pure mathematics, J. H. C. Whitehead; professor of Anglo-Saxon, C. L. Wrenn; professor of the history of war, Cyril Falls; professor of music, J. A. Westrup; professor of social anthropology, E. E. Evans-Pritchard; professor of fine art, Sir Kenneth Clark; professor of European archaeology (a newly founded professorship), C. F. C. Hawkes; professor of modern history, K. G. Feiling; professor of American history, W. W. Rostow.

Benefactions included £64,000 spread over eight years for physics, and £5,400 from the Chinese government spread over three years for five scholarships in Chinese studies.

BIBLIOGRAPHY.—*The Oxford University Handbook*; *Oxford University Gazette* (Oct. 1946) containing the vice-chancellor's review of the year; *Oxford* (the magazine of the Oxford society). (D. V.)

Pacific Islands, British. The British Pacific islands are territories of the British empire in the Pacific ocean, of which certain statistics are given in the accompanying table. See BRITISH EMPIRE for population, capital towns, status and governors.

History.—At the conference of commonwealth prime ministers held in London, April 23–May 23, it was agreed that a South Pacific regional commission should be set up by Britain, Australia and New Zealand to develop the area economically and socially; there would be increased participation of natives in administration, improved labour conditions and co-ordination of health and education services in the whole area.

In Fiji there was considerable political friction between the Fijian and European population and the Indians which culminated on July 16 in a debate in the legislative council on the subject of "Fiji for the Fijians," in which the non-Indian members made plain their apprehension at the growth of the Indian population and its consequent political development. An official statement had pointed out in June that any constitutional changes in India would not affect the political rights of Indians in Fiji, which are set out in letters patent.

(J. RA.)

Pacific Islands, British

Territory and Area square miles	Principal Products (short tons)	Imports and Exports (in £)	Revenue and Expenditure (in £)	Education: Elementary and Secondary
Fiji, 7,055	gold (1940) 3.96 (exports 1940) sugar £1,288,210 copra £125,310 bananas £41,803	(1943) imp. £2,639,260 exp. £1,819,054	(1942) rev. £1,275,970 exp. £1,155,400	(1940) schs. 417; scholars 31,530
Papua (administered by the Commonwealth of Australia; see also Pacific Islands, Mandated), 87,786 (mainland), 2,754 (islands)	rubber (1939–40 exports) £152,880 gold (1940) 1.2 copra (1939) 10,450	(1940–41) imp. £539,152 exp. £492,775	(1940–41) rev. £189,518 exp. £189,297	Mission schools with compulsory attendance for native children (1939–40) Europ. schs. 3; scholars 63
Gilbert and Ellice Islands colony (including the Gilbert group; the Ellice group; Ocean Island [seat of administration]; Fanning, Washington and Christmas Islands; and the Phoenix group*) c. 180	natural phosphates (1940–41) 347,664 copra (1941 exports) £72,655	(1938–39) imp. £178,767 exp. £279,438	(1942–43) rev. £51,604 exp. £70,458	(1939) schools 236; scholars 6,828
New Hebrides (a condominium administered jointly by the British and French governments), 5,700	copra (1939) 16,317 cocoa 2,167	(1941) imp. £88,800 exp. £107,688	(1943) rev. £59,573 exp. £31,872	Numerous Presbyterian and Catholic mission native schs., 1 Fr. govt. sch. and 1 Catholic mission sch. for whites
British Solomon Islands protectorate, 11,458	(1940–41) copra 14,300	(1940–41) imp. £134,740 exp. £131,938	(1941–42) rev. £41,357 exp. £63,895	(1937–38) elem. schs. 6; scholars 4,697
Tongan Islands protectorate c. 250	(export 1941) copra 4,769 bananas 54,210 cases	(1943) imp. £A154,889 exp. £A169,640	(1942–43) rev. £A116,180 exp. £A99,375	(1940) schools 125; scholars 9,324

*Canton and Enderbury Islands, in the Phoenix group, are shared with the U.S.A. under the Anglo-American pact, Aug. 10, 1938.

Pacific Islands, French. The latest statistics available in 1946 for this French colony were: area (Society, Tuamotu, Tubuai and Marquesas islands) 1,545 sq.mi.; pop. (est. Dec. 31, 1939) 45,000 (white, c. 3,700). Capital: Papeete, in Tahiti (pop. census 1941, 11,614). Governor: Col. Georges Orselli.

Finance.—Revenue and expenditure (est. 1944) balanced at 43,449,000 francs. Exchange rate, 1946: 1 franc=.84 U.S. cents.

Trade and Communication.—Foreign trade, Tahiti (1943): imports 97,223,000 fr.; exports 142,645,000 fr. Roads (1937): Tahiti, 48 mi.; Raiatea, 19 mi. Shipping entered (1943): 50 vessels, tonnage 160,943.

Production.—Export (1941): copra 15,000 short tons; national phosphates 212,000 short tons.

Pacific Islands, Mandated. The former German possessions in the western Pacific comprise part of New Guinea with adjacent archipelagos, Western Samoa, the Marshall, Caroline, Palau and Ladrone, or Marianas Islands and the island of Nauru. Statistics for these territories are given in the accompanying table. For capital towns and governors of New Guinea, Western Samoa and Nauru, see BRITISH EMPIRE.

At the general assembly of the United Nations in London in Jan. 1946 it was announced that Australia and New Zealand would put Australian New Guinea and Nauru under U.N. trusteeship. On Nov. 11 Peter Fraser, premier of New Zealand, issued the proposals for trusteeship over Western Samoa which had been approved by the British, Australian and U.S. governments and submitted to the Western Samoa legislative council. (See also MANDATES; NEW GUINEA.)

Mandated Pacific Islands

Territory and Area sq. mi.	Population and Status	Principal Products (short tons)	Imports and exports (000's omitted)	Revenue and Expenditure (000's omitted)
New Guinea, mandated territory (93,000), including Bismarck archipelago (19,200) and Solomon Is. (4,100)	(1940) native 668,871; European 4,339; Asiatic 2,099. Under man- date of the Commonwealth of Aus- tralia	(Exports) gold (1941) 8.58; copra (1938) 81,840	(1940-41) imp. \$3,107 exp. \$10,488	(1940-41) rev. \$1,381 exp. \$1,392
Western Samoa (1,133)	(1945) 68,197. Under mandate of New Zealand	(Exports 1940) copra 6,321; bananas \$331,300	(1941) imp. \$500 exp. \$787	(1943) rev. \$690.5 exp. \$716.4
Marianas Is., Caroline Is., Palau and Marshall Is. (829)	(1939) 113,562 (Japanese, 73,028). Under Allied military occupation	cane sugar (1939-40) 77,330; phosphates (export 1938) 114,400	(1938) imp. \$8,722.8 exp. \$13,350.3	(1940) rev. \$2,564.1 exp. \$2,540.2
Nauru (8)	(1941) 2,672 (European 68, Chinese 584). Under British mandate, held jointly by Great Britain, New Zea- land and Australia.	(Export 1941) natural phosphates 111,048	(1941) imp. \$345.4 exp. \$224	(1941) rev. \$38.7 exp. \$77.4

Pacific Islands, U.S. In addition to such large island possessions in the Pacific as Hawaii, the Aleutians, American Samoa and Guam, the United States possesses a dozen tiny islands in the Pacific, negligible in size and economic value, but important, both in peace and in war, from the standpoint of aviation and naval security. Increasing interest was shown in these formerly neglected islets in the later 1930s, as air flights across the Pacific were organized on a regular commercial basis and as the threat of war with Japan became more evident.

Midway and Kure (Ocean) Islands.—The Midway Islands are a group in the North Pacific, 1,200 mi. northwest of the Hawaiian Islands.

Area of the group: 28 sq.mi. Population (1936) 118. Midway consists of two low-lying islands, Sand (area 850 ac.) and Eastern (328 ac.). These are surrounded by a coral reef five mi. in diameter and by numerous islets. Sand and Eastern Islands are little more than sandspits, but they acquired importance, first, as the site of a transpacific cable station (installed 1903), second, as a stopping point on the Pan American

Airways route from San Francisco to the Philippines via Hawaii, Midway, Wake and Guam (inaugurated 1935), third, as an important U.S. air and naval station in the war against Japan.

One of the first big Japanese naval defeats was sustained in a three-day battle in the neighbourhood of Midway, fought June 4-6, 1942.

Formerly known as Brooks Island, the name was changed to Midway because of the group's position in the mid-Pacific, 2,800 mi. from California and 2,200 mi. from Japan. It was formally declared a U.S. possession in 1867. Kure (Ocean) Island is a coral reef 14.7 mi. in circumference, lying 56 mi. northwest of Midway. It was placed under the control of the navy department by an executive order of Feb. 1936. In 1946 the U.S. navy disclosed that Midway was among its 14 "essential" bases in the Pacific.

Wake Island.—Wake Island consists of three islets, Wake, Peale and Wilkes, and is located in the North Pacific, 2,130 mi. due west of Honolulu. The total land area of the islets is about 2,600 ac. (4 sq.mi.), Wake, the largest, being about 2 sq.mi. Under the Washington naval treaty of 1922, the United States agreed not to strengthen its fortifications on Wake; the treaty lapsed at the close of 1936. Two years earlier (1934) the island had been placed under the jurisdiction of the U.S. navy. Congress voted appropriations in 1939 and 1941 for establishing naval and air bases on Wake and for strengthening its defenses. In Dec. 1941 a Japanese landing force overpowered small defending garrisons on the isle. During their occupation, the Japanese shot to death 98 civilian workers on Wake. After the close of World War II, the Japanese on Wake surrendered to a U.S. landing force, Sept. 4, 1945.

Johnston Island.—Johnston Island consists of two islets on an 8-mi. reef, located 600 mi. southwest of Hawaii. It was discovered by the British naval vessel "Cornwallis" in 1807 and named after the vessel's captain, Charles James Johnston. Competing U.S. guano interests lent some activity to this barren sand bar in the '50s and '60s of the 19th century. The final U.S. assertion of claim to the island was an executive order of June 29, 1929, placing the island under the control and jurisdiction

of the department of agriculture as a refuge for native birds. An appropriation of \$1,150,000 was provided by congress for the construction of seaplane facilities.

Kingman Island.—Kingman reef, 150 ft. long by 120 ft. wide at high tide, is the smallest land area in the world over which the United States claims sovereignty. The reef is about 8 mi. long and 5 mi. wide, counting in submerged shoals. Two other tiny islets in the reef appear at low tide. The strategic importance of this desolate reef lies in the fact that it is the only possible seaplane base between Honolulu (1,607 mi. to the N.) and Pago Pago, in American Samoa (q.v.), 1,797 mi. to the S.W.

Palmyra Island.—A U-shaped atoll, with its 53 islets containing an area of about 500 ac., Palmyra Island is located 960 mi. S.W. of Hawaii. The U.S. supreme court affirmed the U.S. government's title to Palmyra (May 10, 1943) and several weeks later, Palmyra was returned to Hawaii's territorial jurisdiction. During World War II, the atoll was employed as a base by the navy and the marine corps.

Swains Island.—A coral atoll, 1 sq.mi. in area, pop. 150, of Polynesian race, formally brought under the jurisdiction of

American Samoa in 1925 after remaining for a time under the patriarchal rule of a U.S. whaling captain named Eli Jennings, who had himself accepted as a local chief, and his descendants.

Howland, Jarvis and Baker Islands.—Baker and Howland Islands are small coral atolls, located where the international date line crosses the equator. Jarvis Island is 1,150 mi. farther east and slightly below the equator. Rectangular Baker Island is 1 mi. long and 1,500 yd. wide. Elongated Howland Island is 2 mi. long and 750 yd. wide. Jarvis Island is a bare coral plateau, 1.8 mi. long and 1.3 mi. wide. Radio and aerological stations were installed on the islands which were placed under the interior department's jurisdiction in 1936. U.S. personnel were withdrawn from all three islands shortly after the Pearl Harbor attack. Japanese submarines staged nuisance raids on Howland Island in 1941-42. In late 1943 U.S. forces reoccupied Baker and built an important air base on it.

Canton and Enderbury Islands.—Geographically part of the Phoenix group and located 1,850 mi. S.S.W. of Hawaii, Canton (area 8.5 sq.mi.) and Enderbury (2.5 sq.mi.) figured in a prolonged dispute as to ownership between the United States and the British empire. The dispute was settled on Aug. 11, 1938, when the U.S. and British governments jointly announced an arrangement for "the use in common" of the islands, "for purposes connected with international aviation and communication." A combined U.S. civilian-naval force reached Canton in Nov. 1941 and constructed an air strip on the island.

(See also GUAM; HAWAII; PHILIPPINES; SAMOA, AMERICAN.)
(W. H. CH.; X.)

Pacifism. During 1946 the demobilization of conscientious objectors in the U.S. who had been doing alternative service in Civilian Public Service camps and units proceeded rapidly and at the end of the year only about 200 men remained in C.P.S. Only a very few new C.O.s were drafted during the year, partly because after several years of war not many youths on reaching the age of 18 were prepared to take the C.O. position, and partly because all inductions under the Selective Service act were suspended during several months as the army's need for troops declined.

The situation with respect to C.O.s who were or had been confined in federal prisons was not so satisfactory from the standpoint of pacifists and of nonpacifist advocates of civil liberty. During the early months of the year parole was available to C.O.s only to a restricted degree and some of the most consistent opponents of conscription felt that they could not conscientiously recognize the validity of their arrest by submitting to any parole conditions whatever. Largely through the efforts of a Committee for Amnesty, sponsored almost entirely by nonpacifists, a great amount of public opinion was built up in favour of liberalized parole provisions and an early amnesty. The latter would mean not only unconditional release for men still in prison but restoration of civil rights to them as well as to those previously released. The result was that on Dec. 31, 1946, only a little more than 300 men classified as "conscience cases" by the department of justice were still in prison, all except about 25 being Jehovah's Witnesses. (In addition there were 957 other Selective Service violators in prison.)

Furthermore, on Dec. 23, 1946, Pres. Harry S. Truman issued an executive order providing for the appointment of a Presidential Amnesty board to make recommendations for amnesty to him and the attorney general. The chairman of this board was a former associate justice of the supreme court, Owen J. Roberts.

The executive order applied to all Selective Service law violators. According to the department of justice the total

number of violators sent to prison up to Dec. 26, 1946, was 11,551. In addition it was estimated that 3,000 were placed on probation. The latter presumably accepted military service and thus secured restoration of their civil rights. Of those imprisoned, 1,109 accepted noncombatant service in the armed forces, plus 69 others classified as C.O.s or Jehovah's Witnesses, and thus secured restoration of civil rights. The categories to be considered by the Presidential Amnesty board early in 1947 and the approximate numbers in each were, therefore, as follows: those classified as C.O.s by the department of justice (1,000); Jehovah's Witnesses and other claimants to ministerial classification (4,500); Puerto Rican Nationalists (40); Negroes who refused to be drafted into a "Jim Crow" army (20); Japanese-Americans who refused to be drafted from concentration camps into the armed forces (100); American Indians who refused to be drafted either on religious grounds or on grounds of exemption by treaties with the United States (15); aliens or their sons who refused to be drafted to fight against their countries of origin (number not available Dec. 31, 1946); violators who presumably raised no issue of conscience (5,000).

Pacifists took a strong interest in the congressional struggle over the extension of the wartime draft (Selective Service act). Virtually all national church, educational, farm and labour bodies joined them in advocating termination of the act and in opposing also peacetime conscription or universal military training. Congress was apparently reluctant in the spring of 1946 to extend Selective Service and at one point had to vote a temporary extension of a few weeks to prevent automatic termination of Selective Service by default. Eventually extension to March 31, 1947, was voted. During the closing months of the year a "draft holiday" was in effect. As the new congress convened under a Republican majority in Jan. 1947, it seemed likely that the Selective Service act would not be extended beyond March.

The Truman administration gave notice, however, in Dec. 1946 by the appointment of a Universal (Military) Training Advisory committee of its determination to secure the adoption of peacetime compulsory universal military training. There was, however, widespread skepticism about the measure in congress, some of it based on considerations of economy and some on the apparently increasing doubts among military leaders as to the efficacy of such training for defense against atomic war.

Pacifists generally urged vigorous efforts to secure an international agreement to abolish conscription as part of a program of universal disarmament. They hailed with some satisfaction the adoption of a general disarmament resolution in the United Nations assembly in Dec. 1946, though beset with many doubts as to whether such governments as those of the U.S.S.R. and the United States were making this proposal seriously or using it as a screen behind which to carry on the struggle for national "security" and interests at strategic points. Pacifists generally held that the Baruch plan for control of atomic energy should be discussed as part of a program for general disarmament, on the ground that it was not feasible to "outlaw" the use of one type of weapon so long as armed sovereign nations continued to contemplate war as a final resort.

Either directly through their own channels or through support of church and other private agencies pacifists continued to contribute heavily in effort and money to projects of relief and rehabilitation in war-stricken lands. Thus the American Friends Service committee had a budget of more than \$7,000,000 for this purpose.

During the year successful efforts were made to knit together again the pacifist forces in various parts of the world which had been out of touch with each other during World War II. The Friends, Brethren and Mennonites of the United States

contacted their groups in all continents. The International council of the Fellowship of Reconciliation met in Stockholm, Sweden, in March and the Women's International League for Peace and Freedom in Luxembourg, in August. Preliminary steps toward convening a world pacifist conference in India with Mohandas Gandhi, probably early in 1948, were taken.

BIBLIOGRAPHY.—Attorney General, U.S., *Annual Report*; reports of American Civil Liberties union; reports of American Friends Service committee, Brethren Service committee, Mennonite Central committee; *Fellowship*, organ of the Fellowship of Reconciliation, *passim*.

(A. J. M.)

Painting. During the year 1946 more than ever before, a significant realization was experienced by many who are interested in, and observant of, art trends: U.S. art has become independent, self-reliant, a true expression of the national will, spirit and character. It seems that, in aesthetic character, U.S. art is no longer a repository of European influences, that it is not a mere amalgamate of foreign "isms," assembled, compiled and assimilated with lesser or greater intelligence. It was heretofore commonly accepted that only regional art illustrating the U.S. scene exudes a truly native flavour, and that only such art should be looked upon as authentically American. This theory, however, does not seem to be justified. It falls short of giving a clear and comprehensive picture of the active forces which are generating art throughout the nation.

A circumstantial recognition of the existence of a truly American art was made on the occasion of the U.S. show in London in the summer of 1946. It should be borne in mind that the selection of paintings sent to London (as indeed is the case with all such collections) represented the taste of an arbitrarily appointed jury rather than a selection of "the best the country had to offer," which would always be a matter of discussion. The standards of judgment in art are for the most part haphazard and based on unproven theories, and hit-and-miss decisions are thus practically unavoidable. Nevertheless, the work shown in London gave a fairly comprehensive view of the aesthetic preoccupation of painters in the United States. And the aesthetic preoccupation of these painters met with a decidedly negative response from the British public and art critics. It was not for the first time that U.S. art failed to impress European critics. For instance, the U.S. show in Paris at the Jeu de Paumes in 1937 received a very hostile reception. Strangely enough, the show was assembled by the Museum of Modern Art in New York, which is geared to European taste and guided by European aesthetic standards. Yet the rebuke was severe. The reaction in the U.S. at the time amounted to what might be called lugubrious bewilderment. The U.S. artists and the public were still labouring under the traditionally accepted sense of inferiority with regard to their own art. Lack of self-assurance in matters of international relations had persisted for so long that the Americans were slow to realize that they had long since ceased to depend on importations of foreign art formulas and that they possess something in their own art which is not inferior to the French, but distinctly different. The Frenchmen were confused in '37 by what the U.S. had to offer and the British were equally disconcerted in 1946. Clearly, the professional critics were hard-pressed to find a key to U.S. styles and aesthetic aims, and they could not find an immediate answer to it. It was not the quality of the paintings that offended British sensibilities, but rather the modes of expression. As usual, the unfamiliar was not readily understood or accepted, for hand-in-hand with lack of understanding goes lack of appreciation. The only paintings which met with unequivocal approval by the British were the Sargent's and the Whistlers, and both of these painters, though U.S.-born, are distinctly British in style

and character. By displaying predilection for these painters, the British critic at once revealed his aesthetic allegiances. Characteristically, native allegiance to the art style represented by John Singer Sargent no longer exists—one can even say with certainty that a severe disregard for this type of conventional art prevails in the U.S., and the erstwhile esteem for James Whistler has sunk to a rather low level in the U.S. All these considerations lead to the unavoidable conclusion that American art has moved away from codified European directions and has assumed a life of its own. Of course, on the periphery there are still some loose ties leading directly to Paris, but they are already noticeable as arbitrary imports, distinctly foreign to a new, authentically American art style.

This contemporary American art style displays vitality, originality and a feeling for craftsmanship which is unparalleled in the art world today. The background for such a condition as seen from the perspective of 1946 seems to be composed of forces highly germane to the development of art. Whereas the greatest activity in the field of painting in other countries is found in the principal cities, in the U.S. it is country-wide; even small communities show vital art interest, and art museums, art schools, art societies, are active in every part of the union. Important exhibitions are reaching rural and industrial communities everywhere. The annual purchases of art by U.S. galleries exceed by many times the total amount of purchase by the rest of the world. Universities offering art courses show a steady and rapid increase in the number of students. Thousands of applicants are turned away every month because of overcrowded facilities. It is estimated that names of more than 5,000 applicants were on the waiting lists of New York city art schools alone in 1946. Besides many richly endowed museums and public institutes which support art by purchase and by arranging exhibitions, powerful industrial organizations entered the field of art patronage, without exerting any pressure to influence artists aesthetically or politically. The Standard Oil Company of New Jersey, Pepsi-Cola company, Encyclopædia Britannica, International Business Machines and the Abbott Laboratories are among the most generous of the new art patrons.

The publication of books on painting in 1946 took an unprecedented upswing, and art magazines registered a very substantial increase in circulation. All this seems to indicate that there was in 1946 an ever-growing vital interest in art, and that in spite of the aftermath of the war years a widespread awakening to art as a force in national life was taking place. It is only to be expected that under such favourable conditions art should flourish. To be sure, sponsorship and patronage are not the sole agencies for the fostering of talent, but they go a long way toward activating the energies which develop art.

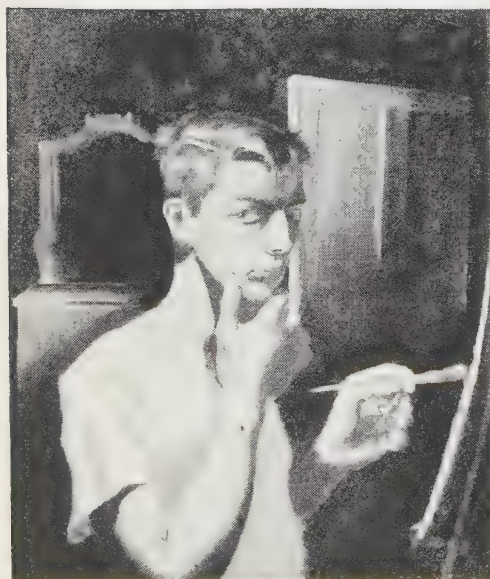
Aided by powerful sponsors (Guggenheim Foundation for Non-Objective Art, the Art of the Century Gallery and other galleries and art societies) the pre-eminence of abstract art in 1946 was marked, and it appeared that its popularity was steadily gaining ground. New York, Chicago, San Francisco and other large cities have become veritable strongholds of an art direction by now almost 40 years old, which was all but extinct before World War II. For the first time, the Art Institute of Chicago dedicated its regular national exhibition to abstract and surrealist art exclusively. The annual exhibition at the Whitney Museum of American Art was dominated by non-objective paintings, and similar tendencies were noted throughout the country. Many of the best-known museums have been purchasing abstract paintings, thus encouraging and perhaps directing large numbers of the younger painters towards this type of art. It must be said, however, that within the limited



Above: "CLOWN," an oil painting by Walt Kuhn. It was one of several pictures from the *Encyclopædia Britannica* Collection of Contemporary American Painting chosen in 1946 by the U.S. state department, to be included in one of three collections of U.S. paintings which were to be shown abroad



Above: THIS PAINTING, "Maker of Dreams" by Ivan Le Lorraine Albright, was added to the *Encyclopædia Britannica* Collection of Contemporary American Painting in 1946



Above: OIL PAINTING by Townsend S. Howe, 17, of the Rahway (N.J.) high school, which was awarded first prize at the National Scholastic Art Awards exhibition. Sponsored by *Scholastic Magazines*, the exhibit of high school art was held at the Carnegie institute from May 12 to June 2, 1946

Below: "GEAR," abstract painting by Karl Knaths, was awarded first prize at the Carnegie institute's exhibition "Painting in the United States, 1946." The prizes were announced on Oct. 11, 1946



boundaries of these disciplines, besides a great number of purely academic efforts, some noteworthy talents have come to light.

Remarkable talents, each of a different kind, entered the exhibition scene. Among them were two young men from Boston: the 23-year-old David Aronson and the 30-year-old Hyman Bloom, who impressed art circles as well as the lay public. Aronson, although relying on sources which were highly fashionable in 1946, to wit—Byzantine, Coptic, Primitive and Expressionistic—developed in encaustic technique works of extraordinary accomplishment. Bloom's Expressionism is more independent and mature. It relies chiefly on colour and texture. Both of these painters employ extreme distortions exceedingly well. Other art directions were documented in the work of Mark Tobey from Seattle. His peculiar brand of cryptic calligraphy is more odd than deep, more decorative than vital, but on the whole quite subtle. The work of the German Expressionist, Max Beckmann, also gained top favour with collectors and museums in the U.S. His art, too, is cryptic, employing extreme distortions which often fail to convince because they point to an obvious overdramatization which the subject does not always warrant. His design is mostly good, and his colours and texture have gained force of late. A comprehensive show by Frederic Taubes revealed that this painter has succeeded ultimately in translating the best of the technical achievements of the old masters into an idiom entirely his own, a language which stresses imagination and emphasizes pure paint quality. Primitive Mayan imagery intermixed with modern influences were well-assimilated in the work of Rufino Tamayo, and a particularly successful stylization combined with beautiful technique were seen in the work of Everett Spruce of Texas. These are but a few of a large number of interesting offerings viewed in New York in 1946.

Distinctly marked was the waning influence of the School of Paris. Even in England there were definite signs of the advent of a modern British school which slowly gains freedom from bondage to the academic and leanings on Paris. A number of painters made their debut at a show at the Buffalo Albright gallery which, if not wholly representative of British contemporary art, amounted to a good cross-section study of aesthetic tendencies in that country. Paintings relying on classic traditions yet distinctly contemporary in feeling and rendition were shown by William Coldstream, John Piper, Edward Bawden; modern eclecticism was evident in the work of Robert Colquhoun and Stanley Spencer, and academic abstractionism combining taste and feeling for texture and design, in that of John Tunnard. One of the strongest painters of nonobjective orientation proved to be Graham Sutherland. He, it appears, is one of the few painters who, although eschewing realistic references, retains contact with nature; he is sensitive to form and colour, and his work has none of the bloodless formalism which characterizes most of the nonobjective painters.

In spite of certain evidences of an abundance of talent, a clear picture of the artists' strivings in France can not be gained. There was a general spasmodic and erratic trend followed by the young painters who, perhaps fascinated by the glamorous and spectacular careers of Pablo Picasso and Henri Matisse, could not liberate themselves from the magnetic influences exerted by those painters.

Some of the leading writers on aesthetics tried to explain current trends in French painting by linking them with the new philosophical and literary doctrine—the so-called "Existentialism." However, the attempt to establish a connection between a fashion in philosophy and literature, and an aesthetic expression seems to be far-fetched and unjustifiable. When trying to interpret the picture of aesthetic strivings in Paris, the most obvious conclusion is that the influences of Picasso and Matisse

have hampered rather than promoted the development of original talent in painting. The use of extreme deformations has become a paradigm for a whole generation of painters. More often it seems that deformity is used as an end in itself rather than as a means. Following directly in the path of Picasso, Matisse and some other painters of the Fauve movement were: Leon Grischia, André Marchand, Edouard Pignon, Charles Walch, Francis Pailleux. These are among the best-known names. Various forms of Surrealism attracted many followers among the younger painters; Alfred Courmes, Jean Bertholle, Lucien Coutand—are but a few of a large host. The old *avant-garde*, with the exception of Pierre Bonnard, whose style has become more abstract, and Georges Braque, who maintains unerringly a high level of taste and technical perfection, showed no advance or consolidation of powers. On the contrary, most of their work has taken a stereotyped appearance and impoverishment of ideas is evident everywhere.

The sensation of 1946 was the discovery in the Netherlands that a number of paintings which found entrance into important museum collections as original work by Jan Vermeer, were painted by a Dutch contemporary, Hans van Meegeren. When Van Meegeren was indicted for collaboration with the German occupying forces—he was subsequently rehabilitated—the fraud came to light. (See also SCULPTURE.) (FR. T.)

Paints and Varnishes. United States paint sales in 1946 were approximately 20% more than those of 1945. The total sales rose steadily from year to year and were in 1946 about double that of 1936.

Although the demand for trade sales and industrial paints was great, the paint supply was considerably restricted because of the lack of some raw materials. General shortages of lead restricted the output of lead-containing pigments.

Over-all vegetable oil shortage was primarily the result of foreign requirements for edible oils and fats. The domestic flaxseed crop was estimated to be about 30% less than that of 1945. Even with Argentine production 10% more than 1945 production, the world output was considered to be about 40% less than the 10-yr. average. The search for competitive substitutes for drying oils led to a considerable amount of research and development work with soya-bean oil and tall oil, tall oil being a by-product of the paper industry. Styrene polymers were also the subject of considerable study.

Silicone resins, originally developed as electrical impregnating varnishes, were finding some use in heat-resisting enamels. Their colour and gloss retention were considered to be excellent. Their high price limited rapid adoption. The production of synthetic resins was greatly restricted by lack of certain raw materials—notably, glycerine, pentaerythritol and phthalic anhydride. In the field of lacquers, lacquer solvents and derivatives, the development of a more efficient process of wood treatment increased the yield of methanol greatly.

Although the requirements of military finishes were reduced to a minimum, the demand for housing aggravated the shortage, particularly of house paint, which contains a higher proportion of scarce drying oil. Interior finishes were more available since they require less oil, particularly water emulsion types. The popularity of resin emulsion increased and one major manufacturer announced semigloss paint in addition to the previous flat material.

In England production records toward the end of the year indicated the final count would show a good year, possibly 30% higher than production in 1938. (A. B. Ho.)

Palaeontology. It is exceedingly difficult to portray a fair picture of palaeontological work carried

out during 1946 because of publication delays and difficulties of international exchange of literature.

Palaeobotany.—A *Symposium of Paleobotanical Taxonomy* (T. Just, editor) represents an important contribution to knowledge of fossil algae, vascular plants, mosses and tertiary grasses, primarily of North America. It stresses the value of early palaeozoic algae for stratigraphic correlations in North America, and as indicators of oecological conditions of the past. A study is devoted to the difficult taxonomic problem of symbioses of certain algae with invertebrates that have been described under both animals and plants (M. K. Elias).

A great deal of interest has been focused on the study of fossil seeds. T. H. Hoskins and A. T. Cross published a revision of poorly understood palaeozoic seeds from coal balls of Iowa and other North American localities. A critical study of the taxonomic delimitation of the fern—Pteridosperm complex was given by N. W. Radforth, and W. C. Steere reviewed the fossil bryophytes of North America.

Invertebrates.—A number of contributions to the study of the Ostracoda have come forth, foremost among them a comprehensive treatise of the Pennsylvanian ostracods of Illinois (C. L. Cooper). F. M. Swartz and F. M. Swain described ostracods from the Cotton valley group in northern Louisiana, Morton B. Stephenson discussed an essentially new ostracod fauna from the Eocene Weches formation in Texas and Swain describes forms belonging to several genera from the Palaeocene, Eocene and Oligocene of Florida and Middle Mesozoic, non-marine forms from Brazil and New Mexico. A Cambrian ostracod was described from Oklahoma (E. A. Fredrickson). Franco Rasetti described a largely new early Upper Cambrian trilobite fauna from western Gaspé. All fossils described belong to one fauna of Dresbach age. M. A. Stainbrook reported on corals of the Independence shale of Iowa and C. W. Cooke discussed the echinoids of the Comanche series of Texas. B. L. Clark and J. W. Durham published an extensive account on the Eocene faunas from Bolivar, Colombia.

Vertebrates.—C. C. Young gave a short survey on continental Triassic vertebrates of China. The faunas show affinity to those of South Africa and especially those of the "Knollen mergel" facies of the German late Triassic. A. S. Romer offered a review of the changes that have taken place since the earlier part of the century in the interpretation of the morphological relationships among the early fish groups. D. H. Dunkle and P. A. Bungart discussed the relationships between the dinichthyid arthrodires of the Ohio shales with special interest focused on the adaptive modifications of the jaw mechanisms. E. C. Case wrote a census of the determinable genera of Stegocephalia of the world, giving a bird's eye view of the morphology, adaptive radiation and classification of the group. The highly interesting, Permocarboneous *Limnoscelis* was restudied (Romer). It is considered as belonging to a very primitive reptilian stem-group. At present the only North American representative of the reptilian family Procolophonidae, *Hypsognathus fenneri*, was redescribed by E. H. Colbert on the basis of new materials. The form represents a more advanced side line off the European *Leptopleuron* stock. W. K. Gregory, in an essay on the origin of the turtles, concluded that they can be derived from the Pareiasauria. A new crocodilian suborder, Sebecosuchia, was proposed by Colbert for the reception of two remarkable South American genera, *Baurusuchus* and *Sebecus*.

A popular account of the dinosaurs of Canada (C. M. Sternberg) is well illustrated with photographs of skeletons and collecting grounds. Skeletons of fossil birds are exceedingly rare in the palaeontological record. A very interesting study on fossil penguin remains from Patagonia by G. G. Simpson is based on a partial skeleton and a great many fragmentary finds. The mate-

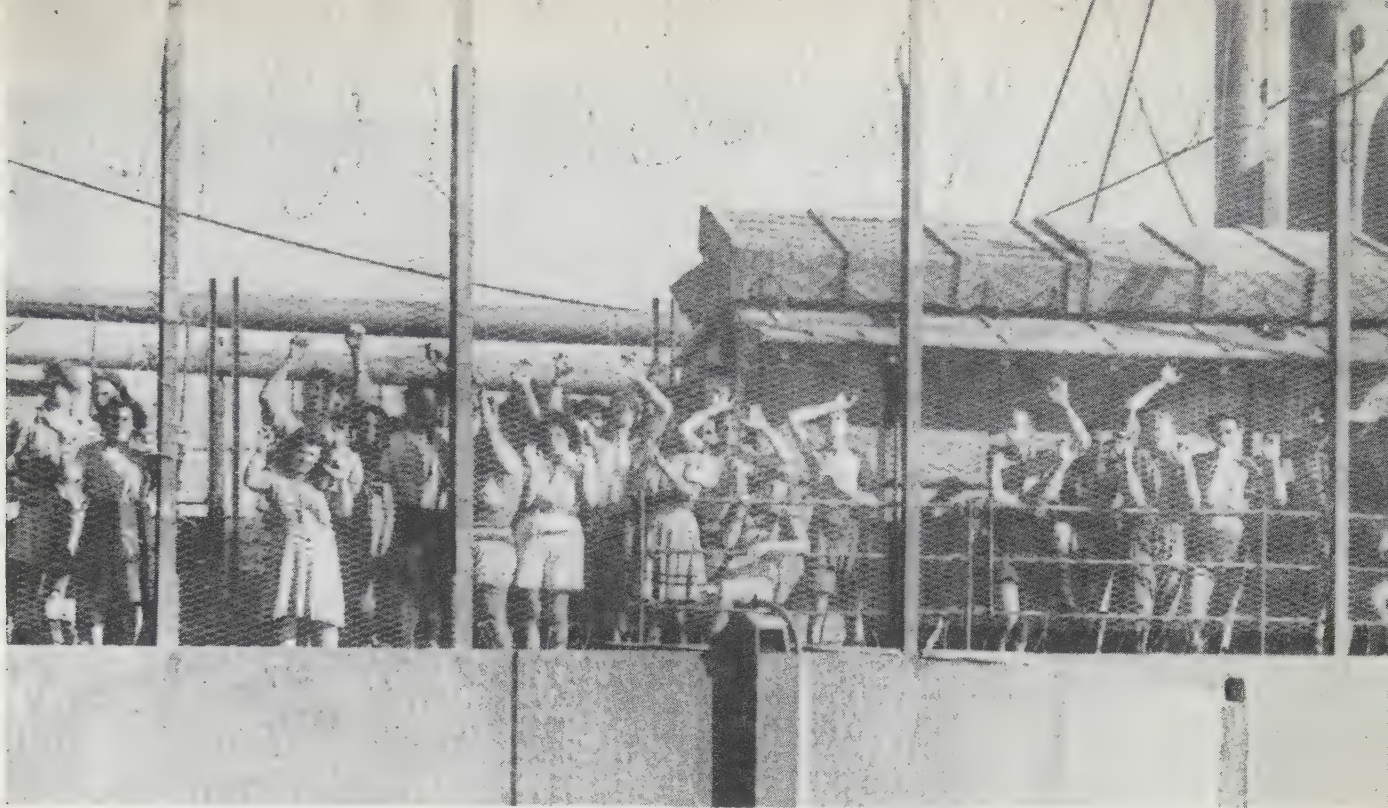
rials are well described with regard to individual variation, adaptive features and the typical pattern of avian structural organization. Simpson attempted a functional analysis of the penguin skeleton, pointing out that the submarine mode of locomotion is that of flying under water. It is suggested that this type of swimming was achieved directly from aerial flight without an intermediate terrestrial phase. Simpson, in a preliminary study on *Palaeogale* and allied early mustelids found the genera *Bunaelurus* and *Palaeogale* to be synonymous, but *Plesiogale* and *Palaeogale*, previously regarded as synonymous, are recognized as different forms. H. C. Raven and Gregory published a summary of the major conclusions of an unpublished work by Raven on the evolution of the kangaroos. The report is very well illustrated and confirms the general contention that the kangaroos have originated from small, arboreal forest-dwelling phalangers. (R. ZL.)

Palestine. Palestine lies on the western edge of Asia, bounded on the west by the Mediterranean, on the southwest by Egypt, on the south by the Gulf of 'Aqaba, on the east by Trans-Jordan, on the northeast by Syria and on the north by the Lebanon. Area: 10,159 sq.mi.; pop. (est. 1945) 1,750,000. Chief towns (pop. est. 1944): Jerusalem (cap., 155,314); Haifa (125,498); Jaffa (93,493); Tel Aviv (155,277). Languages: English, Arabic and Hebrew; religion: (1944) Mohammedan 1,061,277; Jewish 528,702; Christian 135,547. High commissioner: Lt. Gen. Sir Alan Gordon Cunningham.

History.—In the early months of 1946 the Anglo-U.S. committee of inquiry regarding the problems of European Jewry and Palestine completed its investigations. Events in Palestine and the Palestine question in the international field, revolved throughout the year around the report, which the committee published in Lausanne on March 29. The committee's inquiries (evidence was taken in London, Vienna, Berlin, Prague, Warsaw and all zones, except the soviet, of occupied Germany, as

RESCUE WORKERS digging in the ruins of the King David hotel in Jerusalem, which had been bombed by members of the Irgun Zvai Leumi, a Zionist organization, on July 22, 1946





JEWISH REFUGEES who attempted illegal entry into Palestine in 1946 being shipped to Cyprus

well as the capitals of the Arab countries of the middle east) were undertaken to the accompaniment of a sustained campaign of terrorism by Jewish extremist organizations against the British administration in Palestine, continued pressure by the leading Arab spokesmen against the admission of any more Jewish immigrants and public controversy on the widest international scale. A joint statement by King Ibn Sa'ud of Saudi Arabia and King Farouk of Egypt, issued on Jan. 10, declared once again that, "Palestine is an Arab country," and pledged every effort by the Arab kings, presidents and peoples in supporting the Palestinian Arabs. The declared Zionist purpose, on the other hand, remained the winning of unrestricted immigration rights into Palestine for the Jews and the setting up of an independent majority Jewish state.

In its report, the committee unanimously recommended that 100,000 immigration certificates should be issued at once to Jewish victims of Nazi and fascist persecution and used "as far as possible in 1946." The report recommended the continuance of the mandate, pending the execution of a trusteeship agreement under the United Nations, on the ground that, "Any attempt to establish either an independent Palestine state or independent Palestine states would result in civil strife such as might threaten the peace of the world."

The unanimity of the committee, events soon proved, did not extend to governmental levels. Clement Attlee declared on May 1 that the implementation of the report by Britain would depend first on "the extent to which the U.S. government would be prepared to share the resulting military and financial responsibilities," and secondly on "the active co-operation of the Jewish agency's counterproposal for the creation of 'a Arab countries unanimously rejected the recommendations of the report, and a congress of Arab princes and presidents, convened by King Farouk at Inshass near Cairo at the end of May, threatened the retaliation of the Arab world in the event of the acceptance of the report by the United States and Britain.

Meanwhile the terrorist attacks in Palestine continued, taking almost every conceivable form. Attacks on airfields and radar stations, armouries and military posts, the wrecking of

railway lines and stations, road-mining, ship-mining by saboteur swimmers in Haifa harbour and bank holdups all bore witness to organization on a large, daring and ingenious scale, and were by general admission made possible chiefly by the active or passive support which the terrorists received from the great majority of the Jewish population. On July 22 *Irgun Zvai Leumi*, the military organization of the Revisionists, blew up part of the King David hotel in Jerusalem containing British military headquarters and the civil secretariat, 91 persons being killed and 45 injured.

In the summer the steady trickle of illegal immigrants, which had started to arrive soon after World War II, became a flood, 3,800 arriving in July alone according to British official figures. On Aug. 12 the British government decided "no longer to tolerate this attempt to force its hand in framing a new policy for Palestine" and began to send all new arrivals to camps in Cyprus.

On July 1 Herbert Morrison produced a plan for Palestine on the basis of which Britain would issue 100,000 certificates. He proposed that Palestine should be divided into an Arab province, a Jewish province, a district of Jerusalem and a district of the Negeb, over-all sovereignty remaining, however, in the hands of the high commissioner, who would be responsible for defense, foreign relations and customs and excise. The Jewish agency and the Arab higher committee both refused to discuss the "Morrison plan," and boycotted the Palestine conference which opened in London on Sept. 9. Pres. Harry S. Truman in a cable to Attlee on Oct. 4 rejected the British partition proposal which had been under discussion between Britain and the delegates of the Arab states at the conference, and urged the immediate issue of the certificates on the basis of the Jewish agency's counterproposal for the creation of "a viable Jewish state in control of its own immigration and economic policies in an adequate area of Palestine instead of the whole of Palestine."

Through the autumn discussions continued, however, between the Jewish agency and the British government. Important signs that agreement was being approached were the denouncing "without reservation" by the Zionist inner council of the terrorists on Oct. 29, accompanied by an appeal to the Jewish community to "isolate these groups and deny them all encouragement, sup-

port and assistance," and the release on Nov. 5 of eight leading members of the Jewish agency detained in the Latrun concentration camp from the previous June. This was the condition on which the agency leaders had said that they might be prepared to negotiate with Britain and participate in the London conference which had been temporarily broken off in October to enable delegates to attend the general assembly of the United Nations in New York. A definite decision was postponed, however, until after the World Zionist congress meeting at Basle in December had had the opportunity to discuss future Zionist policy. (S. J. HN.)

Education.—(1942-43): Arab public system maintained by the government: elementary schools 399, pupils 55,725; secondary schools 13, pupils 910. Jewish public schools (*Va'ad Leumi*) 488 (pupils: elementary 51,022; kindergarten 8,778; secondary 4,803, technical, etc., 1,188, training colleges 1,138); other Jewish schools 259, pupils 23,662. Non-government schools other than Jewish totalled 342 (pupils: Moslem schools, elementary 11,864 and secondary 303; Christian and other schools, elementary 16,389 and secondary 2,391). Hebrew university, Jerusalem (1941-42), teachers 132, students 657.

Banking and Finance.—Revenue (est. 1946-47) £P19,781,000; expenditure (est. 1946-47) £P20,484,000; public debt (March 31, 1943) £P3,600,000; notes in circulation (July 31, 1946) £P45,800,000; exchange rate (1946) £P1=£1 sterling=\$4.03.

Trade and Communication.—Overseas trade (merchandise) 1945: imports £P40,691,000; exports £P20,396,000. Roads, 1942: for all weather 1,590 mi., seasonal 950 mi.; railways, 1942: broad gauge 302 mi.; narrow gauge (Hejaz railway) 111 mi.; airways, 1942: passengers 6,740; mail 53 short tons; shipping 1943-44: entered Haifa, 827 (tonnage 2,186,333); motor vehicles, 1944: heavy commercial 2,838; light commercial 848; taxis 1,246; omnibuses 1,234; private cars 3,140; motor cycles 1,371; wireless receiving set licences (1944) 57,362; telephone subscribers (1940) 10,716.

Agriculture and Mineral Production.—Production, 1945 (in short tons): wheat 65,250; barley 83,894; durrah 41,788; maize 5,923; tobacco 861; potatoes 36,753; tomatoes 67,711; olive oil (1945-46) 11,942; grapes 41,110; fish 4,680; other products, value of exports: all fruit £P2,225,000 (oranges £P1,564,000, grapefruit £P503,000); wine (1944) £P42,872.

Palmyra Island: see PACIFIC ISLANDS, U.S.

Panamá. A republic of Central America adjoining South America. It is bisected by the Canal Zone, which is leased to the United States. Area: 28,575 sq.mi.; pop. (1940 census): 631,637 (not including the Canal Zone, which had a pop. of 51,827). The capital is Panamá city (111,893); other cities are Colón (44,393), David (9,222), Chitré (4,790), Santiago (4,253). Language: Spanish; religion: Roman Catholic. President in 1946: Dr. Enrique A. Jiménez (provisional).

History.—The year 1946 saw Panamá moving farther along the road to full nationalization of its resources. On Feb. 28 the constituent assembly adopted a new constitution (the country's third since independence in 1903), reconstituted itself as the legislative assembly and extended the term of the provisional president to Sept. 30, 1948. Pres. Jiménez declared that he would remain in office only as long as "necessity demands." The new constitution, approved March 1, opened the wholesale commerce of the nation to all citizens and foreigners but restricted the retail trade to nationals and registered aliens.

The government took over direct control of all gambling enterprises of the country in March, and on Nov. 2 congress passed an enabling act which permitted the executive department to purchase within five years all of the commercial electricity plants. The United States had returned 72 of the military and naval bases leased during the war by September and was preparing to relinquish 27 more. Negotiations with the Panaman government for the retention of other bases resulted in a flurry of opposition from ultranationalist elements.

Plans of the Liberal Renovation party to elect its leader, Francisco Arias Paredes, to the presidency in 1948 collapsed late in July when the standard-bearer died of a heart attack in Medellín, Colombia. In the same month, former president Arnulfo Arias, leader of the ultranationalists, was acquitted by the supreme court of charges that he instigated the abortive revolt in Colón in Dec. 1945. Arias was released after a seven-

month imprisonment without trial which was dramatized by his hunger strike and by a mass meeting in Panamá city protesting his incarceration. In September the National Revolutionary party was promoting his candidacy for the 1948 presidential campaign.

Public works during 1946 (chiefly construction on the national airport, filling in of the Colón swamps and building of schools throughout the republic) were impeded by shortages of materials. The private building boom continued, with permits for construction amounting to more than \$4,500,000 being granted during the first six months. Work on a new \$1,200,000 electrical power plant in Panamá city was begun in midyear. In September a 25-year contract was let to a foreign company for the exploration and production of oil in an area of approximately 17,900 ac. Owing to a budgetary deficit, amounting to 5,000,000 balboas in November, Panamá was unable to make its second annual contribution of 133,333 balboas to the U.N.R.R.A. In December the government reduced the salaries of public officials in the interests of further economy, Pres. Jiménez taking the most severe reduction, 25%.

Education.—In 1942 Panamá had 670 primary schools, with an enrolment of 74,039; 29 intermediate schools, enrolling 8,407; and a national university, with 857 students. The budget for the 1945-46 fiscal year allotted 5,140,000 balboas to public education.

Finance.—The monetary unit is the balboa, maintained at par with the U.S. dollar. The budget for the fiscal year 1946-47 estimated revenues and expenditures balancing at 38,178,303 balboas. Increased duties were voted on many imports, effective Jan. 1, 1947, to cover increased expenses. In 1945 the Panama canal supplied 37% of the national revenues. The outstanding external debt amounted to \$15,386,000 in 1946. On Oct. 11 the National bank was ordered to increase its capital to 2,000,000 balboas. Bank assets on Dec. 31, 1945, were 116,505,464 balboas; individual deposits, 74,275,932 balboas.

Trade and Resources.—Imports in 1945 were valued at 45,648,125 balboas (37,904,620 balboas in 1944) and exports amounted to 4,507,137 balboas (2,927,229 balboas in 1944). Imports were up 39% and exports rose 55% during the first half of 1946. The United States supplied 62% of the trade in 1945 and received 85%. Imports of cement were at a record high of 63,895 metric tons. Production of bananas (the leading export crop) increased 82% to 2,571,950 stems in 1945; abacá fibre rose 76% to 11,161,731 lb.; coconuts fell 52% to 6,595,515 units. Beer production (the leading manufacturing industry) amounted to 6,959,584 gal. in 1945.

Communication.—Railroads measured 396 mi. in 1942. In 1945 there were 1,097 mi. of transitable highways (399 mi. unimproved). The new national airport was expected to be ready for use late in 1947. Transfer of foreign shipping to Panamá registry (approximately 400 ships totalling 1,600,000 tons) raised the republic's world standing in merchant marine tonnage to fourth place in 1946. (See also CENTRAL AMERICA.)

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Pan-American Highway: see ROADS AND HIGHWAYS.

Pan American Union. For the Pan American union the year 1946 was a period of transition and of adaptation to the changing international situation. The Inter-American Conference on Problems of War and Peace held at Mexico in 1945 provided for a reorganization of the Inter-American system and its central organ, the Pan American union. Some of the provisions were put into effect during 1946.

One of the principal changes in the organization of the Pan American union arising out of the conference of Mexico was that providing for the appointment of special ambassadors to serve on the governing board. Heretofore the board had been composed of the diplomatic representatives in Washington of the 20 Latin American countries and the secretary of state of the United States. The conference sought to make such appointments obligatory, but following an objection raised by a number of governments the designation of special ambassadors was left optional until the Bogotá, Colombia, conference. Special representatives were named by Argentina, Brazil, Colombia, Mexico, Peru, the United States and Uruguay. For a



PRESIDENT TRUMAN addressing the governing board of the Pan American union in Washington, D.C., on April 15, 1946

while Guatemala and Haiti also had special ambassadors, but at the end of the year both countries were represented by their Washington diplomatic representatives.

For the first time also the governing board put into practice the principle of rotation in the office of chairman, which heretofore had always been occupied by the U.S. secretary of state. For the year 1946 the ambassador of Brazil, Dr. Carlos Martins, was elected, thus becoming the first Latin American to hold the office. On his retirement from the board he was succeeded by the vice-chairman, Dr. Guillermo Sevilla Sacasa, ambassador of Nicaragua. At elections held on Nov. 6, 1946, the special ambassador of Colombia, Dr. Antonio Rocha, was elected chairman for 1947.

On Dec. 5, 1946, Dr. L. S. Rowe, director general of the Pan American union from 1920, died as the result of an automobile accident. In considering the procedure to be followed in electing a successor, the governing board decided to put into immediate operation the principle of the Mexico City resolution that a director general should not be succeeded by a person of the same nationality. Feb. 12, 1947, was the date set for the meeting of the board at which, by this decision, the first Latin American director of the Pan American union was to be chosen.

The Inter-American Economic and Social council, created by the Mexico City conference, completed its organization and began to function at the Pan American union during 1946. The Hon. Spruille Braden, assistant secretary of state of the United States, was elected first chairman of the council. On Nov. 7, 1946, the representative of Costa Rica, Dr. J. Rafael Oremano, was elected chairman for 1947.

The Ninth International Conference of American States had been originally scheduled for Dec. 1946, but on motion of the government of Colombia the governing board postponed the meeting for a year to Dec. 1947. In anticipation of the conference the board prepared a series of projects, including a basic convention on the organization of the Inter-American system, a declaration on the rights and duties of American states and proposals for the establishment of an Inter-American

Cultural council and a Council of Jurists.

Because of the unwillingness of the United States to sign a mutual defense pact with the government of Argentina, the Conference on the Maintenance of Continental Peace and Security, scheduled for Rio de Janeiro, Brazil, in April, had to be postponed for the second time. By the end of the year no new date had been set. The conference was expected to negotiate a permanent treaty of continental defense to replace the provisional Act of Chapultepec signed at Mexico in 1945.

In the matter of relations between the Inter-American system and the world organization the governing board at the meeting of Nov. 6 adopted a series of principles, declaring that inter-American agencies should establish the closest co-operative relations with similar world organizations, but that on entering into agreements with world organizations, inter-American agencies should maintain their identity and position as an integral part of the Inter-American system. (See also ARGENTINA; FASCISM; INTER-AMERICAN DEFENSE BOARD; UNITED NATIONS.) (W. Mr.)

Papen, Franz von (1879—), German statesman and diplomat, was born Oct. 29 in Werl, Germany. After attending military schools, he entered the army and was promoted to a captaincy in 1913. The following year (1914), he was appointed military attaché in the German embassy in Washington, where, with Capt. Richard Boy-Ed, the German naval attaché, he directed German espionage and sabotage activities. In 1915 the U.S. state department ordered the immediate recall of both attachés because of their "improper activities." Returning to Germany, Von Papen rejoined the army, but after the Armistice he became a member of the Prussian diet.

Field-Marshal Paul von Hindenburg named Von Papen chancellor in 1932, but the latter resigned in late 1932 and threw his political support to Hitler. On becoming chancellor of the first nazi cabinet, Jan. 30, 1933, Hitler named Von Papen as vice-chancellor.

Von Papen, however, resented nazi failure to consult with the conservatives and criticized the party in his celebrated Marburg speech in June 1934. Enraged, Hitler ordered his arrest.

Von Papen was subsequently released July 3, 1934, and became a special envoy to Austria. He encouraged Austrian nazis, arranged the Schuschnigg-Hitler conference, Feb. 12, 1938, in Berchtesgaden, and on March 10, 1938, the day before Hitler ordered the occupation of Austria, he returned to Berlin.

A year later (April 1939) Von Papen became ambassador to Turkey, holding this post until 1944 when Ankara severed diplomatic relations with the axis. Shortly afterward he returned to Berlin.

Toward the close of World War II, he was taken prisoner (April 10, 1945) by U.S. troops in the Ruhr and was indicted by the International Military tribunal at Nuernberg as a war criminal. The court stated there was no evidence showing that Von Papen had been a party to planning aggressive war and acquitted him Oct. 1, 1946.

Paper and Pulp Industry. The year 1946 was an incredible year insofar as the pulp and paper industry was concerned. For nearly every use of paper there was an insufficient supply and yet, by the end of the year the mills in the United States had produced more than 19,200,000 tons. Adding imports and subtracting exports, the total new supply for the year reached 22,415,000 tons.

The apparent shortage at the end of the year was about 4,000,000 tons. Some of this probably represented duplicate

Table I.—U.S. Consumption of Fibrous Raw Materials

Types of Materials	1940	1942	1945
Groundwood	1,862,575	1,926,099	1,905,660
Defibrated and exploded	276,413	527,072	683,580
Sulphite, total	2,906,794	3,079,227	2,583,934
Sulphate, total	3,964,729	4,632,640	4,675,711
Soda, total	531,581	468,661	440,467
Semichemical and screenings	239,647	404,321	533,281
Waste paper	4,667,502	5,494,959	6,801,080
Rags	402,600	480,614	415,804
Straw	491,821	516,087	520,311
Manila fibre, old rope	20,187	28,205	7,201
Other fibre	128,959	300,045	403,677
All Types—Short Tons	15,492,808	17,857,930	18,970,706

Table II.—U.S. Paper Production, 1940-45

	1940	1941	1944	1945
Newsprint	1,056,304	1,043,999	720,752	725,475
Book papers	1,666,488	2,025,891	1,435,785	1,492,566
Paperboard	6,449,548	8,399,960	8,962,568	8,913,736
Wrapping	2,500,818	2,778,441	2,559,447	2,403,182
Writing	599,452	913,727	927,577	963,858
Cover	26,944	36,287	44,795	45,385
Tissue	761,712	912,874	965,433	980,788
Groundwood	550,453	642,676	593,094	636,026
Building	682,460	917,912	881,246	883,259
All Other	189,530	90,598	90,107	326,690
Total—Short Tons	14,483,709	17,762,365	17,182,804	17,370,965

Table III.—U.S. Production and Consumption of Paper and Paperboard

Year	U.S. Population	Production—short tons		Per Capita Consumption—Pounds	
		Paperboard	Paper	Paperboard	Paper
1904	82,601,384	559,700	2,546,900	13.6	61.7
1909	90,691,354	883,100	3,238,500	19.5	71.3
1914	97,927,516	1,291,800	3,860,900	26.4	78.8
1919	105,003,065	1,867,100	4,099,000	34.4	78.1
1925	114,867,141	3,286,600	5,895,600	77.2	102.7
1930	123,090,000	4,060,700	6,108,490	66.0	99.4
1935	127,521,000	4,616,000	5,784,000	73.0	90.7
1940	131,669,275	6,450,000	8,034,000	98.0	122.0
1945	139,621,000	8,913,736	8,457,229	127.6	121.2

Table IV.—U.S. Wood Pulp Production

Year	(short tons)					
	Unbleached sulphite	Bleached sulphite	Total sulphite	Groundwood	Soda	All others
1925	790,510	612,576	409,768	1,612,019	472,647	64,697
1930	815,897	751,166	949,513	1,560,221	474,230	79,281
1935	634,947	944,620	1,467,749	1,355,819	485,162	144,002
1940	990,668	1,601,016	3,725,135	1,762,821	548,047	164,940
1942	1,212,354	1,718,192	4,725,133	1,889,607	453,459	228,975
1944	862,298	1,523,221	4,548,810	1,557,681	412,755	1,203,678
1945	815,969	1,543,762	4,471,875	1,696,184	429,757	1,217,182

Table V.—Cellulose Consumption by the U.S. Rayon Industry

Year	Total pulp	Wood pulp		Linters pulp		Raw cotton
		Short tons	%	Short tons	%	Linters bales
1930	72,000	45,000	62	27,000	38	115,000
1935	137,000	86,000	63	51,000	37	218,000
1940	238,000	178,000	75	60,000	25	256,000
1942	330,000	280,000	85	49,500	15	211,000
1944	367,000	285,000	78	82,000	22	350,000
1945	400,000	297,000	74	103,000	26	438,000

Table VI.—World Production of Chemical Pulp, 1938*

(thousands of short tons)			
United States	4,596	Estonia	87
Sweden	2,620	Lithuania	60
Finland	1,622	Rumania	52
Germany	1,469	Switzerland	50
Canada	1,147	Netherlands	46
Japan	643	Italy	45
U.S.S.R.	600	Newfoundland	41
Norway	502	Latvia	32
Austria	300	Yugoslavia	23
Czechoslovakia	280	Great Britain	16
France	139	Mexico	3
Poland	120		
Total	14,493		

*Latest data available in 1946.

Table VII.—U.S. Production and Consumption of Paper, Wood Pulp and Pulpwood

Year	Paper (short tons)		Wood Pulp (short tons)		Receipts of Pulpwood (cords)		Total
	Production	Consumption	Production	Consumption	Domestic	Imported	
1899	2,167,593	2,158,000	1,179,525	1,216,254	1,617,093	369,217	1,986,310
1909	4,216,708	4,224,000	2,495,523	2,856,593	3,207,653	793,954	4,001,607
1920	7,334,614	7,846,827	3,821,704	4,696,935	5,014,513	1,099,559	6,114,072
1925	9,182,204	10,590,090	3,962,217	5,590,304	5,005,445	1,088,376	6,093,821
1930	10,169,140	12,314,819	4,630,308	6,463,185	6,089,852	1,105,672	7,195,524
1935	10,506,195	12,490,886	4,925,664	6,877,869	6,590,942	1,037,332	7,628,274
1941	17,762,365	20,418,188	9,978,400	10,801,223	15,400,000	1,292,640	16,692,640
1943	17,035,688	19,493,824	9,680,462	10,635,320	13,581,000	1,712,000	15,293,000
1945	17,370,965	19,822,453	10,167,200	11,365,412	15,254,000	1,729,000	16,983,000

Table VIII.—Canadian Paper Production

Kind	1942	1944	1945
Newsprint	3,257,000	3,040,000	3,324,033
Book and writing paper	121,000	154,000	162,198
Wrapping paper	166,000	157,000	162,175
Paperboard	619,000	538,000	540,870
Tissue	38,000	46,000	50,418
Other paper	41,000	59,000	65,621
Total (short tons)	4,242,000	3,994,000	4,305,315

Table IX.—Canadian Wood Pulp Production

Kind	1942	1944	1945
Groundwood	3,236,983	3,076,296	3,329,590
Sulphite, bleached	603,390	586,699	604,583
Sulphite, unbleached	1,157,138	1,023,930	1,033,294
Sulphate	460,986	467,726	479,616
Screenings, chemical	51,294	48,826	56,853
Screenings, mechanical	51,277	36,846	47,251
All other pulp	33,728	31,814	35,617
Total (short tons)	5,594,796	5,271,137	5,586,804

orders and speculation. For the immediate future the prospects appeared bright. It was evident that during 1946 and 1947 about 2,500,000 tons of new papermaking capacity would come into operation. There were 21 machines installed in the period 1941-45. These increased tonnage by less than 500,000 tons per year. The new tonnage represented by the 54 machines which were to be built in 1946-48 would amount to about 2,000,000 more tons.

Canada.—The 1945 pulpwood cut of 7,500,000 cords was the largest in the industry's history. For 1946, 110% of this was required, with a shortage of labour caused by the withdrawal of prisoners of war. The gross value of products (\$398,-804,515) exceeded any previous year as did the net value (\$180,-401,885). The number of workers employed (39,996) and the power equipment in use (2,082,462 h.p.) reached new peaks. This marked the sixth consecutive year of record breaking increases. The volume of pulp and paper manufactured in 1945 was higher than the previous year, but slightly lower than the record production of 1941.

United Kingdom.—Statistics relating to Great Britain production were not available at the close of 1946. Following the end of the war, limited increases in woodpulp and paper imports helped the local consumption situation a little. Newspapers, for example, were permitted to add two pages to their four-page format. Imported woodpulp replaced some old papers and resulted in brighter paper. Considerable progress was made in the manufacture of containers and packaging material. Shortage of fuel was one of the principal deterrents that retarded paper production.

FILMS.—*Paper* (Encyclopedia Britannica Films Inc.). (R. G. M.)

Papua: see BRITISH EMPIRE; NEW GUINEA; PACIFIC ISLANDS, BRITISH.

Paraguay. A landlocked republic in south-central South America. Area 154,165 sq.mi.: pop. 1,108,040. Racially the people are a homogeneous blend of Spanish, Portuguese and Italian stocks, with a good deal of Guaraní Indian blood discernible especially in the remote thinly populated regions. Official language: Spanish. The Guaraní tongue has survived more than the blood but is secondary and recessive. Capital and chief centre, Asunción, pop. (1945) 172,400. Other cities: Villarrica 30,176, Concepción 16,007, Encarnación 15,610. Official religion: Roman Catholic. President in 1946: Gen. (Marshal) Higinio Morínigo.

History.—As 1946 opened Paraguay adhered to the Bretton Woods agreements, and in the summer signed a recipro-

cal trade agreement with the United States. In June 1946 the president dismissed his quasi-fascist army leader Col. Benitez Vera and was able to suppress the consequent rebellion. In July he granted wide political amnesties, freedom of the press and resumption of political activity. A predominantly civilian cabinet of Colorado and Franquista (Febrerista) members was formed, and in August the Communist party was given legal standing. In September a call was issued for free national elections to be held in December to choose a constitutional assembly. Agitation arising from the return of different exiled politicians resulted in temporary curtailment of political privileges for one party or another at times, and anti-Communist demonstrations took violent forms.

Education.—In 1946 the 2,000 elementary schools had about 65,000 pupils, and there were 6 agricultural (secondary) schools. National normal schools and a national (junior) college were maintained; and the National university at Asunción, founded in 1888, had 1,300 students in 11 faculties.

Defense.—Paraguay's strategic situation beside the frontiers between the two great rival powers of South America, coupled with its conspicuous reputation for military prowess in the two leading wars of South America, give importance to its army of 8,000 men and its policy of universal 2-year military training for all males. As the Paraguay river is the country's life line, a fairly modern navy of about 1,400 men was maintained. About 50% of the national revenue was devoted to defense.

Finance.—The unit of Paraguayan currency is the guarani which in 1946 was continued stable at 32.4 U.S. cents. National expenditures in 1944 were \$9,500,000, and they later increased with indications of a budgetary surplus. Revenue collections in 1946 showed strong increases, with internal imposts promising to reach \$4,000,000 for the year and customs duties nearly as much. At the beginning of 1945 the national debt was \$22,000,000, and it gradually rose as Paraguay availed itself of credits opened by Brazil and the United States—about \$6,000,000 from each. Note circulation increased in 1946 by \$1,000,000 to a total of \$10,000,000. The government also eliminated the last "free-market" transactions in foreign exchange, so that it controlled all foreign currency inward or outward in connection with exports, imports and investments. Interest rates were high, about 8%.

Trade and Communication.—The value of Paraguayan exports in 1945 was \$23,000,000, an increase of \$9,000,000 over 1944. The leading exports in 1945 were canned meat \$4,300,000, quebracho tannic extract \$3,700,000, forest products \$3,650,000, cotton \$3,600,000, hides \$2,900,000, tobacco \$1,250,000 and petitgrain (a perfume base from bitter orange leaves) \$735,000. Also important were yerba maté (Paraguay tea, a holly), meat extract, wild animal skins and vegetable oils. The latter included castor oil, cottonseed oil and peanut oil. The United Kingdom is Paraguay's leading customer, with Argentina second and the United States third. Uruguay took hides and yerba maté in good quantities. Invoice data for 1946 indicated that shipments to the United States had fallen greatly because canned meat for army use was deflected to the United Kingdom and quebracho tanning extract was yielding to other agents. Paraguay's imports in 1944 were \$13,000,000, but they later increased. They consisted of textiles, foodstuffs, manufactures of metals, vehicles and boats, mineral oil, machinery, paints, soap and chemicals. The leading supplier was Argentina, with Brazil, United States, Uruguay, United Kingdom and Peru following in order.

The (Argentine) Dodero line of river steamers connected Asunción with Buenos Aires. A Brazilian subsidized line operated via Montevideo and Asunción to Corumbá (Brazil) on the upper Paraguay. The Paraguayan government organized a

national merchant marine. The standard-gauge Central railway of Paraguay (British) runs from Asunción southeast through the best farm and forest area to join the Argentine railways by car ferry at Encarnación-Posadas, 290 mi. A Brazilian branch railway to connect northeast Paraguay with São Paulo, Brazil, via Campo Grande was nearing completion in 1946. More than 300 mi. of paved roads were built with aid from the Export-Import bank at Washington and aided Paraguay's commerce with Argentina, but the projected Estigarribia highway to permit intercourse with Brazil remained dormant at the end of the year. Pan American World Airways had through north-and-south planes serving Asunción weekly, and Panair do Brasil had two round trips to Rio de Janeiro. An Argentine hydroplane line followed the river to Buenos Aires and returned three times weekly. The number of telephones in Paraguay was less than 4,000 in 1945. The telegraph system had about 200 offices throughout the country and a line to Buenos Aires. There were 5 radio stations and 16,000 receiving sets.

Agriculture.—The 1946 sugar cane crop was estimated at 17,000 tons, permitting some export. The small farmer as distinguished from the cattle rancher depended on cotton for cash, and the 1946 crop attained bumper proportions, probably about 50,000 tons. Extensive agricultural experimentation and collaboration was carried out by United States and Brazilian experts.

Manufactures.—The principal industrial products are derived from the farm and forest, the 1944-45 figures being canned meat 19,000 tons, quebracho tanning extract 50,000 tons, ground yerba maté 16,500 tons, vegetable oils 6,000 tons, with lesser quantities of sugar rum and prepared tobacco. Certain common manufactures are likewise produced to some extent; such as soap 4,000 tons, textiles (mainly cotton, with some wool and silk) 1,200 tons, beer and malt, chemical products, glass containers, matches, footwear, furniture, etc.

Mines and Forests.—The Union Oil Co. of California carried its exploratory developments in the Chaco almost to conclusion in 1946 but the results were not public. While sawmills and plywood manufacture were increasingly active, most of the wood was floated down the Paraná river to Argentina as logs or squared timber. The value of exports in 1945 was \$3,500,000. (W. Fr.)

Parents and Teachers, National Congress of.

The National Congress of Parents and Teachers, the P.T.A., was founded in 1897 as the National Congress of Mothers. In 1946, its membership was nearly 4,000,000 parents, teachers and other interested persons, of whom more than 1,000,000 were men. These members were organized into 27,000 local parent-teacher associations, functioning in each of the 48 states, the District of Columbia and Hawaii.

The P.T.A. recognizes no social, economic, political, cultural or religious distinctions among its membership. Anyone can join who is concerned with the best interests of children and pledges himself to promote their welfare.

In the fall of 1946 the national officers of the organization selected four areas for major emphasis during the years 1946-49. This four-point program includes *school education*, *health*, *world understanding* and *parent and family life education*.

As one means of improving the public schools, parent-teacher members worked for the enactment of a measure providing federal aid for education. They were also making a united effort to alleviate the critical shortage of teachers, and to this end many state congresses were establishing scholarship funds for young people who planned to enter the teaching profession.

During the summer and autumn months of 1946 one of the best known among parent-teacher health projects was carried

on by local associations—the summer round-up of the children, an annual medical checkup of children entering school for the first time. As in other years, P.T.A.s also gave support to another major project in the program—the sponsoring of school lunches in order that pupils might have the benefits of a hot meal during the noon hour at school. Safety education, long a part of the parent-teacher work, received special emphasis in 1946, and juvenile protection was also stressed as a means of reducing the alarming delinquency statistics of today.

The National congress for many years conducted a program of parent and family life education. Directed toward strengthening the stability of U.S. homes, this type of education became increasingly important during the transition from military victory to an enduring peace. To maintain a well-informed membership, the National congress conducted an extensive publications program of books, leaflets, pamphlets and other informational material. Particularly significant in 1946 were the *National Parent-Teacher*, official P.T.A. magazine, and a monthly newsheet, the *National Congress Bulletin*. Other publications were *The Preschool Age—A Period of Promise*, an aid to parents of small children; *Looking Toward Tomorrow's Education*, published jointly by the National congress and the National Education association; and *How To Stay Alive as Long as You Live*, a collection of essays for the personal enrichment of adults. During 1946 the National congress again sponsored *The Baxters*, a weekly radio program presented in co-operation with the National Broadcasting company for 52 weeks.

The National congress also extended its interest to community betterment and international affairs, because it believed that the welfare of children and youth is, in the last analysis, dependent upon world understanding and good will. Accordingly, in 1946 parent-teacher units sought to acquaint their members and other interested adults with the structure and purpose of the United Nations organization.

The office of the National Congress of Parents and Teachers was in 1946 at 600 S. Michigan Blvd., Chicago 5, Ill.

(M. W. H.)

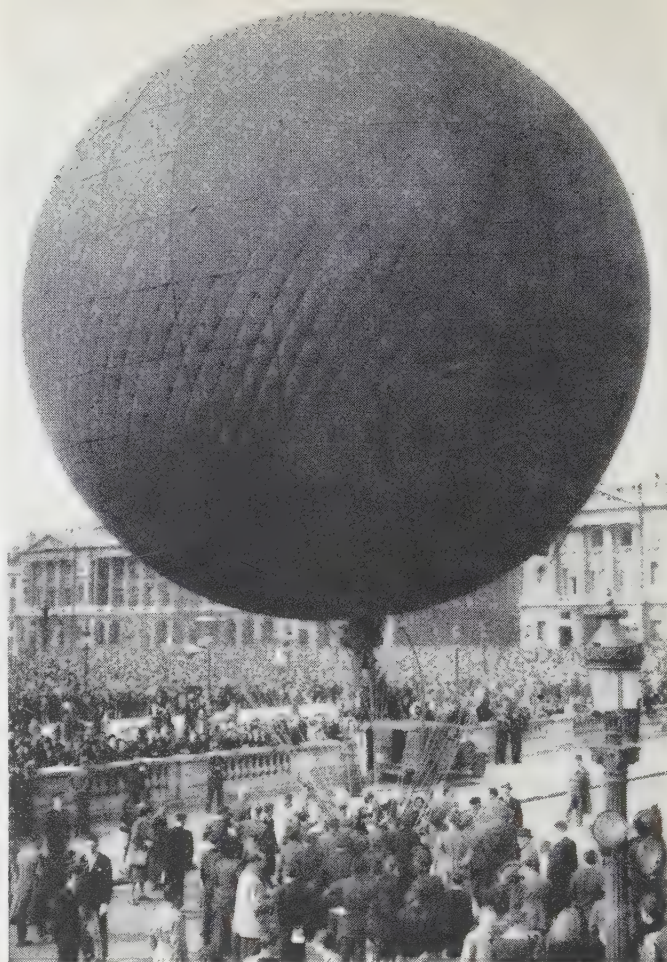
Paris. Capital and largest city of France, pop. (1936) 2,829,746; of greater Paris, including the belt of suburban factory towns, 4,962,967.

The year 1946 witnessed important improvements in the recovery of Paris. During the summer the food situation showed definite signs of amelioration. The rationing system was not too rigidly enforced and though the prices for unrationed food were very high, the better class restaurants were well stocked with meat, though pastry was still rare as a result of the shortage in sugar and white flour. Life in Paris was less bare and austere than life in London, especially for those circles who could afford it. The greatest discomfort was caused by the severe shortage of fuel during the winter months.

The transportation system of Paris also improved considerably during the year. The Paris subways, the metro, were not more crowded than in usual rush hours; more and more bus lines were put back into service and even some new buses were to be seen; the number of taxis increased and by the end of the year the streets of Paris offered again the familiar spectacle of traffic jams and of daring dashing drivers.

Communications out of Paris were improved and extended. Commercial air traffic with all parts of the world was resumed on a large scale and Air France, the French air navigation company, opened its regular service with New York in July 1946. In addition to the prewar airport of Le Bourget, a second great modern airport, that of Orly, served as terminal for the international air routes. A central departure station for air lines was opened in Paris at the Gare des Invalides.

Though tourist travel, for the first time after 1939, reap-



VIEW of the Place de la Concorde in Paris before the balloon race, an important event of the annual Easter Sunday celebration, which was revived in 1946

peared in 1946, the number of overseas visitors was still far below the average of prewar years. On the other hand, Paris retained its international character as the meeting place of the Council of Foreign Ministers of the Big Four and even more so as the seat of the Peace conference of 21 nations, whose delegates met in the Palais du Luxembourg in the late summer of 1946 to advise about the peace treaties with Italy, Hungary, Rumania, Bulgaria and Finland.

The artistic and theatrical life of Paris regained some of its prewar brilliancy during 1946. American plays like Steinbeck's *Of Mice and Men* and Kaufman's *You Can't Take It With You* won wide acclaim on the French stage, and translations of U.S. and British authors filled the show windows of the numerous book shops in the French capital. The number of daily papers, weeklies and monthly reviews was astonishingly great to a British or American visitor. Among daily papers some of the famous names of prewar times like *Le Temps* and *Le Matin* were no longer visible. Among the morning papers the new *Combat* and the old *Figaro* held a prominent place, in addition to party organs like *L'Aube*, *Le Populaire* and *L'Humanité*, while in the evening *Le Monde* replaced *Le Temps*.

As the result of the efforts of a woman member of the Paris city council, all the legalized houses of prostitution in Paris were closed. The last of these establishments disappeared in Oct. 1946. Some of their premises had been sumptuous apartments and houses, and these were taken over to combat the great housing shortage of which Paris, though practically untouched by the devastations of war, suffered like all other postwar cities.

Paris Peace Conference. The first step toward calling a conference to consider the treaties of peace with Italy, Rumania, Bulgaria, Hungary and Finland was taken by the three-power conference at Potsdam (July 1945). As armistices were concluded with the

lesser axis states, in each instance by the two or three great powers concerned, numerous protests directed against the denial to other United Nations' governments of a voice in these decisions had been met with assurances that the latter would be consulted in the making of peace. The Council of Foreign Ministers, which was charged with the drafting of the treaties, was, therefore, empowered at Potsdam to convoke a conference of "the states chiefly concerned." The failure of the Potsdam conference to make more specific provision for a peace conference was widely remarked at the time.

During the controversy in the Council of Ministers (Sept. 1945) over the procedure of treaty-drafting, U.S. Sec. of State James Byrnes proposed that the provisions concerning the membership and competence of the future conference be stated more fully in order to avoid a later repetition of these procedural difficulties. His proposal, rejected at London by the soviet delegation, was approved at the Moscow "Big Three" conference (Dec. 1945) and received the assent of China and France. The conference, which was to meet at Paris on May 1, 1946, was to include the members of the council, the European Allies, the British dominions and India, Brazil and Ethiopia, as well as the Ukrainian and Byelorussian Soviet Republics. The conference was to have the right to make recommendations concerning the treaties, but the final decision would remain with the Council of Ministers. In contrast with the traditional concept of a peace conference composed of all Allied belligerents, each theoretically an equal member, the Moscow provisions constituted a frank recognition of the consultative and recommendatory role of the lesser Allied states. In Jan. 1946 an exchange of letters between Georges Bidault and Byrnes made it clear, however, that within these limitations the conference would be free to make recommendations on all matters relating to the treaties, whether included in the prepared drafts or not.

As disagreements within the Council of Ministers continued into May and June, including the disagreement on fixing a new date for the conference, some consideration was given to alternative procedures. It was suggested in Byrnes's radio address of May 20 that the council's continuing inability to agree on draft treaties might be brought before the general assembly of the United Nations, while Ernest Bevin hinted at the possible necessity of concluding a separate treaty, at least with Italy. In the original plans for treaty-making it had not been specified whether the council would present its drafts in completely, or in only partially, agreed form, and for many weeks the soviet delegation appeared determined to postpone the conference until complete drafts had been negotiated in the council. Eventually, after several of the major issues had been resolved or postponed, the council, on July 4, agreed to call the conference of the 21 nations for July 29.

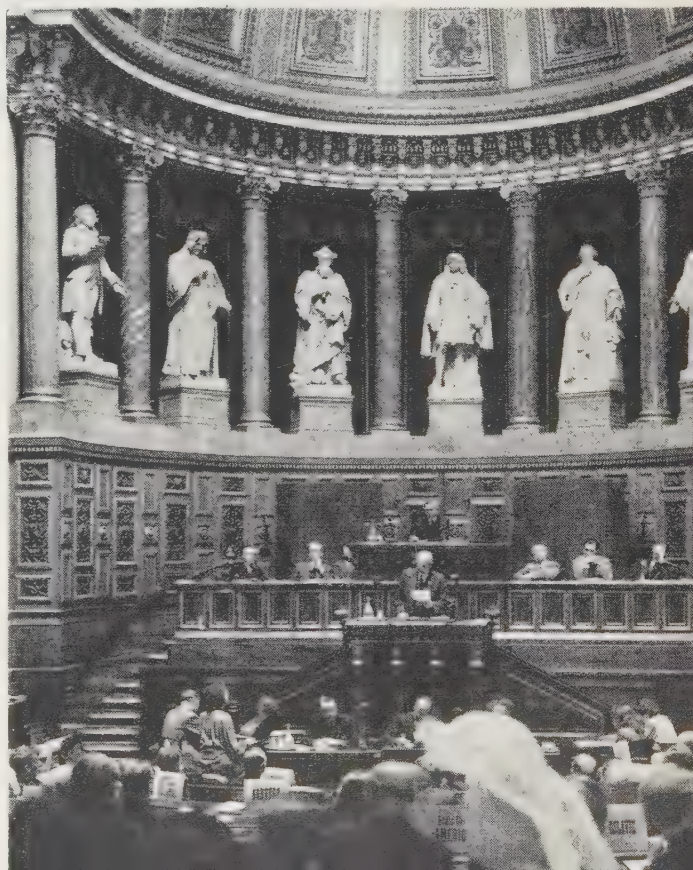
This decision was followed by disputes over the rules of procedure. At first the soviet delegation argued that formal invitations could not be sent until the council had agreed on a mandatory set of rules, acceptance of which would, in effect, be a condition for admission to the conference. The four ministers finally agreed to recommend to the conference an agreed draft of rules and pledged themselves to vote for its adoption. The U.S. and British delegations made it plain that they intended to respect the customary right of a conference to decide by majority vote on its rules and organization. The proposed rules provided for the adoption of substantive recommendations by a two-thirds majority, of procedural decisions by a simple majority, of the conference.

In a discussion of the organization of the conference the soviet delegation proposed to concentrate the principal work in five commissions, one for each treaty, each to consist of representatives of those states which had "actively waged war"

against the former enemy state concerned. This meant that Ukraine and Byelorussia would be members of all five commissions, France of the Italian one and one Allied state, Norway, of none. The other delegations regarded these proposed limitations as inconsistent with the Moscow agreement of Dec. 1945 and the Byrnes-Bidault exchange of Jan. 1946. The council agreed to recommend to the conference the establishment of five political commissions, one for each treaty, and two economic commissions, one for the Italian and one for the Balkan and Finnish treaties, a military commission, a legal and drafting commission and a general commission; France was to be a member of each commission. In this form the draft rules were circulated to the 17 governments invited to the conference.

At the first session of the conference, on July 29, a protest against "great-power dictation" was raised by the Australian delegate, H. V. Evatt, who urged the right of the conference to adopt recommendations by a simple majority. In turn the Netherlands delegation proposed that all delegations be represented on each of the commissions, while the soviet delegation, supported by Ukraine, Byelorussia, Poland, Czechoslovakia and Yugoslavia, tried again to confine effective discussion to the commissions, assigning a largely formal role to the plenary sessions. After many days of debate and recrimination the conference adopted, with certain significant concessions to the views of the smaller Allies, the rules recommended by the Council of Ministers. By a vote of the other delegations against the soviet-led bloc the conference decided that the final recommendations would be those of the plenary conference, not of the separate commissions, and that the conference could adopt recommendations either by a two-thirds majority or by a simple majority. During the discussions of procedure Byrnes and Bevin had stated that recommendations supported by a two-thirds majority would carry great weight for them in the subsequent decisions of the council; Byrnes alone of the Big Four ministers offered to support in the council recommendations of

THE PARIS PEACE CONFERENCE, where representatives of 21 nations met in Luxembourg palace from July to October 1946



PARIS PEACE CONFERENCE

(1946)

SCALE OF MILES
0 50 100 200 300 400

TERRITORIAL ISSUES

FINLAND

- 1A Pechenga (Petsamo) area returned to U.S.S.R.
- 1B U.S.S.R. obtains 50-year lease on Porkkala.
- 1C U.S.S.R. renounces lease on Hangö (Hanko).
- 1D Åland Islands to remain demilitarized.

ITALY

- 2A Five small areas, Little St. Bernard Pass, Mont Cenis Plateau, Mont Thabor, Chaberton and Tenda-Briga ceded to France.
- 2B Austrian claim to South Tyrol rejected.
- 2C French claim to Valle d' Aosta rejected.
- 2D Free Territory of Trieste to be under U.N. supervision.
- 2E Greater part of Venezia Giulia ceded to Yugoslavia.
- 2F Zara ceded to Yugoslavia.
- 2G Adriatic Islands ceded to Yugoslavia. Pelagosa to remain demilitarized.
- 2H Italy to recognize Albanian independence.
- 2J Italy renounces claim to Saseo Island.
- 2K Dodecanese ceded to Greece and to be demilitarized.

HUNGARY

- 3A Hungary cedes trans-Danubian enclave near Rajka to Czechoslovakia.
- 3B Hungary returns Northern Transylvania to Rumania.

RUMANIA

- 4A Cession of Northern Bukovina and Bessarabia to U.S.S.R. confirmed.
- 4B Cession of Southern Dobruja to Bulgaria confirmed.

BULGARIA

- 5A Greek claim to Northeastern Macedonia rejected.
- 5B Bulgarian claim to Western Thrace rejected.
- 6A Greek claim on Albania to Northern Epirus (No decision by Big Four).
- 6B Big Four agree on freedom of trade and navigation on the Danube.



Italy renounces all claim to her former African colonies (not shown on this map). Their final disposition will be determined by the Big Four within one year after the Peace Treaty comes into force.

C.S. HAMMOND & Co., N.Y.

this category even if they ran counter to the previous positions of the U.S. delegation.

Further controversies arose over the requests of other governments to be admitted to the conference with strong support given by the soviet bloc to Albania's request. On Aug. 12 the conference agreed to give hearings to Albania, Egypt, Mexico and Cuba; a similar privilege was extended to Austria and Iran by a decision of Aug. 17. The defeated nations received full-dress hearings in the plenary sessions and, by invitation of the commissions, participated in a number of their meetings without actually being admitted to negotiate around the table.

The commissions established by the conference carried through a great amount of work between Aug. 19 and Oct. 5, the latter date having been set on Sept. 12 for the submission of their reports to the conference. As the weeks wore by and

much ground remained to be covered, the conference adopted more stringent rules limiting both the length of speeches and the number of interventions on each item of the agenda.

None of the major compromises which had been negotiated in the Council of Ministers was reversed by the recommendations of the conference, the Big Four having agreed in early July to support these parts of the settlements, but, as a result of detailed and earnest discussions, many revisions of the agreed provisions were recommended. Among other matters the conference approved the proposed modifications in the Franco-Italian frontier, as well as the economic guarantees which France had offered to Italy. After hearing representatives of Italy and Austria the conference approved the retention of the prewar frontier between the two states, taking note of the Italo-Austrian agreement of Sept. 5, 1946, which provided economic

and cultural guarantees for the population of the Alto Adige, or South Tyrol. The cession of Saseno to Albania and of the Dodecanese Islands to Greece was approved. After long and vehement discussions the conference also confirmed the French line as Yugoslavia's western boundary and approved a French compromise concerning the future organization of the Free Territory of Trieste, both by a two-thirds majority. The Yugoslav delegation expressed its resentment of these recommendations in a letter of Oct. 15 in which it threatened to refuse to sign the treaty in view of the rejection of Yugoslav national demands.

The conference recommended the transfer to Czechoslovakia of 56 sq.mi. of Hungarian territory south of the Danube, as a bridgehead for Bratislava; obviously, possession of riparian rights on both banks would strengthen the Czechoslovak position in any future decision concerning the navigation of the Danube. The conference urged direct negotiation of a solution of the status of the Magyar minority in Czechoslovakia but left the way open for the latter to appeal to the Council of Ministers to find a solution. Despite Greek demands for important changes in the Bulgarian boundary, demands which received mild support from the British delegation, the conference recommended no change. The transfer of the southern Dobruja to Bulgaria was confirmed, as was the retention of the pre-1940 Rumanian-Hungarian boundary. The Rumanian and Finnish treaties reaffirmed the boundaries with the soviet union as established in 1940.

Over opposition of the soviet bloc the conference recommended inclusion in the Italian treaty of a provision denying the benefits of the treaty to any state which failed to ratify it; this was a safeguard against Italy's and Yugoslavia's threats to refuse ratification of the treaty. In the hotly disputed question of the interpretation of the treaties the conference supported by a two-thirds majority the contention of the western powers that either party to a dispute should be free, eventually, to request the appointment of an umpire by the president of the International Court of Justice.

By a two-thirds majority the conference recommended that \$25,000,000 in Italian reparations go to Ethiopia, \$100,000,000 to Greece and that Greece and Yugoslavia receive an equal amount of reparations from all sources combined. By a simple majority it voted that Bulgaria pay \$125,000,000 in reparations to Yugoslavia and Greece. The contentions of the Slav bloc that Yugoslavia receive double the reparations assigned to Greece, that Bulgaria be exempted from payment of reparations and that Albania receive reparations, were rejected by a majority of the conference. There was no change in the provisions for Rumanian, Hungarian and Finnish reparations deliveries to the soviet union, as fixed in the respective armistices, but the U.S. delegation presented a detailed exposition of the various devices by which the soviet authorities had extracted deliveries far greater than those stipulated in the Rumanian armistice, and, on the basis of reservations made at the signature of the armistices, it moved, without success, to reduce by one-third the reparations due from Finland and Hungary. A simple majority supported the British and French proposal that compensation in local currencies be paid up to 75% of the damage suffered by United Nations' property in the former enemy countries, as against the U.S. proposal limiting compensation to one-fourth or one-third of the value of the damage.

Few changes of significance were recommended in the military clauses. Possession by Bulgaria, Rumania or Finland of motor torpedo-boats was disapproved by a two-thirds majority while a simple majority voted for the prohibition of new fortifications on the Bulgarian side of the frontier with Greece. On Aug. 30 the Greek claim to Albanian territory was placed on the agenda, over strong opposition of the soviet bloc, only to be



"THE OBSERVER." Reg Manning of the *Arizona Republic* registered apprehension at the fear of war which seemed to hover over the peace conference in 1946

withdrawn shortly thereafter by the Greek delegation.

The atmosphere of the conference was often affected by events outside the walls of the Luxembourg palace. The crisis over the Yugoslav shooting down of U.S. planes, the plebiscite in Greece and the return of the king, the Ukrainian charges against the Greek government in the Security council, discussions of "atomic diplomacy," Henry Wallace's attack on Secretary Byrnes's policy exerted their pull on the work and groupings of the conference, while the world outside watched the demonstration within the conference of the serious divergences in the aims and methods of the great powers. These stresses were evident in the bloc-voting which made itself felt from the first discussions. The bludgeoning tactics of the soviet-led bloc, its attacks on the motives of other delegations and the evident control exerted over delegations of former enemy states tended to discourage efforts to bridge over divergences which the conference had not created but had brought into sharp focus.

The innovations of public deliberations and public voting on the innumerable recommendations were condemned by some observers as undesirable departures from the traditional conference objective of negotiating unanimous agreements. In fact, it was not in the power of the conference to bring about agreement among the four powers which had, in advance, reserved to themselves the final drafting of the treaties. The conference had enabled the Allied governments to state their views fully, and many of its recommendations were later incorporated into the treaties. If the conference had, in the process, become an arena for airing conflicting claims and philosophies, this had to be accepted as a stage in clarifying the new conditions under which the peace which had been won had currently to be consolidated.

(P. E. M.)

Parks and Monuments: see NATIONAL PARKS AND MONUMENTS.

Parliament, Houses of. No modern British parliament had attempted so all-embracing

a legislative program as that formed by Clement Attlee, first Labour premier, with a majority over all other parties in combination. Opened on Aug. 15, 1945, as the 38th parliament of the United Kingdom, it had passed into law some 80 bills before its first session ended in Nov. 1946. The list included two finance bills (budgets); measures to nationalize the Bank of England, the coalmining industry, the cable and wireless industry (so far as it operated within the British jurisdiction) and British Overseas airways; a national health bill, which assumed control of all hospitals and medical services; a much-enlarged national insurance bill; a bill for the controlled creation of satellite towns; the comprehensive education bill, left over by the coalition government, and a bill for the control of atomic energy. As fiercely fought as any of its acts was a single-clause measure repealing without qualification the Trades Disputes act passed by the Conservative government in 1927. To facilitate the dispatch of business the government availed themselves of a standing order, previously only sparingly used. Under it the great majority of bills were remitted, after second reading, to standing committees, more than one of which could sit simultaneously. Reserved for committee of the whole house were only financial measures and "single clause bills requiring no detailed consideration." The single bill so scheduled by the government was the Trades Union bill. New sessional orders increased the number of standing committees from a maximum of five to "as many as may be necessary" and reduced their membership to 50 with a quorum of 15. Parliament was prorogued on Nov. 6 and the new session was opened in semi-state on Nov. 12 by the king.

Following report by a select committee, the house of commons increased the payment of its members from £600 to £1,000 annually, with adjustments in expenses allowances to ministers salaried under £5,000.

By-elections in the year increased the Conservative opposition strength by three to a total of 201 out of 640 members. One of these gains, however, was of a seat held previously by an Independent Unionist in Ulster and the others, the English universities seat and the Scottish universities seat, both formerly held by Independents. The solitary Commonwealth party member in the house decided to join the Labour party, so increasing the government numbers by one to 394. The Independent Labour party lost one of its three members in November to the Independents.

In cabinet structure an important change was announced on Oct. 5. Places of the three service members in the cabinet were filled by a single minister of defense, a post to which A.V. Alexander was advanced from the admiralty. Jack Lawson (war secretary) and Lord Stansgate (air minister) resigned on health grounds. George Hall, created a viscount, became first lord of the admiralty; Frederick Bellenger war secretary; and Philip Noel-Baker (previously minister of state) air secretary. These three ministers were still members of the Imperial Defense committee over which Mr. Alexander presided. Arthur Creech Jones, succeeding George Hall as colonial secretary, was given cabinet membership, so that the net result of the changes reduced the cabinet strength by only one to 19. Lord Winster left the ministry of civil aviation to become governor of Cyprus and his office went to Lord Nathan. New entrants to the ministry as under-secretaries were Major C.P. Mayhew (foreign office) Major John Freeman (financial secretary, war office) and Thomas Steel (national insurance). All three first entered parliament at the general election, 1945. An earlier change brought John Strachey as minister of food in succession to Sir Ben Smith who resigned in June 1946. Twenty-four new peers (7 viscounts, 17 barons) were created during the year. The viscounts included Admiral Lord Louis Mountbatten and Field

Marshals Alexander and Montgomery. Among the barons were Air Marshal Tedder, Admirals Frazer and Tovey and Sir William Beveridge, on whose report the National Insurance act was based. Viscount Hall, Lord Citrine (formerly secretary to the Trade Union congress) and Lord Shepherd (formerly chief party agent) were recruits to Labour strength in the upper house, but two of the 18 peers who died during the year (Viscount Southwood and Lord Keynes) sat with the government party.

(See also CABINET MEMBERS; GOVERNMENT DEPARTMENTS AND BUREAUS.) (L. DU.)

Parodi, Alexandre (1901—), French government official, was born June 1, in Paris. He studied law, and became master of appeals in the French Council of State and later secretary general of the National Economic council; in 1938 he was named director general of the ministry of labour. During the German occupation, he was active in the underground. He was president of the underground press commission, and one of the guiding spirits of the Paris insurrection in Aug. 1944. As minister of labour and social security in Gen. Charles de Gaulle's provisional government (Sept. 1944–Nov. 1945), he overhauled the social security system, introduced labour-management committees and permitted a "cautious" increase in salaries. In December, he was appointed ambassador to Rome where he also served as delegate to the Allied Advisory council. Parodi was named permanent delegate (April 12, 1946) to the United Nations Security council, replacing Henri Bonnet. On May 17, he became president of the council under the rotation plan. He supported Dr. Oscar Lange's proposal that the U.N. member states break off diplomatic relations with Spain on grounds that the Franco regime was a threat to world peace, but sided with the U.S. and Britain in discussions on Greece and on atomic energy.

Parrado y Garcia, Augustin, CARDINAL (1872–1946), archbishop of Granada, was born on Oct. 5 at Fuentes de Saldana, in Valladolid province, Spain, and was ordained in 1895. He taught at Valladolid seminary, became vice rector and in 1925 was named Bishop of Palencia and consecrated in the Salamanca cathedral. Nine years later, he was consecrated Archbishop of Granada and in Feb. 1946 was created a cardinal. The following April, in an article for an official ecclesiastical publication, he wrote: "Spain's enemies wish to annihilate us, and to do this they wish first to destroy our Catholic and openly anti-Communist state." He urged his people to be on the alert against international plotters who sought to overthrow the Franco regime and then Spanish Catholicism. He died at the Granada Cardinal's palace on Oct. 8.

Patents. In 1946 the U.S. patent office received a larger number of applications for the registration of trademarks than in any previous year. Their aggregate, including 6,658 applications for renewals, was 27,739. In the same period there were registered 8,116 trade-marks.

Applications for patents filed in the calendar year 1946 were 91,994, the greatest number after 1930. Of these, 10,720 were for designs. There were issued 24,775 patents in 1946, including 2,779 for designs, 56 for plants and 121 for re-issues. This was the smallest number granted in any 12 months from 1900.

Receipts of the office from Dec. 1, 1945, to Nov. 30, 1946, were \$4,781,773.24, compared with \$4,098,795.41 in the preceding equivalent 12 months. In the corresponding period the expenditures were \$7,353,684.26, an increase of \$2,364,615.83.

Included in the register of patents in 1946 were 4,536 offered by their owners for licensing or sale to others, including hundreds offered by large corporations. A booklet entitled *Dedicated Patents* designed to inform the public of the numbers and titles of 434 patents covering inventions which are available for free use, was published and circulated.

On July 5, 1946, the price of each printed copy of a patent was raised to 25 cents. The number of copies supplied to others than libraries, federal agencies and foreign governments was 3,849,807. The free exchange of patent copies with foreign governments, interrupted during World War II, was resumed and the task of furnishing the omitted copies was begun.

In July 1946 an accord was entered into at London by the United States, Great Britain, France and the Netherlands for the free use by the nationals of all signatory nations of the patents seized from German owners during World War II. Late in 1946 several other nations joined the accord and it became effective throughout a large part of the world.

(C. W. O.)

Patterson, Joseph Medill (1879–1946), U.S. publisher and editor, was born on Jan. 6 in Chicago, the son of Robert W. and Eleanor Medill Patterson. He interrupted his studies at Yale university to cover the Boxer Rebellion in China as a war correspondent and later returned to the university, graduating in 1901. Shortly after leaving school, he joined the staff of the *Chicago Tribune*; Patterson and his cousin, Col. Robert R. McCormick, later fell heir to the controlling majority of shares of that newspaper. In 1903, Patterson entered the Illinois political arena and was elected to the state legislature.

At the outbreak of World War I, he became one of the *Tribune's* correspondents on the western front. He returned to the United States in 1916, went to Mexico during the Pershing expedition as a private and was commissioned as a lieutenant in April 1917.

After he was mustered out of the service, he started the *New York Daily News*, a tabloid, in 1919. He soon discovered that sex and crime news, liberally illustrated with photographs, sold newspapers, and the circulation climbed steadily. In 1925 Patterson, who had been co-editor of the *Chicago Tribune* with Col. McCormick, broke permanently with the latter and went to New York to assume full charge of the tabloid.

The stock market crash of 1929 led him to shift the emphasis of his paper from sensationalism to social reform, and in 1933 it was an ardent supporter of Franklin D. Roosevelt and the New Deal administration. Patterson, however, broke with Roosevelt over the issue of U.S. intervention in World War II. Meanwhile the *New York Daily News* grew by such enormous leaps and bounds that by 1945 its daily circulation reached 2,250,000 and its Sunday circulation 4,500,000.

Patterson died in New York city on May 26.

Patterson, Robert Porter (1891–), U.S. government official, was born Feb. 12 in Glen Falls, N.Y. He was graduated from Union college, 1912, took his law degree from Harvard, 1915, and practised law in New York city. He saw military action in the Mexican campaign, 1916, and in World War I, during which he rose to the rank of major and was awarded the D.S.C. Patterson was appointed judge of the U.S. district court for the southern New York district, 1930, and became judge of the U.S. circuit court of appeals, 1939. He resigned his seat on the bench in July 1940 to accept an appointment as assistant secretary of war and five months later became undersecretary of war. Following Stimson's resignation, Sept. 18, 1945, Pres. Truman named Patterson as his successor as secretary of war. Throughout 1946,

Patterson pleaded for a strong army, extension of the draft and unification of the armed services. During the senate's war profits inquiry, he admitted (July 9) that Chairman Andrew J. May of the house military affairs committee had sought three favours from him for the Garsson munitions combine; Patterson said he granted two of May's requests.

"Pay-as-you-earn" System: see TAXATION.

Peaches: see FRUIT.

Peanuts. The 1946 peanut crop in the U.S. was the fifth consecutive year of production exceeding 2,000,000,000 lb. The 1946 crop was 2,075,880,000 lb. compared with 2,042,235,000 lb. in 1945. The 5-yr. average during World War II was 2,009,097,000 lb. This was about 50% more than the prewar average. The 3,168,000 ac. harvested in 1946 was about 2% less than 1945 but compared with 2,243,000 ac. average for 1935–44. The yield was less than the average being estimated at 646 lb. per acre compared with the 10-yr. average of 738 lb. Harvesting was delayed by September rains in the southeastern area and there was heavy insect damage. Larger crops were harvested in Virginia where the high yield of 1,200 lb. per acre was reported. The lower production in Florida, Alabama and Mississippi brought down the total crop, although Texas and Oklahoma had excellent returns.

The price of peanuts held steady through 1945 at about \$8.20 per 100-lb. but advanced during the first half of 1946 to an average of \$8.90 and then declined slightly toward the end of the year. Peanut products other than oil were removed from control Sept. 1, 1946, as not being in short supply. Prices to farmers of 1946 crop peanuts were supported at \$172 per ton which was about \$8 more than 1945 prices. Consumption of peanuts and products were at a high level through to 1945 at 6.3 lb. per capita compared with a prewar average of 4.6 lb. in 1937–41. Peanut butter was in demand as substitute for butter and meat. Peanut candies were required to take the place of those based on chocolate. The United States department of

U.S. Peanut Production by States, 1946 and 1945

		(In thousands of pounds)			
State	1946	1945	State	1946	1945
Georgia	730,300	722,250	South Carolina . . .	18,270	22,500
Texas	383,500	322,500	New Mexico	6,650	8,400
North Carolina . . .	306,475	304,000	Mississippi	5,250	6,650
Alabama	262,350	340,900	Tennessee	4,250	5,775
Virginia	187,500	149,460	Arkansas	3,375	4,000
Oklahoma	119,340	87,875	Louisiana	1,120	1,925
Florida	47,500	66,000			

agriculture called for a 1947 crop of 2,750,000 ac. compared with 3,146,000 ac. harvested in 1946. (See also FOOD RESEARCH.)

(J. C. Ms.)

Pearl Harbor Inquiries. At 7:55 A.M. on Sunday morning, Dec. 7, 1941, more than 300 Japanese planes, launched from 6 aircraft carriers, attacked without warning the island of Oahu and the U.S. Pacific fleet at Pearl Harbor in the territory of Hawaii. Within a short period of less than two hours U.S. military and naval forces suffered a total of 3,481 casualties, including 2,326 killed, fatally wounded and missing, and the loss of or severe damage to: 219 planes of all types, 8 battleships of which 3 were sunk and 1 capsized, 3 light cruisers, 3 destroyers and 4 miscellaneous vessels. The attacking Japanese force escaped with a loss of less than 100 men, 29 planes and 5 midget submarines.

The magnitude of the disaster at Pearl Harbor and the public interest and speculation inspired by it were such that no less than eight separate inquiries concerning it were made over the next four and one-half years. The first of these was the Roberts commission, under the chairmanship of Justice Owen J. Roberts, retired, U.S. supreme court, which was appointed by

Pres. Franklin D. Roosevelt within 11 days after the attack and which made its report in Jan. 1942. There followed two years later the Hart inquiry, conducted at the request of the then secretary of the navy Frank Knox by Adm. Thomas C. Hart, retired, which was concluded in June 1944. Under the terms of an act of congress in that same month, the Army Pearl Harbor board and the Navy Court of Inquiry were constituted and completed their work in Oct. 1944. While these two investigations were under way, the Clarke inquiry was ordered by Gen. George C. Marshall, then chief of staff and Col. Carter W. Clarke conducted the investigation first in Sept. 1944 and then again in July and August 1945.

When the report of the Army Pearl Harbor board was submitted to the then secretary of war, Henry L. Stimson, he ordered the Clausen investigation supplementary to the proceedings of the board. This investigation, made by Maj. Henry C. Clausen, was begun in Nov. 1944 and ended in Sept. 1945. Similarly, Secretary of the Navy James Forrestal, after a review of the reports of the Hart inquiry and the Navy Court of Inquiry, found that the previous investigations had not exhausted all possible evidence, and ordered the Hewitt inquiry conducted by Adm. H. Kent Hewitt from May to July 1945.

The eighth inquiry was undertaken by the Joint Committee on the Investigation of the Pearl Harbor Attack, established on Sept. 11, 1945, by Senate Concurrent resolution 27, 79th congress. This resolution ordered the joint committee to make a "full and complete investigation of the facts relating to the events and circumstances leading up to or following the attack made by Japanese armed forces upon Pearl Harbor." The committee was composed of five members of the senate and five from the house of representatives, of which not more than three members from each chamber could be members of the majority (*i.e.*, Democratic) party. The senators appointed to the committee included: Alben W. Barkley (Dem., Ky.), Walter F. George (Dem., Ga.), Scott W. Lucas (Dem., Ill.), Owen Brewster (Rep., Me.) and Homer Ferguson (Rep., Mich.); the representatives were Jere Cooper (Dem., Tenn.), J. Bayard Clark (Dem., N.C.), John W. Murphy (Dem., Pa.), Bertrand W. Gearhart (Rep., Calif.) and Frank B. Keefe (Rep., Wis.). Sen. Barkley became chairman of the committee and Rep. Cooper vice-chairman.

The joint committee's report and appendices, a 492-page document made public on July 20, 1946, was based on a 10-month inquiry which included 70 days of exhaustive public hearings and a comprehensive examination of all pertinent documents, reports and papers. The extensive nature of the joint committee's activities is indicated by the fact that the testimony presented to it and exhibits received by it—including the proceedings, reports and exhibits of the 7 previous inquiries which the committee examined—comprise 39 printed volumes totalling more than 21,000 pages and approximately 10,000,000 words.

Although there had been demands all during the war that a congressional inquiry be launched and public hearings held, it was not until after the joint committee's hearings began in Nov. 1945 that it became evident to the U.S. people why the complete background of the Pearl Harbor attack could not have been publicly revealed before the surrender of Japan. U.S. army and navy cryptanalytic experts before the war had "broken" the Japanese government's codes for overseas communication and throughout the summer and fall of 1941 had been intercepting and decoding messages between Tokyo and Japanese representatives in Washington, Berlin, Manila and various other points. The fact that such intercepting and decoding continued throughout the war was a military secret of the very highest importance, and, for security purposes, it was referred to by the truthful designation of "Magic." Its revelation early in the

joint committee's hearings created a sensation.

In addition to having access to official records of the U.S. government, including all of the proceedings and records of the seven previous inquiries, the joint congressional committee also had the advantage of information obtained from Japanese diplomatic, army and navy officials through interrogations conducted after the Japanese surrender by officers of the U.S. occupation forces in Japan. This information showed that a surprise attack on Pearl Harbor was originally conceived and proposed early in Jan. 1941 by Adm. Isoroku Yamamoto, commander in chief of the combined Japanese fleet. In the following months detailed plans for the attack were drawn, and early in Sept. 1941 after a war plans conference in Tokyo these plans were incorporated into a secret operation order which was subsequently issued in November when Japan finally decided to make war against the United States.

A great many of the points developed during the joint committee's hearings had previously been made public in reports of the preceding inquiries, notably the Roberts commission and the Army Pearl Harbor board, and covered the many controversial and technical aspects of the diplomatic negotiations preceding the attack and of the detailed military and naval plans for the defense of the Hawaiian Islands. The joint committee's public hearings closed on May 31, 1946, and it made its report to congress one and one-half months later.

In its conclusions the joint committee reported that "the diplomatic policies and actions of the United States provided no justifiable provocation whatever for the attack by Japan on this Nation" and that it had "found no evidence to support the charges" that either Pres. Franklin D. Roosevelt, former Secretary of State Cordell Hull, former Secretary of War Henry L. Stimson or Secretary of the Navy Frank Knox "tricked, provoked, incited, cajoled, or coerced Japan into attacking this Nation in order that a declaration of war might be more easily obtained from the Congress." To the contrary the committee found that "all evidence points conclusively to the fact that they discharged their responsibilities with distinction, ability and foresight" and that Pres. Roosevelt, Secretary of State Hull and high government officials made "every possible effort, without sacrificing our national honor and endangering our security, to avert war with Japan."

However, the joint committee did conclude that the "War Plans Division of the War Department failed to discharge its direct responsibility" to advise the Hawaiian army command that the command was not "properly alerted" to repel a possible attack, and that the intelligence and war plans division of the war and navy departments "failed: (a) to give careful and thoughtful consideration" to certain of the intercepted Japanese messages; and "(b) to be properly on the *qui vive*" to receive and recognize that the Japanese messages intercepted and available on the morning of Dec. 7 indicated that "some Japanese military action would very possibly occur somewhere at 1 P.M." (Washington, D.C., time) that day (7:30 A.M. Hawaiian time).

As its central conclusion the committee reported that "the disaster of Pearl Harbor was the failure, with attendant increase in personnel and material losses, of the Army and the Navy to institute measures designed to detect an approaching hostile force, to effect a state of readiness commensurate with the realization that war was at hand, and to employ every facility at their command in repelling the Japanese." The joint committee found that "officers, both in Washington and Hawaii, were fully conscious of the danger from air attack; they realized this form of attack on Pearl Harbor by Japan was at least a possibility; and they were adequately informed of the imminence of war." While the committee pointed out specific instances in which the army and navy commands in Hawaii at

the time failed to discharge their responsibilities in connection with the attack, it concluded that "the errors made by the Hawaiian commands were errors of judgment and not derelictions of duty."

These general conclusions of the joint committee reaffirmed, in effect, the major findings of some of the earlier inquiries, especially those of the Roberts commission.

Among its major recommendations the joint committee asked that "immediate action be taken to insure that unity of command is imposed at all military and naval outposts" and that "there be a complete integration of Army and Navy intelligence agencies in order to avoid the pitfalls of divided responsibility which experience has made so abundantly apparent." In addition the committee listed 25 types of supervisory, administrative and organizational deficiencies in the U.S. military and naval establishments revealed by its investigation, set forth principles which it believed would correct the situation and recommended that the "military and naval branches of our Government give serious consideration" to them.

The joint committee's report was not unanimous. One member (Rep. Keefe) approved it with the "fundamental" objection that he felt "that facts have been marshalled, perhaps unintentionally, with the idea of conferring blame upon Hawaii and immunizing the blame that should properly be assessed at Washington," and he set forth his reasons for taking this position in a separate 23-page statement. Two other members (Sen. Brewster and Ferguson) filed a separate 80-page minority report since they found it "impossible to concur with the findings and conclusions of the Committee's report because they are illogical, and unsupported by the preponderance of evidence before the Committee."

The "final and ultimate" conclusion of the minority report was that for Pearl Harbor to be "fully alerted and prepared for defense rested upon the proper discharge of two sets of *interdependent* responsibilities: (1) the responsibilities of high authorities in Washington; and (2) the responsibilities of the commanders in the field in charge of the fleet and of the naval base," and that these two sets of responsibilities were "inseparably essential to each other in the defense of Hawaii." With respect to the first, the minority report found the "failure to perform the responsibilities indispensably essential to the defense of Pearl Harbor" rested upon: Pres. Roosevelt, former Secretaries of War Stimson and of the Navy Knox, Gen. Marshall, former army chief of staff, Adm. Harold R. Stark, former chief of naval operations and Maj. Gen. Leonard T. Gerow, former assistant chief of army staff, war plans division. With respect to the second, the report found the "failure to perform the responsibilities in Hawaii" rested upon Maj. Gen. Walter C. Short, commanding general, Hawaiian department, at the time of the attack and Rear Adm. Husband E. Kimmel, then commander in chief of the Pacific fleet. Since former Secretary of State Hull "had no relevant duties in the military chain of responsibility" and because "the diplomatic phase was not completely explored" the minority offered "no conclusions in his case."

Finally, the minority report took the view that the joint committee "was not in possession of the full historical record pertinent to the case before it." It pointed out that "a far less complete record has been written of its diplomatic aspects" than of its military aspects, and "here there is most urgent need of further exploration."

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Pears: see FRUIT.

Peat. The chief use of peat in the United States is as a soil conditioner, an abundant supply of coal making it unnecessary as a fuel. Previous production had to compete with imported material, and was never large, but during World War II imports were restricted, and domestic production increased temporarily to 86,503 short tons in 1941, followed by a decline to 57,987 tons in 1944, and a recovery to 78,272 tons in 1945. Imports of peat moss increased from 66,428 tons in 1944 to 77,673 tons in 1945, all from Canada.

Peat moss production in Canada rose from 80,446 tons in 1944 to 83,849 tons in 1945. The production of peat for fuel was 644 tons in 1944 and 125 tons in 1945. (G. A. Ro.)

Pecans: see NUTS.

Pemba: see BRITISH EAST AFRICA.

Penicillin: see CHEMOTHERAPY; DENTISTRY; DERMATOLOGY; MEDICINE; SURGERY; UROLOGY.

Pennsylvania. A middle Atlantic state and one of the original 13 states of the Union, popularly known as the "Keystone state." Area, 45,333 sq.mi., including 288 sq.mi. of inland water; pop. (1940) 9,900,180, of whom 8,453,729 were native-born white, 973,260 foreign-born white and 470,172 Negroes. The urban population in 1940 numbered 6,586,877 and the rural 3,313,303. Capital, Harrisburg (83,893). Cities with a larger population: Philadelphia (1,931,334); Pittsburgh (671,659); Allentown (96,904); Wilkes-Barre (86,236). The Pennsylvania State Planning board estimated the state's total population, including its citizens in military service, as 10,172,068 as of Aug. 1, 1944. U.S. census estimate of civilian population July 1, 1945 was 9,193,957, at which date 1,033,415 represented the net loss to the armed forces.

History.—In 1946 the state's financial position was greatly strengthened by the retirement of the general state authority bonds in the sum of \$47,912,000, the largest single debt payment ever effected by any state in a single year. Construction of public improvements and the development of a \$345,000,000 postwar highway program were delayed by labour shortages and rising costs of construction. The state embarked however, on an extensive program for the modernization of its mental and general hospitals and was putting into effect the provisions of a public health law enacted in 1945 providing for complete medical and dental examination of all school children and school employees in the state.

The carrying out of extensive measures for the control of stream pollution, the clearance of the state's waters from silt and coal deposits and the conservation of soil and forests was a main concern of the state government during 1946. An appropriation of more than \$30,000,000 by the legislature for conservation measures made possible the development of a long-range program for the improvement of physical resources of the state.

The November election gave the Republicans a clean sweep of the offices by the largest majorities in 20 years. Governor Edward Martin captured the seat in the U.S. senate held by Joseph F. Guffey. James H. Duff, attorney general, was elected

governor, while Brigadier General Daniel Strickler was chosen lieutenant governor and William S. Livengood, Jr., was named to his third term as secretary of internal affairs. The Republicans elected 28 of the state's 33 congressmen to gain 9 seats in the U.S. house of representatives, and retained control of both houses of the general assembly, taking the senate by 34-16 and the lower house by 171-37.

The principal officers in 1946 included: Edward Martin, governor; John C. Bell, lieutenant governor; James H. Duff, attorney general; William S. Livengood, Jr., secretary of internal affairs; G. Harold Wagner, auditor general; Ramsey S. Black, state treasurer; and George W. Maxey, chief justice.

Education.—The latest figures available showed an enrolment of 1,539,680 pupils in the public schools in 1944-45, including 35,720 in the kindergarten, 939,376 in the elementary division and 564,584 in the secondary schools, with 35,318 teachers in the elementary schools and 24,351 in the high schools. Approximately \$227,032,725 was spent for current expenses, debt service and capital outlay. Of this amount \$181,758,511 was utilized for current expenses.

Social Insurance and Assistance, Public Welfare and Related Programs.—During 1946, expenditures by the department of public assistance totalled \$86,000,000, including \$59,000,000 state funds and \$27,000,000 federal funds. The assistance rolls contained an average of 86,000 old-age assistance cases, 32,000 cases receiving aid to dependent children, 25,000 general assistance cases and 13,000 blind pensioners.

The state maintains eight penal and correctional institutions for the support of which a biennial appropriation of \$10,100,000 was made for 1945-47. In addition, it owns and operates ten medical and surgical hospitals, which received an appropriation of \$4,250,000; four institutions for the feeble-minded and epileptic, \$5,350,000; 18 mental hospitals, \$30,750,000; it contributed \$9,154,000 for the aid of privately operated hospitals and homes.

Communications.—Of the approximately 100,000 mi. of highways in 1946, 40,778 mi. were on the highway system and were under the supervision of the Pennsylvania department of highways. Included in this mileage were 671 mi. in the cities of Pennsylvania and 2,143 mi. in the boroughs. As of Nov. 30, 1946, 35,071 mi. were of improved type, leaving 5,707 mi. unimproved. In addition there were 160 mi. of super-highway operated by the Pennsylvania Turnpike commission.

Banking and Finance.—On Sept. 30, 1946, there were 368 state banks, including 8 savings banks with assets of \$4,795,246,000. These state banks had total deposits of \$4,320,473,000.

In addition there were 823 building and loan associations with assets of \$349,248,830, as of Dec. 31, 1945.

On Sept. 30, 1946, there were 660 national banks located in Pennsylvania with assets of \$7,117,840,000. The demand deposits of these national banks totalled \$4,515,778,000. Time deposits totalled \$1,885,299,000.

Appropriations for the biennium ending May 31, 1947, were \$579,800,000. The estimated receipts from taxation were \$560,500,000. The gross debt Nov. 30, 1946, was \$81,188,000, which securities in the sinking fund reduced to a net of \$44,147,500.08.

Agriculture.—The total gross farm income for 1945 was \$673,603,000, including \$556,734,000 in cash receipts from farm marketings and \$28,488,000 in federal government payments.



JAMES H. DUFF, elected governor of Pennsylvania Nov. 5, 1946, on the Republican ticket

Table I.—Leading Crops of Pennsylvania, 1945 and 1946

Crop	Production 1945	Production 1946	Acreage 1946	Yield per acre 1946	Value 1946
Corn, bu.	59,421,000	59,340,000	1,380,000	43.0	\$97,911,000
All wheat, bu.	20,038,000	19,912,000	885,000	22.5	39,426,000
Oats, bu.	24,583,000	30,033,000	846,000	35.5	27,030,000
Barley, bu.	3,570,000	3,942,000	108,000	36.5	6,031,000
Rye, bu.	636,000	341,000	22,000	15.5	590,000
Buckwheat, bu.	2,016,000	2,394,000	114,000	21.0	3,423,000
Potatoes, bu. (white)	16,577,000	20,066,000	127,000	158.0	30,099,000
Tobacco, lbs.	46,380,000	58,808,000	37,700	1,560.0	20,020,000
All hay, tons	3,851,000	3,804,000	2,539,000	1.50	64,668,000
Apples, bu.	2,470,000	9,360,000			24,336,000
Peaches, bu.	1,222,000	1,716,000			4,547,000
Pears, bu.	120,000	318,000			716,000
Cherries, tons	4,300	5,300			1,576,000
Grapes, tons	6,000	18,700			2,712,000

Manufacturing.—In 1945 there were 17,520 manufacturing establishments in the state, employing 1,576,735 persons to whom \$3,549,565,700 was paid in wages and salaries. The capital invested was \$3,938,869,500

Table II.—Principal Industries of Pennsylvania, 1945 and 1940

Industry	Value of Products	
	1945	1940
Metals	\$5,920,649,900	\$2,944,848,400
Textiles	1,385,579,800	795,457,200
Food	1,559,588,300	740,801,600
Chemicals	988,515,400	518,062,300
Paper and printing	586,041,900	372,074,400
Leather	344,206,600	174,963,900
Tobacco products	142,085,000	92,272,300
Lumber and its remanufacturing	146,917,300	79,733,100

and the value of the goods produced was \$12,459,688,200. Included as part of the latter amount, value added by manufacture was \$5,687,792,600.

Table III.—Principal Mineral Products of Pennsylvania, 1944 and 1940

Important Mineral Products	Value	
	1944	1940
Bituminous coal	\$464,256,000	\$237,333,374
Anthracite	354,582,884	205,490,000
Pig iron	397,393,665	282,666,561
Petroleum	46,600,000	39,700,000
Natural gas	45,080,000	41,733,000
Cement	20,689,765	38,350,998
Stone	22,516,282	19,855,478

Mineral Production.—The value of the principal mineral products of the state in 1940 and 1944 is shown in Table III. (E. M.N.)

Pennsylvania, University of. An institution of higher learning at Philadelphia, Pa. In 1946 the university, with a record-breaking enrolment of 20,000 students, increased its dormitory accommodations; completed new laboratories for electronics and general research in electrical engineering; began construction of an addition to the school of veterinary medicine, and announced a \$32,000,000 development program designed to increase the university's endowment and expand its physical facilities.

Outstanding in the research field was the completion of the E.N.I.A.C. (electronic numerical integrator and computer), which was designed and built in the university's Moore school of electrical engineering for the army ordnance ballistic research laboratory at Aberdeen, Md. The first large-scale all-purpose electronic computer ever developed, the E.N.I.A.C. contains about 18,000 vacuum tubes and is more than 100 times faster than the most advanced general-purpose calculating machine previously constructed.

Objectives of the university's development program include, in addition to funds for endowment and research, new buildings for the university library, the Wharton school of finance and commerce and the department of physics, mathematics and astronomy; completion of the building for the department of chemistry and chemical engineering; creation of a Philadelphia medical centre through expansion of the school of medicine and the university hospital; a campus for women students, and increased facilities for other schools and departments. The program was to be carried forward as rapidly as funds became available. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(G. W. McC.)

Pension, Old-Age: see RELIEF; SOCIAL SECURITY. See also under various states.

Pensions, Army and Navy: see VETERANS' ADMINISTRATION.

Pepper: see SPICES.

Performing Right Societies: see SOCIETIES AND ASSOCIATIONS.

Perfume: see SOAP, PERFUMERY AND COSMETICS.

Permanent Joint Board on Defense

(U.S. and Canada). Wartime co-operation between Canada and the United States arose from the desperate situation facing the world in 1940 when German power had swept through western Europe to the very shores of the Atlantic. On Aug. 17, 1940, 11 months after Canada declared war on Germany, President F. D. Roosevelt and Prime Minister Mackenzie King signed the Ogdensburg agreement which brought into being the Joint Board on Defense.

It was clearly intended that the function of this board should extend beyond immediate wartime needs and should constitute the permanent advisory instrument for planning the defense of both the United States and Canada in the postwar period. Even before the United States entered the war, joint Canadian-U.S. measures were taken for the defense of the northwestern approaches of the North American continent. After Pearl Harbor a policy of the closest co-operation between all the armed services of Canada and the United States was initiated. The overall plans for the defense of North America were drawn up by the board and implemented by the two governments. Recommendations of the board resulted in the building of the Alaska military road, the construction of a chain of air fields between Edmonton, Alta., and Alaska, and construction of other operations in Labrador, Newfoundland and Alaska by U.S. and Canadian civilian and military forces. There are six U.S. members on the board, four of which represent air, ground and navy forces, with one member from the department of state and a civilian chairman. There are five Canadian members representing the Canadian parliament, air force, army and navy, with one member from the department of external affairs.

The United States and Canada co-operated closely in the liquidating of their joint wartime ventures, particularly the air route between the United States and Alaska and the installations connected with it. The Alaska military road and the telephone lines were taken over by Canada on April 3, 1946, and Canada paid for every permanent air facility installed by the United States. The United States and Canada were still co-operating on joint defense measures against any future attack, particularly across arctic regions.

In any kind of arctic defense scheme, the obvious first step is to know the territory and know how to operate in it. It was understood that Canada had decided to make Churchill, Man., a major military training base and both Canada and the United States were expected to send men there to take part in a program of training and defense research. (W. E. TH.)

Perón, Juan Domingo (1896?–), Argentine army officer and politician, was born in southern Argentina, the son of a rancher. He received a military education and taught for a period in military schools. While travelling in Europe in 1941 he was impressed by the trappings of fascism; on his return to Argentina he launched a vigorous crusade for "spiritual renovation" and became one of the leaders of the G.O.U. (Grupo de Oficiales Unidos), a clique of nationalistic young army officers which was instrumental in the coup d'état that overthrew the regime of Pres.

Ramón S. Castillo, June 4, 1943. When Gen. Edelmiro Farrell became president in Feb. 1944, he promptly raised Perón to the war ministry and then to the vice-presidency and submitted obediently to the latter's "suggestions." Argentina's growing nationalistic trends under Perón's pro-fascist guidance were sharply and bluntly criticized by both U.S. Secretary of State Cordell Hull and President Roosevelt in 1944. In 1945, Perón consolidated his grip on the government, despite a short-lived army coup, staged Oct. 9, which ousted him from power for a two-week period.

On his return he became more strongly entrenched than ever and was elected president (Feb. 24, 1946) on the Labour party ticket. He frequently clashed with Spruille Braden, U.S. assistant secretary of state, because of the latter's insistence that Argentina weed out axis influences in its government. In early 1947, Perón made several moves to re-establish harmonious relations with the U.S., including promulgation of a decree (Jan. 25) under which his government would expropriate 60 nazi firms.

Persia: see IRAN.

Perth, Archbishop of (HENRY FREWEN LE FANU) (1870–1946), British cleric, was born on April 1 in Ireland. He was educated at Keble college, Oxford, where he received his M.A. degree. Ordained in 1894, he served at various posts in Great Britain, later becoming archdeacon and canon residentiary of St. John's cathedral, Brisbane, Australia, 1905, and coadjutor bishop of Brisbane, 1915. Holding the latter position until 1929, he was then named Archbishop of Perth and in 1935 was raised to primate (Church of England) of Australia. His death was announced in Perth on Sept. 9.

Peru. A west coast republic in South America, bounded by Ecuador and Colombia on the north, Brazil and Bolivia on the east, Chile on the south, and the Pacific on the west. Area, 482,133 sq.mi.; pop. (1944 est.), 7,522,684. Racial distribution is estimated at 52.9% white and mestizo and 45.9% Indian, but more than 51% normally speak Indian languages. The capital is Lima (pop., 1945 est., 628,821); other cities (with pop. by 1940 census unless indicated otherwise) are Callao (84,438), Arequipa (79,185), Cusco (1945 est., 45,230), Trujillo (1945 est., 41,589), Iquitos (34,231), Chiclayo (32,646), Huanayo (28,679), Sullana (22,344), Ica (21,437), and Piura (1945 est., 29,674). President in 1946: José Luis Bustamante y Rivero.

History.—Pres. Bustamante reorganized his cabinet Jan. 24, 1946, and for the first time included three members of the long-outlawed Apra (*Alianza Popular Revolucionaria Americana*), renamed the Party of the People, a group which had been instrumental in Bustamante's surprise election in 1945. In elections held June 30, the Apra gained substantially in each house of the congress, winning 2 senators and 11 deputies; the opposition was subsequently left with only 2 senators and 4 deputies. An attack by an Aprista mob on an opposition demonstration and newspapers occurred on April 13. Riots resulting from food shortages took place at various times. A brawl between U.S. army and Peruvian navy personnel occurred at Talara, July 28, and resulted in some Peruvian ill feeling toward the United States. The foreign office on Oct. 18 announced a more positive immigration policy, stressing the admission of agricultural technicians for colonization purposes; it stated that negotiations were under way for admission of Italian labourers.

Education.—The government early in 1946 announced plans to spend 18,420,000 soles within five years, beginning in 1946, on construction of school buildings, 20 of which would be lo-

cated in Lima and the rest in the provinces; 2,000,000 soles were allocated for 1946 expenditure.

Finance.—The monetary unit is the sol, valued on Nov. 15, 1946, at 15.38 cents, U.S. currency. The 1946 budget, with additions made after its original announcement, totalled 716,500,000 soles, of which 633,300,000 soles were included in the ordinary budget and 83,200,000 for special-law expenditures. Delay in passing the budget resulted in extending the 1945 budget to Feb. 28, 1946.

The new budget could be balanced, it was thought, only by passage of new tax legislation; one such proposal adopted was for a progressive and cumulative tax on sugar exports, estimated to yield 120,000,000 soles; excess-profits tax rates were also raised. Important items in the 1946 budget included war, navy, and aviation, 154,300,000 soles; treasury and commerce, 136,600,000 soles; education, 111,000,000 soles; interior and police, 95,100,000 soles. The 1946 ordinary budget did not include allocations for irrigation, sanitation, housing, schools and highways. The government in February introduced a bill to control inflation by governing the operations of the national treasury with the central reserve bank. The government later established extensive gold-control regulations to prevent escape of the metal. A 1946 agreement for settlement of defaulted bonds maintained principal at par of \$92,600,000 but cancelled interest arrearages of \$78,800,000. The congress on Nov. 8 approved a bill for a \$30,000,000 Export-Import bank loan for self-liquidating industrial projects and purchase of machinery and materials; the loan presumably would supplant a previous Export-Import undischarged balance of \$25,500,000. Central Reserve bank total holdings Jan. 1, 1946, were \$16,600,000; total bank deposits on the same date were \$1,108,600,000 soles. The cost-of-living index at the beginning of 1946 was 210 as against 100 for a 1934-36 average.

Trade and Communications.—Exports in 1945 totalled 674,500,000 soles (1944: 547,300,000 soles) and imports 549,900,000 soles (1944: 514,400,000 soles), leaving a visible trade balance of 124,600,000 soles (1944: 32,900,000 soles). Exports for the first eight months of 1946 were 1,130,250 gross metric tons valued at 623,700,000 soles and imports were 360,116 tons valued at 489,100,000 soles. Sugar export in 1946 was estimated at 4,500,000 quintals (quintal equals 101.4 lbs.) of raw and 1,500,000 quintals of white. Anthracite coal was being shipped in November from near Chimbote at the rate of 25,000 metric tons monthly to Chile, Argentina, and the west coast of the United States.

Railway and highway mileage were approximately 2,800 and 18,500 mi. The government planned to inaugurate the new Limatambo airport at Lima, considered one of the finest in South America, on July 28; its passenger-terminal building cost 3,000,000 soles. Taca (Transportes Aéreos de Centro América) was authorized during 1946 to operate in Peru.

Production.—The estimate of sugar production in 1946 was 390,000 metric tons. Cotton production in 1945 was 1,532,357 quintals (1944: 1,459,858 quintals). Estimate of rice production in 1946 was 100,000 metric tons. The government began efforts to improve dairy and beef cattle breeds. Scipa (*Servicio Co-operativo Interamericano Producción Alimenticia*), a co-operative food-production agency, established machinery pools for certain coastal areas. The government on June 9 reported discovery of rich oil resources in the Andean foothills. The International Petroleum company planned construction of a modern industrial town near Talara at a cost of 10,000,000 soles.

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Pethick-Lawrence, Frederick William,

1ST BARON, OF PEASLAKE (1871–), British government official, was born Dec. 28, and was educated at Eton and Trinity college, Cambridge. In 1901 he married Emmeline Pethick, a socialite welfare worker, and the two thereafter worked indefatigably in the suffragist movement. In 1923, he was elected to the house of commons as labour member from Leicester West, holding office until 1931. During that time, he was financial secretary to the treasury, 1929–31. He was returned to the lower house in 1935 from East Edinburgh and was leader of the Labour party from 1940 to 1942. He was called into the cabinet after the Labourite victory in Aug. 1945 as secretary of state for India and Burma in the Attlee government and on the same day was created a baron. In early March 1946, he accompanied First Lord of the Admiralty A. V. Alexander and president of the board of trade Sir Stafford Cripps, on a mission to India to negotiate with Indian leaders for Indian independence. However, Moslem-Hindu differences over "Pakistan" (a wholly separate Moslem state) prevented a successful conclusion to the parleys and the cabinet mission announced, June 26, it was suspending negotiations to form an interim government, and returned home.

Petroleum. The world oil production trend was upward in 1946, the demand even exceeding the peak of the war period reached in midyear 1945. In the United States the largest indicated crude-oil production of the war period was for the week ended Aug. 11, 1945, when domestic output averaged 4,933,600 bbl. daily. After the close of World War II, there was a decline of approximately 450,000 bbl. daily by late September, but by midyear 1946, production was averaging 4,776,000 bbl. daily while world-wide oil output was higher by some 200,000 bbl. daily than the year before.

Outside the United States the trend in several countries was upward with no important reductions reported. Output of Venezuela was estimated to be more than 1,000,000 bbl. daily, exceeding the peak war production. There was also a small increase in Colombian production.

Middle east production was estimated to be about 700,000 bbl. daily. The largest gain was in Saudi Arabia where production increased from 75,000 bbl. daily in June 1945 to 170,000 bbl. daily in June 1946. Production in Iran also increased and was reported to exceed 400,000 bbl. daily.

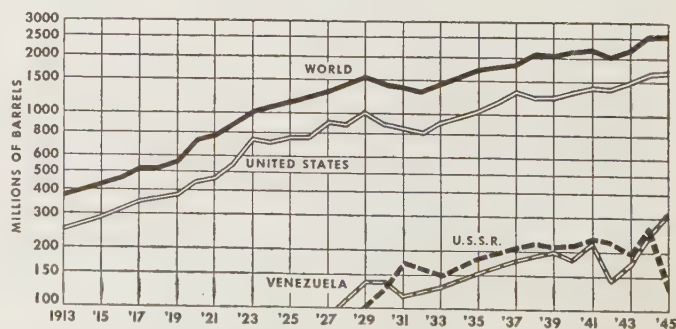
In the far east the rehabilitation of oil properties did not materialize as fast as had been expected but output was greater than when the Japanese conflict ended. European production outside the U.S.S.R. and Rumania is unimportant in world totals. Rumania production was estimated at 100,000 bbl. daily with no information available on U.S.S.R. output. World crude-oil production exclusive of the United States and the U.S.S.R. was estimated to be 2,340,000 bbl. daily.

The trend toward complete national monopolies at the expense of foreign oil interests in many European and Latin-American countries was as pronounced if not more pronounced than it was before World War II, and prospects for restitution of losses suffered in World War II were clouded by the political complexion of successor governments in both victor and vanquished countries, many of whom inclined toward nationalized economies. A further complication was the separate armistices concluded, the terms of which, involving war-loss settlements, were being fulfilled in advance of a general peace treaty.

In many central and southeastern European countries, the soviet Russians made direct bilateral trade agreements which seemed to exclude U.S., British, Dutch and French oil interests from an area of large markets in which they formerly operated. In certain of these countries, joint soviet and national oil companies were formed.

Included under soviet Russian control were Rumania, Poland, Hungary and Austria, accounting for some 120,000 bbl. of oil production daily—practically all the oil of Europe outside of the U.S.S.R. itself except an insignificant amount produced in England, Italy and in the Hanover basin of Germany, which was under British control.

Early in 1946, following soviet Russia's delay in withdrawing its military forces from Iran past the treaty date and the



TOTAL WORLD PRODUCTION OF PETROLEUM and output of the three principal producing countries, as compiled by *The Mineral Industry*



THE ABU ROASH WELL drilled in the desert ten miles west of Cairo, Egypt. This well was the beginning of a drilling program to test the oil potentialities of 6,000,000 acres of land held on exploration permit, in 1946, by the Standard Oil Company of New Jersey from the Egyptian government

United Nations Security council action, the U.S.S.R. and Iran reached a compromise agreement for the formation of an Iranian-Russian oil company controlling a large area for oil exploration and development in northern Iran.

By President Harry Truman's executive order of May 3, 1946, the Petroleum Administration for War was terminated on May 8, 1946. An undertaking called by Deputy Petroleum Administrator Ralph K. Davies one "unparalleled in the annals of government and industry," it was carried to successful conclusion by the "spirited co-operation and harmonious relationship that prevailed between government and industry," and the president indicated that it had successfully discharged its wartime duties.

Organized on a peacetime basis was the National Petroleum council authorized by President Truman to serve as "a channel of communication between the federal government and the petroleum industry."

Under OPA ceilings crude oil and petroleum products prices were virtually frozen throughout the war at 1941 prices. Under the new price control law signed by President Truman on July 25, 1946, crude oil and all petroleum products were entirely free from price control, and future control depended upon future findings of the new Price Control board. The national average price of crude oil on June 30 of about \$1.33 per barrel was increased 25 cents late in July and there was a general increase of slightly more than 1 cent a gallon in the gasoline price.

Following the removal of practically all OPA controls in the United States in October and November, there were crude oil advances in November applying to more than 80% of the United States production. These emphasized discussion among refiners during the year as to whether crude oil price schedules accurately reflected the comparative values of the oil. In the early 1920s gravity price differentials based on yields of gasoline were posted, resulting in more stable and equitable crude oil markets following an era of premium paying for high-gravity crudes in the days when flat prices for crude oils were the rule.

Even before World War II there were complaints that comparative crude oil prices determined largely by yields of straight-run gasoline, often low in antiknock rating, were outmoded by changes in processing methods and quality standards for motor fuels and other products. Conditions partially brought

about by the war and by peacetime developments increased the demands for the intermediate and residual products. Crude oils with wide yields of quality diesel fuels and furnace oils had, in some areas, increased in value in relation to gasoline crudes. Lubricating-oil yields had become of major importance. Catalytic cracking and related operations had, of themselves, changed crude oil values. Changes in transportation conditions had and would continue to have a bearing on the prices of crude oil.

While it is impossible to arrive at posted schedules which will accurately reflect all the varying values of crude oil by fields and leases, there are certain broad relationships, dependent on the properties of crude oil, manufacturing practices, transportation and consumer demands, which are undergoing constant change. It was pointed out that these were being taken into consideration in new crude price schedules as the base for sound market conditions in both raw material and finished products.

It was estimated that advances in the science of petroleum production had added more than 17,000,000,000 bbl. of oil to the recovery ultimately expected from U.S. fields, or 35% of the 49,000,000,000 bbl. of oil discovered up to the end of 1946. Some of this oil had already been produced, and of the 20,000,000,000 bbl. remaining in the fields it was estimated that 11,000,000,000, or 55% was attributable to improved technology.

Added to petroleum reserves are tremendous reserves of coal and shale susceptible of being converted into liquid hydrocarbon. Upon these the U.S. bureau of mines had lately started a \$30,000,000 experimental program.

Although not directly comparable to the scientifically "proved" petroleum reserves of the United States, fairly reliable estimates were made of other areas. They indicate total world oil reserves of 63,300,000,000 bbl. of which 28,900,000,000 bbl. are in the western hemisphere and 34,400,000,000 in the eastern hemisphere. The middle east, credited with 26,800,000,000 bbl., even overshadows the great United States reserves.

There is no danger of the U.S. running out of liquid fuels "for centuries to come," Eugene Holman, president of the Standard Oil company (New Jersey) told the annual meeting of the American Petroleum institute on Nov. 14, 1946, but an important factor on that score will be whether the industry is given the opportunity to do the job cut out for it. No form of centralized control offers an adequate substitute for a system of vigorous, competitive enterprise, he said, adding that if the world is to produce the oil it could and should, research and de-

velopment can not be regimented.

On the subject of conservation, Holman stated that the industry is opposed to waste but that "locking up" natural resources in vast areas "is not our idea of conservation," because "that is the best way not to have oil available for either present or future use." He said that federal and state lands should be open to prospecting and development; that federal efforts to control tidewater lands were not conducive to development of possible oil resources, and that similar consideration applied with respect to the continental shelf. (See also BUSINESS REVIEW.)

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Pharmaceuticals: see DRUGS AND DRUG TRAFFIC.

Philadelphia. Philadelphia is the third largest city of the United States, and although the 1940 census gave the population as 1,931,334, it was estimated in 1945 at 2,100,000. Mayor: Bernard Samuel (1944-48).

At the May 1946 primaries electoral loans were approved as follows: for sewers and sewage disposal \$34,000,000, hospitals and health centres \$5,000,000, juvenile house of detention \$1,000,000, reception centre for children \$200,000, improvement of the port \$3,000,000, drainage and flood control \$1,500,000, Pennsylvania railroad agreement \$4,300,000, Broad street subway \$2,000,000, Market street subway \$8,000,000, airports \$10,000,000, highways and bridges \$5,000,000, parks, playgrounds, etc. \$3,000,000, power and signal, etc. \$1,200,000.

About the same time the city council approved councilmanic loans in the sum of \$29,100,000 for the following purposes: water purposes \$11,000,000, Southwest airport \$2,500,000, Northeast airport \$2,500,000, sewers and sewage disposal \$8,000,000, highways and bridges \$1,500,000, parks, playgrounds, etc. \$1,500,000, incinerator and garbage reduction \$1,000,000, voting machines \$1,100,000, thus making available for expenditure a total of \$107,300,000.

The city's debt position at the beginning of 1947 included a total borrowing power of about \$50,400,000. This was because of reduction of net debt and increases in taxable assessments.

At the start of 1946 the city's outstanding bonded debt totalled \$439,350,300 (not including unclaimed matured bonds). Bonds paid during the year totalled \$30,655,000, while new bond issues amounted to \$31,000,000. Thus, there was a net increase of \$345,000 for the year in the gross bonded debt, bringing it to \$439,695,300 at the end of the year.

The 1947 budget called for an expenditure of \$104,520,633.71, as follows: public safety \$28,017,354.63, public works, redevelopment authority and city planning \$20,539,049.75, public health and welfare \$13,049,497.00, civil rights and benefits \$10,801,886.99, city-county administration \$7,760,565.13, funded indebtedness \$22,517,280.21, pensions and workmen's compensation \$1,835,000.

Exact figures were not available late in 1946, but it seemed that the year would end with a net bonded debt about \$18,000,000 larger than it started with—about \$334,000,000, as against \$316,221,410.

It should be noted that the city budget did not include the cost of operation of the board of public education, which is a separate entity. The board's budget for 1947 was about \$38,000,000. (B. SA.)

Philately. Perhaps the most important—and possibly the least well-known—stamp reference collection in the U.S. is the Luff reference collection. It was formed by John Luff, for many years the editor of the Scott publications

and, especially, of the *Scott Standard Catalogue* (the main reference work of U.S. and Canadian collectors). During 1945 the Scott Publications, Inc., owners of the collection and the catalogue, was sold to Gordon R. Harmer, of London and New York, but the collection was presented to the Philatelic foundation, a not-for-profit organization in New York and was to remain at the Collectors club for the use of students.

The change in ownership did not mean a major change in the catalogue, for Harmer had been serving as an associate editor; and Hugh Clark and his wife remained as associates after they relinquished control.

The issues of the war period emerged from the obscurity cast by the prohibition of import of enemy issues into various countries, including the U.S. and British empire. Those which merit recognition were becoming known, and supplies were emerging from various hiding-places.

One of the most interesting groups of the war issues was the series produced in the Channel Islands—Jersey and Guernsey, in particular—British islands lying off the coast of France. When occupied by the Germans, the post offices continued to function without major interference. When the supplies of stamps on hand were used up, they were encouraged to produce local issues, which they did. These would probably become very scarce, since they were produced for use, not for speculation.

Prices.—The prices of all stamps, supposedly inflated, showed rather surprising strength during the year, although there was some recession toward the end of the period. The classic issues seemed impervious to the slight falling-off that affected more recent popular stamps. There was plenty of demand for stamps in good condition, and, in stock-market terms, the market can be said to have held fairly steady, with no important rises and few notable drops.

Exhibitions.—During the war stamp exhibitions were, of course, held to a minimum. The relaxing of travel controls meant new life for stamp exhibitions everywhere. In the U.S. the 60th anniversary of the American Philatelic society was celebrated by a fine display in Chicago, which was only slightly hampered by a fire that destroyed the hall originally selected for the celebration.

The great "Centenary of the Postage Stamp" exhibition, scheduled to be held in London in 1940 was, of course, "destroyed by enemy action"—not the stamps, but the plan. During 1946 plans materialized for another centenary celebration, this time the 100th anniversary of the issuing of postage stamps in the United States. Plans were virtually completed during 1946, although the exhibition was not to be held until May 1947 in New York. British exhibits prepared for 1940 were to participate.

New Issues.—The United States issued only eight postage stamps, one air mail stamp and one air mail envelope during the year. The stamps included the five-cent Roosevelt; and three-cent values commemorated the merchant marine, the centenaries of the states of Tennessee and Iowa, the foundation of the Smithsonian institution and the entry of U.S. troops into Santa Fe, N.M. There was also a three-cent stamp showing the discharge emblem given to all men and women discharged from the armed forces.

The change in air mail rates in October produced a new five-cent air mail stamp and a five-cent air mail envelope.

Other New Issues.—The British empire issued stamps honouring the victory of the Allies. The mother land and the colonies each issued two values, but some of the dominions were lavish. New Zealand, for instance, issued a complete peace set of 11 values. It also issued the customary two health semipostal stamps.

France issued two stamps commemorating the meeting of the foreign ministers to write the peace treaties for axis satellites. Mexico obliged with an issue for the United Nations of 11 values. Haiti issued 2 stamps in honour of Franklin D. Roosevelt, Nicaragua issued a set of 11 and Turkey a set of 6. Turkey also issued three stamps noting the visit of the U.S.S. "Missouri."

Belgium commemorated the Bastogne battle with two air-mail semipostal stamps which did not meet much favour. The usual semipostals showing four leaders of the 11th and 12th century crusades were more acceptable.

The Philippines issued (July 4) a series of three, their first issue as a sovereign nation.

A five-cent stamp from the Canal Zone honoured John F. Stevens. The military governments in Germany issued a set of stamps for all zones of occupation of 27 values from 1 pfennig to 1 mark.

Literature.—Between 900 and 1,000 new stamps were listed in the 1947 catalogues, which appeared in 1946.

A new weekly magazine, *Philately*, started in the U.S. Published in St. Louis, it bid fair to be a permanent addition to philatelic journalism. In France *Cahiers Philatéliques*, appearing bimonthly, offered a thoroughly adult study of various issues, predominantly French, as well as collateral material such as postal markings and postal history.

Other Events.—The Green sales came to an end during 1946, with the amazing total of about \$1,750,000 realized from the accumulations of Col. E. H. R. Green. (M. HA.)

Philippines, Republic of the.

The republic of the Philippines comprises the archipelago ceded by Spain to the United States in the treaty of Paris of Dec. 10, 1898, and proclaimed by the United States as an independent republic on July 4, 1946. The chain of approximately 7,100 islands falls between north latitudes 4° 21' and 21° 10' and between east longitudes 116° and 127°. Lying about 800 mi. off the east coast of Asia, the islands of the Philippines stretch from Formosa on the north to Borneo on the south.

By regular steamship routes, Manila is 631 nautical miles southeast of Hong Kong, 1,757 mi. southwest of Yokohama, 1,370 mi. northeast of Singapore, 4,838 mi. west of Honolulu and 6,929 mi. southwest of San Francisco.

The total area is 115,600 sq.mi. The last official census, 1939, gave the population as 16,000,303, including the following non-Filipino nationalities: Chinese 117,487; Japanese 29,057; Americans (U.S., exclusive of armed forces) 8,709; Spanish 4,627; Germans 1,149; British 1,053. Estimates of the Philippine bureau of census and statistics placed the population in 1946 at 18,400,000. Principal religions according to the census of 1939 were: Roman Catholic 12,603,365; Aglipayan (Independent Philippine Catholic) 1,573,608; Mohammedan 677,903; Protestant 378,361. In addition, about 680,000 were pagans following various animistic cults. The principal cities and their populations were: Manila, the political and commercial capital on the northern large island of Luzon, 623,492 (not including several large suburbs); Cebu 146,817; Iloilo 90,480; Legaspi 41,468.

History.—The outstanding event of 1946 was the granting of independence to the Philippines on July 4.

Philippine Elections.—This event was preceded by the holding of the first general elections in the Philippines after the Japanese invasion in 1941. The Nacionalista party which had dominated Philippine politics before World War II split up into two factions, one headed by the incumbent President Sergio Osmeña and the other faction by Manuel A. Roxas,



AT THE FOOT OF A crazily-tilted ruined building, seen on a shambled street in Manila during 1946, U.S. soldiers and sailors purchased souvenirs and trinkets at makeshift stalls

president of the senate. After a vigorous campaign, Roxas was elected to succeed Osmeña. Elected with Roxas were majorities in the house and senate which were considered friendly to him. Roxas assumed the presidency of the Philippines on May 28, 1946.

Independence.—On July 4, the Philippines achieved independence, a goal which the Filipino people had been seeking for many decades. The voluntary granting of independence to the Philippines brought to a close a historic period of 48 years' relationship with the United States, as a dependency under the U.S. flag. The president of the United States, in a special Proclamation of Independence on July 4, declared that the United States "withdraws and surrenders all rights of possession, supervision, jurisdiction, control or sovereignty now existing and exercised by the United States of America in and over the territory and people of the Philippines . . ." and that the United States does "hereby recognize the independence of the Philippines as a separate and self-governing nation. . . ." A treaty of general relations, charting a new pattern of relationships between the two countries, was also signed in Manila on July 4. The senates of the two countries soon consented to the ratification of the treaty and the treaty was proclaimed as having entered into force on Oct. 22, 1946.

Foreign Relations of the New Republic.—Under the terms of the Tydings-McDuffie act, which governed Philippine-U.S. relations before independence, the United States notified other foreign governments of the independence of the Philippines and invited them to recognize the new republic. By the end of 1946 at least 38 countries had recognized the independence of the Philippines.

Since Philippine foreign relations prior to independence were strictly under the control of the United States, the Philippines at the outset of its existence as an independent nation was compelled to create an entirely new foreign affairs establishment consisting of a department of foreign affairs and foreign service. The first secretary of the department of foreign affairs was Vice-Pres. Elpidio Quirino and the under secretary was Dr. Bernabe Africa. During 1946 the Philippines opened an embassy in the United States and consulate generals in New York and San Francisco.

Throughout 1946 the United States, at the request of the Philippine government, conducted through the department of state a special Philippine Foreign Affairs Training program designed to provide the Philippines with a nucleus of trained foreign service officers. A U.S. adviser, Richard P. Butrick, was, also at the request of the Philippine government, detailed to Manila to assist in the organization of the Philippine foreign service. The first U.S. ambassador named to the Philippine republic was former high commissioner Paul V. McNutt.

The Philippines and the United Nations.—The Philippines, which joined the United Nations in June 1942 and subsequently became a member of the United Nations organization at San Francisco in 1945, continued to give active support to the United Nations during 1946. General Carlos P. Romulo, former resident commissioner of the Philippines, was named Philippine delegate to the United Nations and became a well known figure in United Nations circles. In addition to the United Nations the Philippines also participated actively in other international organizations, and in such regional agencies as the Far Eastern commission.

National Defense.—The Philippines and the United States continued to work together on matters of mutual defense during 1946. Steps were taken to conclude an agreement whereby U.S. public law 380 of June 29, 1944, and joint resolution No. 4 of the Philippine congress of June 22, 1945, authorizing negotiations for the retention of U.S. bases in the islands, were brought into effect. The United States congress in public law 454, approved June 26, 1946, also provided for a program of military assistance to the Philippines.

Collaboration Issue.—The Philippine government through a specially appointed people's court continued to try accused collaborationists during 1946. The court was meeting many difficulties, however, and considerable talk circulated concerning the possibility of a general amnesty for collaborationists. Solicitor-Gen. Lorenzo M. Tanada, in charge of the prosecution for the government, was nevertheless attempting to press forward with indictments against the accused collaborationists.

Economic Reconstruction.—The main problem continuing to confront the Philippines during 1946 was the problem of economic rehabilitation and reconstruction. This problem could be broken down in turn into four main problems: the problem of restoring trade relations, the problem of physically rebuilding the country, the problem of raising revenues and solving a severe budgetary crisis and the socio-economic problem of agrarian unrest in the Luzon provinces.

Trade Relations.—The United States congress in public law 371, approved April 30, 1946, known as the "Philippine Trade Act of 1946," recognized the great dependence of the Philippines on the U.S. trade market by passing this measure which extended the period of free trade between the United States and the Philippines to 1954; after 1954 Philippine products coming into the U.S. market were to be assessed duty at the rate of 5% progressively over a span of 20 years until at the end of this time full duties are assessed Philippine products. This measure was intended to revive the shattered trade economy of the islands. Some of its provisions were considered imperfect and were sharply criticized, but generally speaking, the measure was considered essential to the economic recovery of the Philippines. The agreement to carry out the act was proclaimed by Pres. Harry S. Truman on Dec. 17, 1946.

Rehabilitation.—In a companion measure, public law 370, approved April 30, 1946, known as the "Philippine Rehabilitation act," the United States congress also extended generous economic assistance in the rehabilitation of the Philippines. This measure contained three major provisions: one provision creating a Philippine War Damage commission and providing for

the granting to private property owners of \$400,000,000 in war damages, another provision for the disposal to the Philippine government of \$100,000,000 in surplus property without reimbursement and another provision for the spending of \$120,000,000 in various public works and training projects. Among other things, this last provision provided for the training of some 850 Philippine students and technicians by various U.S. government agencies during the next few years.

Financial Crisis.—In an address delivered to the Philippine congress on June 3, 1946, President Roxas declared that, "We are faced . . . by the fact that our government is without financial means to support even its basic functions, not to speak of the great projects in rehabilitation and economic development, which we contemplate and which are, indeed, vital to our continued existence. . . ." The president described the country as "living through the most crucial period of our life as a nation."

Cut off from its usual sources of revenue as a result of World War II, the Philippine government struggled to maintain its normal services and those additionally acquired with independence. In response to urgent Philippine requests for assistance, the United States congress in public law 656, approved Aug. 7, 1946, provided for the granting of a loan of \$75,000,000 to the Philippine government. This loan was expected to help alleviate the immediate budgetary crisis, but other requests for loans were anticipated.

In addition to obtaining financial aid from the United States, Pres. Roxas also proposed (1) revision of the budget procedure and the establishment of a strong budget bureau, (2) reorganization of the government to reduce unnecessary personnel and inefficient operations and (3) revision of the tax laws including enactment of a war proceeds tax based on taxable income and the increase in capital assets for the period 1941-45.

In the closing months of 1946 a Philippine-U.S. Financial commission was also appointed to visit the Philippines and report on means of improving the financial conditions of the country.

Agrarian Unrest.—Another problem which caused the Philippine government a great deal of concern during 1946 was the problem of agrarian unrest, particularly as it existed in the central Luzon area. The unrest in these provinces was to a considerable degree due to the long-standing, decades-old dissatisfaction of the farmers in these provinces with the conditions of their livelihood. During the war these groups secured firearms and after the end of the war showed little inclination to surrender them and to return to the *status quo*. Pres. Roxas early in his administration declared that "social and economic injustices, especially acute in those areas have been proper soil for the harvest of violence . . ." and proposed that steps be taken at once to remedy conditions in these provinces. An Agrarian commission was appointed to study the problem and a new tenancy law was passed by the Philippine congress.

Despite these reform measures, however, considerable unrest and lawlessness continued to exist in the provinces during 1946. Many illegal firearms were held, and the government made vigorous efforts to regain these firearms and bring the farmers of this area to acceptance of its reform program.

General.—Though 1946 was generally a year of economic trial for the Filipino people, by the end of the year encouraging progress was being made. The Philippine War Damage commission was at last functioning in the islands, the various U.S. agencies participating in the reconstruction work of the islands had their representatives in the islands planning the initial phases of their work, \$25,000,000 of the loan described above was about to be turned over to the Philippine government and the Trade agreement had been proclaimed as being

in force. All these measures were intended to assist the Philippines in its economic recovery. (E. W. ML.)

Philosophy. In 1946, the first full postwar year, philosophy displayed several tendencies. There was, first, a searching for old values, a renewal of attention to principles or statements of faith which had been obscured by the clamour of war. Second, there was a re-examination of the human experience in its crucial phases to see whether a "way out" were possible, either by religion or by its opposite, the recognition of man's impotence and nothingness as ultimate fact. Third, there were serious efforts to interpret the crisis in culture and to find adequate intellectual formulae to undergird the human effort to improve understanding between differing and potentially clashing cultures, thus helping to lay the groundwork for enduring peace. The overwhelmingly dominant note in all these tendencies was that of deep concern about man's condition, his present crisis and his historic fate. In this year of groping toward the light, philosophy moved between the poles of despair and hope.

Old convictions were reaffirmed in collected essays by several world-famous philosophers and other lesser, but notable, critics. Posthumous essays of Miguel Unamuno, *Perplexities and Paradoxes*, (1945), celebrated man's personal struggle to know his own worth in the spiritual agony which is life, a struggle without end and without victory, but intensely real. Henri Bergson, in *The Creative Mind*, posthumously published in English, restated in two new essays, among some older ones, the general position of creative evolution and the intuitive method of metaphysics, though modifying somewhat his earlier view of the relation of science to reality. José Ortega y Gasset, in *Concord and Liberty*, dealt with the problems of government, "thinking" (the invention of techniques of which cognition is but one), history and life, in essays not altogether free of regret and resignation toward history's inevitable present course. John Dewey, in *Problems of Men*, papers on education, democracy, values and thinkers, again recalled philosophy to its proper task of searching for the "ends and values that give direction to our collective human activities," a human wisdom that may guide science in the improvement of life. Morris R. Cohen's diversified essays and reviews in *The Faith of a Liberal* displayed his ceaselessly critical mind at work analyzing presuppositions and arguments of thinkers and schools of thought, whether jurists, scientists, educators or philosophers, thus upholding a liberalism of intelligence as against lapses into superstition, prejudice or cloudy thinking. Lewis Mumford's *Values for Survival* consisted of papers written to stir a sluggish democracy to realize its desperate condition and to rethink and revitalize the spiritual values on which mankind may safely stand.

As France emerged from the darkness of the war years, the philosophy of existentialism, with roots in Søren Aaby Kierkegaard and Johann Heinrich Heidegger, appeared, and received international attention. Jean Paul Sartre, Simone de Beauvoir and Albert Camus, versatile writers of fiction and drama as well as of philosophy, emphasized the absurdity, the failure and the nothingness of man's existence. Freed from illusion, without hope, yet not desperate, the philosopher, they held, may choose a life-style as he wills, act responsibly in his temporal situation and bring thought and action into a genuine unity. The success of existentialism, suiting as it did the mood of the times, momentarily obscured the fact that older philosophical tendencies continued in France under distinguished leadership. Étienne Henry Gilson, Jacques Maritain, Maurice Blondel, Louis Lavelle and René le Senne represented various levels of religious or spiritual philosophy providing more normal answers to the problem of human life than that of existentialism.

R. G. Collingwood's posthumous volume, *The Idea of Nature*, examined the analogies (man, machine, history) by which nature has been understood in the three great epochs of western science (Greek, renaissance, modern). George Santayana, in *The Idea of Christ in the Gospels*, without abandoning his naturalism, sympathetically attempted "to analyse and detach . . . one original element in the inspiration of the Gospels, namely the dramatic presentation of the person of the Christ," that is, the idea of Christ "present, before and after the Gospels were written, to the Christian mind."

The Meeting of East and West, by F. S. C. Northrop, attracted much attention for its constructive effort to reconcile major pairs of opposites: east and west; mediaeval and modern; Anglo-Saxon and Latin cultures; democratic and communistic values. Reconciliation requires a revised theory of knowledge and reality. The old belief in mind, matter and "appearance" is replaced by two terms, the "aesthetic continuum" (directly given) and the "theoretic component" (product of thought). Neither component can be reduced to the other; both are real, and they are correlated.

Many other important books bore upon the contemporary social and moral crisis. *Plato's Theory of Man* by John Wild criticized modernism's inversion of the true order of value which Plato correctly envisioned. R. K. Popper in *The Open Society and Its Enemies* (2 vols.), and Ernst Cassirer in *The Myth of the State*, dealt with myth and reason in society. John Somerville's *Soviet Philosophy* and Karl Kautsky's *Social Democracy Versus Communism* added material to the great debate on the left. Theologians Reinhold Niebuhr in *Discerning the Signs of the Times* and Emil Brunner in *Justice and the Social Order*, commented on man's plight and needs.

U.S. philosophy and faith were explored anew by Herbert W. Schneider's *A History of American Philosophy*, Joseph L. Blau's *American Philosophical Addresses, 1700-1900* and Merle E. Curti's *The Roots of American Loyalty*. Contributions to the theory of aesthetics were made by Stephen C. Pepper's *The Basis of Criticism in the Arts* and Milton C. Nahm's *Aesthetic Experience and its Presuppositions*. Other studies were Charles Morris's *Signs, Language, and Behavior*, Kenneth Burke's *A Grammar of Motives* and James Feibleman's *An Introduction to Peirce's Philosophy, Interpreted as a System*. (E. L. MN.)

Phoenix Islands: see PACIFIC ISLANDS, BRITISH.

Phosphates. Mine production of phosphate rock in the United States rose to 6,159,708 short tons in 1945 from 5,936,002 tons in 1944, and sales increased to 6,503,530 tons from 6,021,840 tons. The excess of sales over production cut stocks from 1,375,400 tons to 949,200 tons. From 1942 stocks had declined by more than half. Exports decreased and imports increased, adding still more to the domestic supply. With the reopening of foreign markets after World War II exports were expected to increase materially, but this movement was not manifest in 1945.

New data were received from few important producing countries outside of the United States; output reported for 1944 was as follows, in short tons, with any 1945 outputs given in parentheses for comparison: Algeria 242,893; Tunisia 575,699 (778,606); French Morocco 1,592,732 (1,802,280); Egypt 350,739; Makatea Island 200,000 tons. (G. A. Ro.)

Photography. Even with a full year of postwar production the photographic manufacturers fell far short of meeting the tremendous demand for all types of photographic materials in 1946. The Eastman Kodak company was producing more sensitized films and paper than in any prewar

year. Yet the shortages in these materials were acute. The same scarcity prevailed for flashlamps, cameras and much of the accessory equipment. However, in spite of shortages important new products were available. Ansco and Kodak brought out new $2\frac{1}{4}\times2\frac{1}{4}$ -in. reflex cameras and also new colour materials. A few additional manufacturers had new flash synchronizers, speedlamp units, tripods, sensitized papers and small accessories. However, no major camera development appeared in England or the United States.

By the end of the year the first shipment of Leica cameras arrived from the Leitz factory in Germany, where German camera manufacturers were just beginning to get into regular production. The British and U.S. armies absorbed most of the camera production in Germany.

Important applications of photography were announced in specialized fields such as the high speed cameras in the Bikini atom bomb tests, the first rocket spectrograph of the sun made 65 mi. above the earth, new developments in electron photomicroscopy and industrial X-ray. All these uses point to an accelerated development in this field of record photography.

Atomic Bomb Photography.—The high point in scientific and record photography was achieved during the Bikini atomic bomb tests in the summer of 1946. The magnitude of these photographic operations may be realized from such facts as: nearly 500 cameras were used, including 8 mm., 16 mm. and 35 mm. movie cameras, high-speed cameras and still cameras with various lenses up to the giant "Big Bertha" camera equipped with the Eastman 48-in. lens. More than 1,500,000 ft. of motion picture film and more than 50,000 still pictures were made during the two atomic bomb tests. Record photographs of the animals placed on the ships were made before and after the blasts. Other photographers made underwater photographs while drone planes carried automatic cameras over the area. Still other automatic cameras were placed in towers on Bikini Island.

Various filters were used over the lenses. For recording the first brilliant flash a 4X neutral-density filter was the most successful. Other automatic cameras without filters had tremendously overexposed films but obtained excellent results as the succeeding exposures were made after the flash. In the case of the motion picture cameras a complete progressive picture was obtained by splicing the best exposures from various cameras.

The high-speed motion picture cameras played an important role. The Bell Telephone laboratories furnished 60 Fastax cameras in 8 mm., 16 mm. and 35 mm. sizes under the direction of J. H. Wadel. They were the only high-speed cameras operated at 1,000 pictures per second. The 24 Eastman high-speed cameras were operated at 600 pictures per second. When at top speeds the Eastman camera makes 3,000, the 8 mm. Fastax 8,000, the 16 mm. Fastax 4,000 and the 35 mm. Fastax 3,500 frames per second. Spectroscopic and photometric cameras recorded the intensity and the radiant energy of the explosion.

The National Advisory Committee for Aeronautics developed and constructed two high-speed motion picture cameras, neither of which was produced commercially. One of these cameras had a speed of 40,000 frames per second and was described in U.S. patent No. 2,400,885. The other camera was capable of a speed of 200,000 frames per second and was described in U.S. patent No. 2,400,887. Both of these patents were granted to Cearcy D. Miller, the inventor. These high-speed cameras could be manufactured by or for the use of the U.S. government without payment of royalties in accordance with the non-exclusive royalty-free licences obtained from the inventor.

New Fairchild Cameras.—The Fairchild Camera and Instrument Corp. made five important camera developments: the

K-25 Sequence camera, Cartographic camera, Camera Transit, Radar camera and the Fluoro-Record camera. The Fairchild K-25 Sequence camera was a special hand-held unit designed for rapid-sequence, two-frames-a-second photography for the professional press photographer who wanted attention-getting pictures. It was a commercial adaptation of the war-tested, electrically-operated, Fairchild K-25 Aerial camera. Any event that had a fast-moving range of dramatic phases could become subject matter for this new press model. The most important use of this camera during the year was for photographing the successive phases of the two Bikini atomic bomb tests in July. Other photographers used this camera to obtain sharply detailed photo sequences of the finish spurt of horse races, the excitement at the one-yard line at football games, the take-off of jet-propelled planes, dancers, diving and skating champions and even the successive stages of street riots. The K-25 Sequence camera made 50 4×5 -in. exposures on a 19-ft. roll of film, which was electrically driven. This camera could be used for aerial photography when required.

To meet government mapping requirements Fairchild designed the new 9×9 -in. Cartographic camera to provide precision aerial photographs for topographic and planimetric maps needed in crop control, soil conservation, flood control, geological exploration, highway expansion, municipal and rural improvements, coastal defense and other aerial mapping programs. This Cartographic camera, which could be operated automatically and semiautomatically had two cones, lying one within the other. The inner cone, or "optical heart," contained the focal plane and the optical system and could be removed as a complete unit for calibration by the federal bureau of standards. The outer cone contained all operating mechanisms. The front and rear lens elements could be removed for cleaning and inspection without disturbing collimation. The film magazine provided for 180 ft. of roll film for making 250 exposures of 9×9 -in. negative size.

To meet the specifications of the U.S. navy hydrographic office Fairchild engineers produced a Camera Transit in co-operation with J. E. King of the U.S. forestry service. This unit consisted of a surveying transit combined with a 4×5 -in. plate camera. This Camera Transit was to be used in obtaining ground control information to supplement aerial photogrammetry. The Fairchild Radar and Fluoro-Record cameras, developed during World War II, were in production for general use in 1946.

Rocket Photography.—This was a new term which was added to the mounting list of photographic applications in 1946. During the V-2 rocket testing at White Sands, N.M., automatic camera equipment was placed in several rockets to obtain photographic records never before made at altitudes up to 90 mi. A sensational motion picture film was made during one rocket ascent, sometimes travelling upward at 4,000 ft. per second, which actually showed the curvature of the earth at a height of 65 mi.

Rocket Spectrography.—This was still another significant new term for 1946. The closest photographs ever taken of the sun's spectra were made from within the war head of a giant V-2 rocket at various distances up to 65 mi. A specially-constructed rocket spectrograph unit was designed and built by the Bausch and Lomb Optical company for these experiments. During the flight successive exposures were made at 20-sec. intervals after the rocket entered the ionosphere. The steel spectrograph unit weighed 150 lb., including the 25-lb. film chamber which survived the terrific impact when it returned to earth. As a result of this work the sun's spectrum was extended many Ångströms into a new ultra-violet region never before seen because of previous atmospheric interference. It was thought that up to a year would be required to analyze fully the spectrographic data obtained. The depth in the ultra-violet to which the rocket spectrograph could reach was limited only by the absorption of the materials used for the optical parts and the sensitivity of the film. The optical parts in this unit were made of lithium fluoride, a synthetic crystalline material, which penetrated deep into the ultra-violet regions, close to 1,200 Ångströms.

New Equipment.—The popularity of the $2\frac{1}{4}\times2\frac{1}{4}$ -in. twin-lens reflex cameras similar to the Rolleiflex was increasing steadily. During World War II all the German camera imports were stopped. However, during 1946 both the Eastman Kodak Co. and Ansco produced twin-lens reflex cameras. The Kodak Twin-Lens Reflex had shutter speeds from $\frac{1}{2}$ to $\frac{1}{200}$ sec., built-in flash synchronization, 80 mm. $f/3.5$ Kodak Anastigmat lens and made $12\ 2\frac{1}{4}\times2\frac{1}{4}$ -in. negatives at one loading. The Ansco Automatic Reflex $f/3.5$ was a precision twin-lens reflex camera designed

to meet the exacting photographic requirements for this type of camera. It had shutter speeds from $\frac{1}{2}$ to $\frac{1}{400}$ sec., 83 mm. Ansco Anastigmat f/3.5 lens and made 12 $2\frac{1}{4} \times 2\frac{1}{4}$ -in. negatives per roll.

The Kodak Medalist II appeared in an improved model with new features such as: built-in Flash Supermatic shutter, Luminized Ektar f/3.5 lens and improved film wind with automatic interlock preventing double exposures. A Kodabromide printer was made by Kodak which provided speed in making enlargements up to $2\frac{1}{4} \times 4\frac{1}{4}$ in. from roll films with various negative sizes down to 24×36 mm.

In the field of flash photography the trend continued toward the increased production of shutters with built-in flash synchronization such as the Ilex, Supermatic (X), Graphex (X) and Rapax. Graflex recommended the use of the solenoid flash-tripper in combination with the Supermatic and Graphex synchronized shutters to provide wider flexibility of the equipment. Kodak provided a new flashholder for use with all Kodak flash shutters on the new Kodak Reflex, the new Kodak Medalist II and other new Kodak cameras with built-in flash synchronization.

One of the notable developments of the year came with the phenomenal development of portable speedlamp units which gave instantaneous flash exposures around $\frac{1}{5,000}$ of a second. These flashing units weighed between 15 and 20 lb. and could be synchronized with the standard between-the-lens shutter. More than 25 different makes were announced during the year. With continued development these high-speed speedlamp units were expected to become cheaper and also lighter in weight. They were already giving the photographer a new freedom in his work. A speedlamp could be flashed more than 20,000 times before it showed any signs of deterioration. This promised an enormous saving in the use of the regular flashlamps which burned out with each flash.

In the field of still projection the Bell and Howell Co. introduced the Duo-Master projector for 2×2 -in. slides with such features as adjustable condensers (to match the lens in use), 300-watt illumination, interchangeable lenses, triple-walled lamp-house and cool operation.

Several developments in the 8-mm. and 16-mm. field were announced by Bell and Howell. One of these was a motion picture projector for 8-mm. film, the Filmo Picture Master. This projector featured a base-up 750-watt lamp, all-gear forward drive and rewind without changing reels and single-frame projection with increased brilliance on the screen.

The methodical application of motion pictures to time and motion study work was furthered by Bell and Howell with the introduction of a complete line of 16-mm. cinematographic equipment designed for this specific use. The camera, the Filmo Electro, took standard 50-ft. 16-mm. magazines; incorporated a 24-volt motor, with transformer built into the power cord; operated at 1,000, 2,000, and 4,000 frames per minute, to conform with the decimal measurement used in job-study work. A 21-mm. f/1.9 lens and positive matching view-finder were standard equipment.

For evaluation of the films made with the Electro camera, Bell and Howell introduced simultaneously a 16-mm. projector fitted with hand-crank and special heat filter for single-frame projection, a frame counter which could be reset at zero when desired and electric-governor speed control to insure optimum accuracy in screening job-study films for time-checking purposes. A further adjunct to the method-study equipment was a special version of the Filmotion Viewer which afforded both single-frame and continuous viewing of the film on a small illuminated ground glass screen. A frame-counter was provided for this device also, to enable the operator to complete a more systematic study of the film being analyzed.

The Kodak Hi-temp hardener was one of the few new developments in photographic chemicals. This is a single bath hardener for use before development, reduction or intensification. It permitted development in regular developers up to 95°F. after this hardening treatment. It was important for use in tropical regions.

The Concentrated-Arc Lamp.—New illumination developments during recent years included perfection of the tungsten spot and floodlights, the flashlamps, photo-flood lamps and speedlamps. With such versatile control of lighting the photographer was no longer dependent upon sunlight as the sole source. A new type of light source from the Western Union Telegraph Co. laboratories known as the Concentrated-Arc lamp had already found immediate acceptance in the photographic field. This new lamp, developed during World War II, produced an intense concentrated spot of light as small as 0.003 of an inch in diameter. It is actually an arc lamp made with permanent electrodes, sealed into a glass bulb filled with an inert gas such as argon. A tiny speck of zirconium oxide is mounted on the negative electrode or cathode. The positive electrode or anode is made of a metal with a high melting point.

In operation an arc is formed and the oxide surface of the cathode is raised to melting tempera-

ture to produce a brilliant white light, brighter than tungsten filament lamps and nearly as bright as the carbon arc. These characteristics made the Concentrated-Arc lamp ideal for narrow beam and high-intensity projection in photographic enlargers and slide projectors. Wire-sharp enlargements of startling detail were produced when this new light was used in the ordinary photographic enlarger. The same results were obtained when the lamp was placed in a lantern-slide projector. The images projected upon the wall or screen were exceedingly sharp without fuzzy edges. In photomicrography the resulting images were equally amazing in clarity of details. Experimental work was also started with many other types of optical equipment.

Colour Photography.—Considerable activity in the field of colour photography took place throughout the year with a number of important developments by Ansco and Kodak. The use of colour materials by amateur and professional photographers was only limited by the shortage of the sensitized products. Ansco started national distribution of Ansco Color film on March 15. This colour film, developed during World War II, was released in 35-mm. size and also in the popular 120 (B2) and 620 (PB20) roll film sizes. This made a reversible colour film available to the users of roll-film cameras for the first time. Like the sheet film Ansco introduced to professional users in 1944, Ansco Color in amateur sizes was the first colour film which could be developed into finished transparencies by the advanced amateur or local colour finishers. Ansco Color Printon for making colour prints from positive colour transparencies in a single step was released nationally at the same time.

The experimental production by Ansco of a colour negative film 50% faster than any previously available was revealed in March. While this colour film was not immediately placed on the market, its production was noteworthy as an indication of the progress that had been made in colour photography.

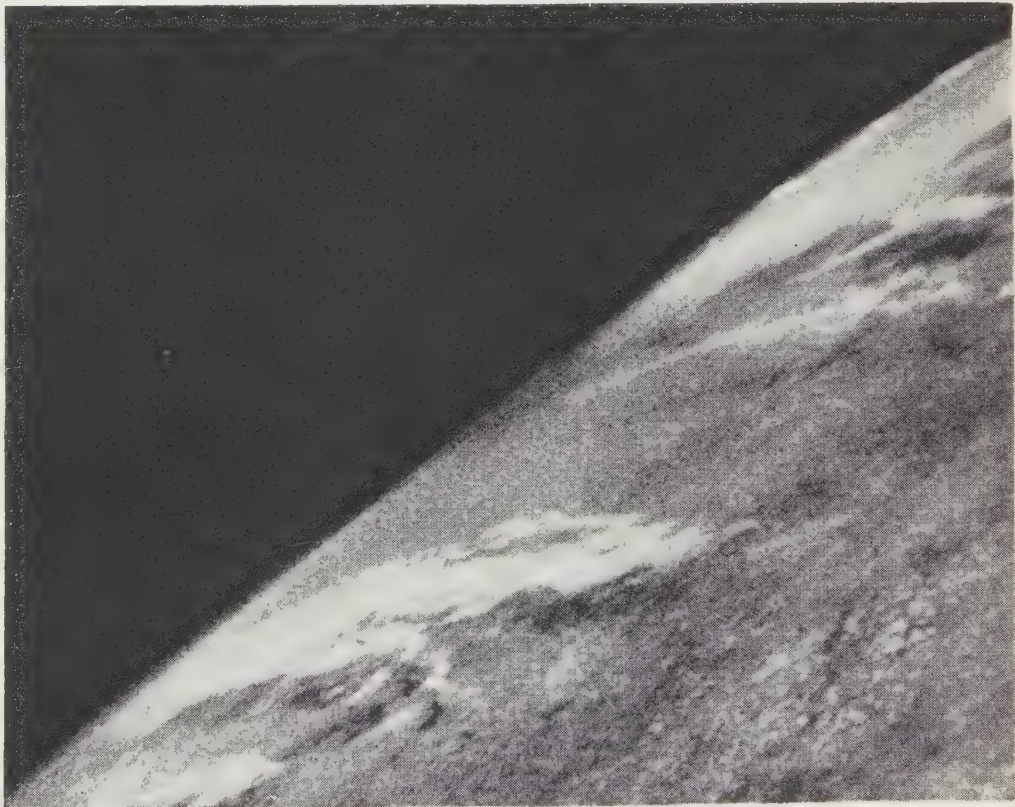
A further step in the simplification and improvement of colour photography was the introduction of a double-hardening procedure for Ansco Color film. This eliminated to a considerable extent the stringent need for maintaining solution and wash water temperatures at 70°F. or below during colour processing. With the new procedure all solutions except for the first developer and colour developer could be at any temperature in the range of 60°-75°F., while the wash water was satisfactory at temperatures up to 80°F. Ansco also produced a nontoxic colour-developing agent for colour films and colour paper.

Important advances were made in the 35-mm. professional motion picture field with the Ansco Color Type 735 film. This film differed from the regular Ansco Color film by having a considerably softer gradation, finer grain and more neutral colour balance. This new film was designed for exposure in the motion picture camera and then used for printing the final colour release prints on Ansco Color Release Film Type 732. The Ansco Color Type 735 was not used for projection although it was a positive colour transparency.

The first Sovocolor motion picture film was shown in New York city in September 1946. While this soviet colour film was heralded as an important new development it did not measure up to the modern colour films to be seen on the British and U.S. screens.

On Aug. 26 the Eastman Kodak Co. revealed their new Ektachrome

SEGMENT of the earth's horizon, photographed from an altitude of 65 mi. This scene, showing about 40,000 sq.mi., was recorded by a motion picture camera, attached to the fuselage of a German V-2 rocket, which was fired in a test at White Sands, N.M., on Oct. 24, 1946



film at the annual convention of the Photographers' Association of America in Chicago, Ill. Like the Ansco Color film this new Kodak Ektachrome film could be processed by the photographer in his own darkroom. While this colour film was developed during World War II, it was not announced generally until the proper nontoxic developers could be perfected. The soft gradation and brilliance of Ektachrome plus good fidelity to the subject's basic hues gave excellent lifelike results.

Kodachrome Commercial film was a new 16-mm. motion-picture film announced on Sept. 20 to meet the tremendous demand for improved colour originals for the making of numerous release prints in colour. This new film offered greater exposure latitude and gave improved colour quality in the duplicate prints. The originals on Kodachrome Commercial film were not designed for projection. The new film was expected to benefit producers and users of 16-mm. sales, educational, industrial and training films.

Kodak Dye Transfer Color process, announced on Nov. 5, promised to make possible the production of one full-colour print every ten minutes after the first print was made. The new process utilized the principle of dye transfer from matrices made from colour separation negatives. It gave better quality prints than the former wash-off relief methods, improved colour saturation, and gave greater ease of control; its dyes were faster to light and required less time to make the first colour print. The steps in making colour separation negatives and methods of transfer had been simplified.

The speed of Kodachrome Professional film Type B, was increased with the new speed ratings given as Weston 8, G-E 12 and an Exposure Index of Tungsten 10 for meters using A.S.A. exposure indexes. In August Ansco brought out a new Indiatone paper of interest to professional photographers because of its inherently warm-tone emulsion, good toning characteristics and latitude in development.

Pictorial Photography.—The year 1946 saw pictorial photography recovering from the effects of World War II with supplies for the amateur again appearing on dealers' shelves. Certain types of film and equipment were still on the scarce list but enough were available for the pictorialist to nearly equal his prewar output in the United States.

The notable event in London was the opening of the 91st Royal Photographic Society exhibition on Sept. 14. This was the first big postwar exhibition of the society after the six war years. The exhibition was held in larger quarters at the Science Museum, Exhibition Rd., London, instead of at the society's building at Prince's Gate. There were 200 prints in the pictorial section, 164 exhibits in the scientific and technical division and 150 photographs in the natural history section. Other exhibits included lantern slides and stereoscopic photographs. The increased space and more plentiful photographic materials contributed to the success of this exhibition.

In the U.S. exhibition field 837 pictorialists had 2 or more prints accepted in 63 salons with a total of 13,366 prints being exhibited to the public, an increase of 6% over the previous year.

Leading pictorialists, according to the *American Annual*, were Eleanor Parke Custis of Washington, D.C., with 174 prints in 58 salons, and Jon Delton Dodds of Benton, Ky., with 154 prints on exhibit in 53 shows.

More and more colour appeared in photographic exhibitions with a number having separate colour sections. In the colour slide field 392 exhibitors had 2 or more slides accepted in 11 recognized shows with an additional 547 exhibitors receiving only 1 acceptance.

The first postwar convention of amateurs was held by the Photographic Society of America in Rochester, N.Y., at the end of October with more than 1,000 registering. An outstanding exhibition of press, nature, technical, motion picture, colour and pictorial photography, as well as lectures by such prominent workers as Harold E. Edgerton, Charles E. K. Mees and Edward Steichen on the technique and science of photography, highlighted the affair. It was announced that the membership of the society had passed the 6,000 mark with all of the leading camera clubs in the United States being affiliated.

The year saw a marked increase in the number of camera clubs, in their membership and in their activities. Marked interest was noted among high school students with a record number of entries being received in several contests open only to them.

The Museum of Modern Art in New York City continued its photographic exhibitions. Photographs by Edward Weston were shown in three galleries during February and March and proved to be the most successful exhibition of 1946. During the summer months another Museum of Modern Art exhibition featured the work of 17 new photographers. A fellowship of \$1,000 to carry on a new photographic project was granted to Helen Levitt. Smaller exhibitions were shown continually at the Museum of Modern Art.

Microphotography.—Microphotography in 1946 was very much like any other industry, undergoing readjustment and realignment. The prospects for the future were bright but progress during the year was disappointing. Some wartime applications had carried over into peacetime. At least one of the large firms was entering the field on a national basis with branch offices in the principal cities. There had been many small and specialized services developed in insurance, title abstracts and related fields. Equipment was still in short supply and there was relatively no new equipment different from what was available before World War II.

Experimental models of cameras, reading machines, processing machines, etc., had been prepared, demonstrated and, in certain cases tested. Strikes, transportation difficulties and related matters hampered production and research. Film was still more difficult to secure than during the war years. Sensitive paper was also short.

Machine processing for enlarged paper prints from microfilm negatives became big business in several government quarters. The vast technical resources of the axis countries were seized and many documents pertaining to technical processes and developments microfilmed

in Europe. The master microfilms when returned to the United States were being reproduced in the form of enlarged facsimile prints and made available to U.S. industry through the Office of Technical Services, department of commerce. This was probably the outstanding single development in 1946 and was worth potentially many millions of dollars. Similar work was carried out by the British microfilm program.

On the academic side the influx of World War II veterans caused a heavy drain on existing facilities to supply reference and other material. Progress was being made on the preparation of about 6,000,000 pages of valuable historical material reproduced by the American Council of Learned Societies committee as a security measure in England during World War II. These films were to be deposited in the Library of Congress and made generally available to scholars. Techniques of the microcard, miniature facsimile, reduced facsimile and so-called sheet film remained under discussion. The first pieces of foreign equipment used or developed during the war made their appearance in the United States. Of particular significance were certain French reading machines and the newly-developed cameras at the Bibliothèque Nationale. At two international sessions considerable time was devoted to microphotography and related techniques. The first, the session of the International Federation for Documentation, and the second, the plenary session of the United Nations Educational, Scientific and Cultural organization featured exhibits of U.S. and foreign equipment and formal and informal discussions. (See also MOTION PICTURES; NEWSPAPERS AND MAGAZINES; X-RAY AND RADIOLOGY.) (W. D. MN.)

Three-Dimensional Photography.—Three-dimensional pictures, presenting scenes not only in their height and width—the two dimensions of ordinary pictures—but in their third dimension of depth as well, followed four general channels of development during 1946.

Vectographs.—The first nonmilitary book to carry a vectograph illustration, *Descriptive Geometry* by E. S. Watts and J. T. Rule, appeared in March 1946. Similar in appearance to an ordinary glossy photographic print, the vectograph resembled a collection of precise wire models when viewed through the simple polarizing spectacles.

Turning to the same technique, the U.S. army quartermaster corps found a solution for the perplexing problem of supplying identical samples of acceptable and unacceptable defects in fabrics, shoes and other articles to be used as inspection standards by many different manufacturers. They selected one perfect example of each subject, reproduced it vectographically and distributed copies to all manufacturers and inspectors as permanent, identical records.

Several new eye-training devices, the Vectoluminator and the Vectometer, were offered to the optical profession. Like previous devices, these are based upon the principle of presenting independently movable subjects, or targets, for each eye, to provide a kind of visual calisthenics or to permit the accurate observation and measurement of the co-operative behaviour of the two eyes.

Two companies announced a service, using the basic Polaroid materials, for the processing of vectograph prints and lantern slides for scientists, educators and advertisers. The new medium appeared to be well-established.

Lens-type Viewers.—A new stereoscopic viewer, the Colorscope, designed for popular use, was announced during the year. Like the familiar Tru-View and the View-Master devices, it employed two lenses through which the eyes could look straight ahead at the stereograms, which appeared at some magnification. Stereograms for the new viewer are arranged on two parallel, unbroken strips of 16 mm. Kodachrome film, mounted vertically and eye-distance apart upon a card.

The several manufacturers offered a wide selection of full-colour subjects to be viewed in their devices; the library for the View-Master, for example, included more than 310 cards of 7 views each, ranging from an excellent botanical series (e.g., desert flora, the mushroom family), through the more conventional scenic and historical subjects (e.g., Bryce Canyon, Mount Vernon) to three-dimensional fairy tale illustrations for children.

Projected Pictures.—An outstanding development of 1946 was the projector designed by F. Sonne for the U.S. army air forces, for the projection of continuous-strip aerial photographs. These photographs were taken, usually on colour film, by a double camera of the shutterless strip or panorama type, the two lenses being so arranged that one made a continuous record of the ground immediately in front of the aircraft while the other recorded the terrain immediately behind it. Each record occupied one-half of the photographic negative, which was divided longitudinally. The pictures could be made at speeds of more than 300 m.p.h. and at altitudes as low as 200 ft. with definition which easily resolved ground features as small as the individual leaves on trees and shrubs—a feature of great importance in military reconnaissance. The new projector, in effect, reversed the operation of the camera. It projected the two views of the terrain through a pair of lens systems, so that an audience saw the terrain moving by in the most minute detail and with the heights and depths (by design) greatly exaggerated. Separation of the two pictures, which were superimposed upon the screen, was accomplished by placing polarizing filters in the lens systems and equipping each member of the audience with Polaroid spectacles with their lenses so set that they permitted only the desired image to reach each eye.

While military intelligence officers were getting acquainted with this new view of the world, the University of Illinois, Urbana, Ill., was preparing a new way of viewing the human body. Classes of medical students, through their Polaroid spectacles, were to study the complete anatomy of the head and neck in a new and striking fashion: full-colour three-dimensional pictures thrown on a screen by double-lens, polarizing projectors developed by Three Dimension Co.

The colour-anaglyph system of stereoscopic projection was revived during the year in the Keystone Stereo-Motivator, a device designed for treatment of cross-eyes or squint. The device places three images

on the screen simultaneously, in red, green and black, permitting the individual manipulation of each eye, independently, with relation to a fixed reference point.

Parallax Stereograms.—In the United States at least four processes were being developed for manufacturing various forms of the Ives' parallax or grid stereogram: the Winnek (Trivision), Towne (Vita-vision), Marilhet and the Ayres. All produced pictures that appeared genuinely three-dimensional and that required no viewing mechanism beyond the correct positioning of the observer with relation to the picture. Because of the high degree of illumination required by all parallax stereograms, they were usually shown as transparencies. Some progress was made in combating the limited definition inherent in the parallax system. The U.S. navy promised a public demonstration, to be made early in 1947, of cameras and printers developed for the Winnek process.

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Physics. General.—The major research activities of physicists were concentrated on various phases of radioactivity and upon new developments in electronics. From the latter came the new tools with which the atomic nucleus could be attacked. Modern studies in radioactivity grew to such grand proportions that only governments or their subsidiary organizations could supply the necessary financial backing, an aspect of nuclear research which was emphasized by the establishment of new national laboratories. Some of these were outgrowths of organizations set up during World War II for the development of nuclear energy for military purposes. Four were set up in the U.S.A. and one in Great Britain. Undoubtedly something of the same kind was done in the U.S.S.R.

In spite of, or perhaps because of, this seemingly inexorable trend toward nationalization, many physicists had misgivings concerning the future freedom of science. They viewed with alarm in the U.S. the probable expenditure of nearly \$100,000,000 annually for army- and navy-controlled scientific research, as compared with some \$30,000,000 budgeted for research in universities; and they feared that the right of free and immediate publication might be so long denied to a large proportion of investigators that, partly by habit and partly by acquiescence, the rights and liberties of their profession might be permanently curtailed.

Some physicists, like many other scientists and laymen, were apprehensive concerning the possible future abuse of nuclear energy. While this was actually a problem of a political and sociological nature, its impact on physics could not be ignored by reason of the essential part which physicists must play in any utilization of such energy. On the purely technical side the consensus was that the industrial use of nuclear energy would not be achieved quickly and that many entirely new problems of engineering would have to be solved first. One consideration which inevitably led to this point of view was that costs of distribution were a very large part of the total cost of power and that nuclear fuel was still an expensive commodity. Prospects of rapid progress in the medical and biological sciences were extremely promising by reason of the immediate availability from national laboratories of considerable quantities of rare isotopes for use as tracer elements.

On all sides the shortage of high-grade physicists was acute, mainly because of the increased importance of physics in governmental, industrial and educational planning. Educational institutions, because of their limited funds and large enrolments, were the chief sufferers. Nevertheless, the average economic status of the physicist showed considerable improvement.

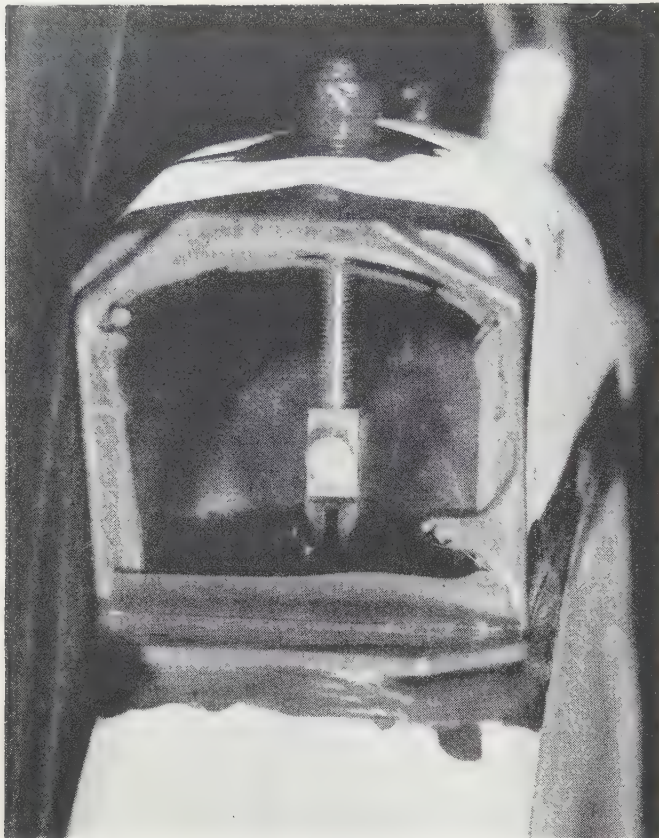
Neutrons.—A sufficiently accurate knowledge of the properties of neutrons was the key to the successful manufacture of atomic bombs. Until the end of World War II such knowledge was of military value, and its appearance in the regular scientific literature was prevented. In several numbers of the *Physical Review* issued during 1946 were original papers dated 1941 or 1942 which were "voluntarily withheld from publication until the end of the war." Other papers published during 1946 contained reports of researches on the behaviour of neutrons carried out some years earlier under government auspices. The release of this information made meetings of professional physicists very interesting to those who were not connected with military research projects. But the release of a small part of the results of wartime research served only to discourage many physicists by emphasizing how wide was the gap between what was actually known and what was freely published.

The nuclear chain-reacting pile, perfected at the University of Chicago in 1942, produces a stream of neutrons thousands of times as intense as that from any prewar source, thus permitting the investigation of some of the more delicate of the neutron's properties. W. H. Zinn and others reported that a narrow beam of neutrons could be reflected from the face of a crystal as in the case of X-rays. Since there is no such thing as a neutron lens, a narrow beam was selected by slits placed a few metres apart.

This beam was found to be reflected only at certain angles from a crystal face, the angles corresponding in a special way to the velocity make-up of the beam. No new theoretical ideas were involved here; the advance was one in experimental technique. It had been known for 20 years that particles possess wave properties, just as light waves possess some of the properties of particles. There is, in fact, a relation between the speed of a particle and its effective wave length, stated usually in the form $\lambda = h/mv$, where λ is the wave length, h is Planck's constant, m is the mass of the particle and v its velocity. The relationship was verified in 1927 for electrons. Zinn verified it experimentally for neutrons, which are nearly 2,000 times as massive. The algebraic relation just quoted shows that the wave length is inversely proportional to the mass of the particle. Hence, a massive neutron has a very short wave length unless it is nearly at rest. The shortness of the neutron's wave length was chiefly responsible for the experimental difficulty in measuring it. E. Fermi and Zinn, in another experiment, also showed that neutrons, again like X-rays, could be reflected from polished surfaces of many substances, provided the glancing angles were below a certain very small value. The behaviour here was analogous to the total internal reflection of light.

Accelerating Machines.—The components of a typical atomic nucleus are definitely known to be protons and neutrons, but the forces which hold them compactly together are not well understood. Evidence from many nuclear phenomena indicates that the key to the puzzle is in the behaviour of the meson, sometimes called mesotron, a particle intermediate in mass between the electron and proton. Mesons occur randomly in cosmic rays and are known to accompany nuclear disintegrations.

Mesons are themselves unstable, disintegrating after a life of a few millionths of a second into electrons and neutrinos. Progress can not be rapid toward the solution of this problem until mesons are brought under control in the laboratory. It is to achieve this control that physicists are interested in the construction of machines which will accelerate subatomic particles to extremely high energies. The cyclotron and the betatron are examples of these machines. During 1946 a step forward was taken in the design of a new machine, the synchrotron, whose output was predicted as likely to be between 250,-



VIEW through the window in the 20,000,000 volt betatron at the University of Illinois showing the "peeler," a new device disclosed in 1946, which causes the electrons to shoot out into the air in a free beam. The new electron beam was said to open new ways to (1) study the inside of the atom, (2) study the behaviour of electrons, (3) artificially create radioactive substances and (4) attack deep-seated cancer

000,000 and 1,000,000,000 volts, depending on the conservatism or optimism of the designer. The synchrotron principle was first announced by V. Veksler in the U.S.S.R. and was independently discovered by E. M. McMillan in the United States. Modifications of the original design were later proposed by several researchers, and a trial 30,000,000-volt machine was known to be under construction in the U.S.S.R. In the United States, at least two machines of this kind were being built, one in California, the other in Michigan. With them it was hoped to accelerate particles to 200,000,000 or 300,000,000 volts, but at the end of 1946 neither instrument had reached the final test stage.

Mesons and Cosmic Rays.—The kind of result which may be achieved in the future by the use of the synchrotron is suggested by experiments carried out with the General Electric company's betatron. This machine accelerates electrons to nearly 100,000,000 volts. X-rays produced by these electrons, the hardest X-rays ever created in the laboratory, were passed into a Wilson cloud chamber in which any ionizing particles could be photographed. As expected, enormous numbers of free electron tracks appeared. Only a few tracks because of heavier particles were found. These heavier particles were probably, but not certainly, mesons. Thus, there appeared to be a possibility of producing, with a synchrotron, a beam of mesons of known energy; and if this can be done, a new attack can be made on the nucleus.

Scattered information concerning mesons is available from a study of the disintegration of nuclei caused by cosmic rays. A few items of interest were added to the picture, but they make it more complex, rather than simpler. Donald J. Hughes, for example, reported, among other facts, that mesons occurred with a range of masses, from about 25 to 200 times the electron's mass, and that they were produced copiously in the upper

reaches of the atmosphere by some more primitive form of cosmic ray. It was known before that mesons might be positively or negatively charged, but no more than a guess could be made in 1946 concerning the part played by mesons of different masses in the structure of a nucleus.

An experiment of topical interest was performed during the tests of captured German V-2 rockets at White Sands, N.M. The warhead of one was filled, not with ballast, but with cosmic ray apparatus which transmitted by radio to observers on the ground several simultaneous sets of data. Satisfactory records, obtained between 40 and 70 mi. altitude, showed that cosmic ray showers there were a few hundredfold as frequent, and penetrating particles were 20 times as numerous, as at sea level. These results were in general accord with earlier observations made by sounding balloons at heights below 20 mi.

Effects of Atomic Bombs.—The question was often asked: what are the radioactive effects of atomic bombs at places far distant from the explosion? It is safe to conjecture that all existing knowledge on this subject was not freely published, perhaps because no definite answer was available. Of the half-dozen short notes which appeared in the literature about half reported an increase of about 70% in atmospheric radioactivity, measured in terms of the weak background intensity, at times which made such increases plausibly attributable to a distant atomic bomb explosion. The other half reported no significant effect. It may be that the divergence of these observations was because of local meteorological conditions such as rain or wind. In any case, even if the positive result were accepted, there would be no need for apprehension because the normal background count of radioactivity is so far below the danger level that the world would have to be fairly thickly populated with nuclear power piles before the intensity over a very wide area could rise high enough to have even a nuisance value.

Superconductivity.—Another subject upon which divergences of opinion caused a flurry of scientific excitement was superconductivity. The commonest example of this phenomenon is the vanishing of the electrical resistance of certain metals when they are cooled to near the absolute zero of temperature. The implications of the subject are, however, much deeper. A thorough understanding of superconductivity will probably lead to quick advances in the theory of liquids and of metals and alloys. Richard A. Ogg, Jr., reported experiments which demonstrated that certain solutions containing metallic sodium became truly superconducting at temperatures far above absolute zero. This was alternately confirmed and denied by other physicists who repeated Ogg's experiments, sometimes with crucial variations in technique. To be able to create the superconducting state at easily attainable temperatures would be a great step forward, but the validity of Ogg's experiments was not established beyond doubt.

Along the same lines, J. G. Daunt and K. Mendelssohn of Oxford established the interesting fact that liquid helium below two degrees above absolute zero flows from one vessel to another without the aid of gravitational potential energy, a unique property. This behaviour was likened to the flow of electrons in a metal without benefit of a potential difference, which is another way of describing superconductivity, and led to the suggestion that liquid helium ought to be able to transport heat by conduction without a temperature gradient and should maintain circulation by convection without any apparent Newtonian cause. When these ideas have been put in quantitative form by reliable experiments, the properties of liquids and solids at very low temperatures will be a tempting study for theoretical physicists.

BIBLIOGRAPHY.—The indexes of *Nature*, vols. 157 and 158, and of *The Physical Review*, vols. 69 and 70, form the best starting points for further reading.
(T. H. O.)

Physiology. The researches of many investigators in various fields led to the conclusion in 1946 that there was widely distributed in natural products (including liver, yeast and many green vegetables) a group of interrelated substances which were variously referred to as vitamin M, vitamin B₁₂, folic acid, Lactobacillus casei factor and SLR factor depending upon the source of the material and the species of organism used for test purposes. In certain bacteria these substances promoted growth, in chicks, mice and monkeys they prevented anaemia and favoured normal growth. The belief that these substances were interrelated was substantiated when the chemical structure of one of these substances, folic acid, was ascertained and the synthetically produced chemical was shown to be effective in both bacteria and animals.

Because of the similarity between the anaemia which developed in the experimental animals and certain anaemias which are encountered in human patients, including pernicious anaemia, synthetic folic acid was tried in the treatment of these patients and was found to be effective.

Dietary Protein and Fibrinogen.—Fibrinogen, the immediate precursor of fibrin, which forms the meshwork foundation of the blood clot, is a protein constituent of normal blood plasma.

Studies on chicks showed that the level of plasma fibrinogen can be influenced by the nature of the diet much more readily than can that of the other blood proteins. In general, the fibrinogen increased on a low or on a deficient plane of dietary protein intake to concentrations greater than normal. When the protein content of the feed was increased, the fibrinogen level of the plasma dropped.

Strepogenin.—It was shown that strepogenin was involved in mammalian nutrition as well as in bacterial nutrition. Mice fed hydrolyzed casein supplemented with the necessary vitamins and amino acids showed evidence of suboptimal nutrition and growth. When small amounts of unhydrolyzed casein were added to the basal diet, good growth resulted. The addition of equal amounts of proteins poor in strepogenin, such as egg albumin, produced no improvement in growth.

Knowledge of the role of strepogenin in nutrition was expected greatly to aid studies on maintenance of alimentation by intravenous feeding, a field of great importance in human therapeutics.

Blood Circulation in Athletes.—In order to attempt to determine whether exceptional athletic ability was the result of innate physical attributes or primarily because of special training measures, a detailed study of the blood circulation was made in two men, Arne Andersson and Gunder Hägg, both holders of world's records in long-distance running. Both exhibited a greater than normal sized heart which expelled a greater than normal volume of blood with each stroke. The volume of blood pumped per unit volume of heart size was normal in each case. The studies tended to indicate that training was the most important factor but further studies were needed before a final conclusion could be drawn.

The Mode of Action of Insulin.—After the discovery of insulin biochemists and physiologists devoted much attention to attempts to elucidate the intimate mechanism of its action in the body.

An important discovery concerning the way in which insulin acted to produce its "antidiabetic" effects in the body was announced from C. F. Cori's laboratory. It was demonstrated that the action of the enzyme hexokinase, which catalyzed the conversion of glucose into a reactive phosphate of glucose, was inhibited either in vivo or in vitro by anterior pituitary extract and that this inhibition could be counteracted by insulin.

Physiologically it had long been recognized that an antagonism

existed between the actions of the hormones produced by the anterior pituitary gland and the islet cells of the pancreas. For instance, one of the means of producing diabetes experimentally was the repeated injection of anterior pituitary extract. Furthermore, when the anterior pituitary gland was removed from an animal rendered diabetic by the removal of the pancreas, the metabolism of glucose became fairly normal. The discovery of a biochemical basis for these interrelations was expected to accelerate the understanding of the fault in metabolism which occurs in human diabetes.

Postural Factors in Apical Tuberculosis.—Tuberculosis in the adult shows a remarkable preference for the apical regions of the lungs. Previous theories which had been offered to explain this localization were not satisfactory. Physiological data were provided which constituted the basis for a convincing theory of pathogenesis as well as a physiologic basis for therapy.

When an adult of medium height is standing or sitting, the weight of the column of blood rising from the heart to the apex of the lung may be as great as or greater than the pressure exerted by the fully contracted chamber of the heart which supplies the lungs. Thus, in the erect posture the blood flow to the upper parts of the lungs may be very low if the cardiac output is at basal level. When the subject lies down this resistance to blood flow is removed.

The decreased blood flow to the apical regions of the lungs during assumption of the erect posture rendered these areas more susceptible to infection by tubercle bacilli. This theory explained the higher incidence of tubercular infection of the right apex, the arterial supply of which takes a longer and more tortuous course than that of the left. It also accounted for the low incidence of tuberculosis among patients having stenosis of the mitral valve of the heart, a condition which produces a marked increase in the pressure in the arteries to the lungs.

The use of bed rest in the treatment of tuberculosis, long recognized as being of proven value, was given a physiological rationale, namely improvement of the circulation of blood to the apices of the lungs.

Inhibition of Iron Absorption by Inflammation.—It was demonstrated that the absorption of iron from the gastrointestinal tract was greatly diminished in dogs by producing a sterile abscess by means of turpentine. During the period of the development of the abscess, iron absorption fell to one-tenth of the normal value. Healing of the inflammatory process was accompanied by resumption of the normal capacity to assimilate iron. The importance of this observation in the management of human patients with anaemia is evident.

Radioactive Iodine for Thyrotoxicosis.—Biologists and medical scientists made new applications of the radioactive elements produced by the physicists. By taking advantage of the high selective avidity of the thyroid gland for iodine, it was possible, by the use of radioactive iodine, to place radiation directly within the cells which it was desired to irradiate. When administered to patients suffering from hyperthyroidism the radioactive iodine depressed the activity of the thyroid gland cells and produced a remission of symptoms. It could not be decided up to 1947 whether or not this method of treatment would prove superior to other forms of therapy available for the treatment of this malady.

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Pigeon Racing. The year 1946 saw a great forward move in the pigeon racing sport. Fanciers of the British Isles, the United States and other countries united into a world fraternal and pedigree registration organization known as the International Congress of Pigeon Fanciers. British offices opened at Belmont, Surrey, England, and U.S. offices at Washington, D.C. The military use of pigeons by the army created a great increase in the sport in the U.S., which had grown from 1,200 members in the year 1910, with a hatch of 10,000 birds, to more than 16,000 in 1946, with a hatch of 1,060,000 birds. In 1946 a group of fanciers, officers of the American division of the I.C.P.F., organized the first two-way racing club, which was expected to change completely the *modus operandi* of pigeon racing. The older method of shipping birds to a distant point from which each bird flew to his home loft at speed calculated for comparison, in yards per minute, was antiquated through the discovery by Maj. John K. Shawvan of a new method of training racers. All birds now can be taught to finish their race at a central cage before they go home. This eliminates handicaps, calculations of yards per minute speed and time clocks. (J. K. SN.)

Pig Iron: see IRON AND STEEL.

Pigs: see HOGS; LIVESTOCK.

Pike, Sumner Tucker (1891—), U.S. government official, was born on Aug. 30 in Lubec, Me., and was graduated from Bowdoin college, Brunswick, Me., in 1913. A geologist, he prospected for oil, learned about industrial power from operating his own utility plant and became an expert on transportation. He made his fortune in Wall street. Although he is a Republican, he was pressed into government service by the New Deal administration and held a variety of posts. In 1939, he was business adviser to Secretary of Commerce Harry Hopkins. In 1940, Pres. Roosevelt named him a member of the Securities and Exchange commission, where he helped to enforce the Public Utility Holding Company act. Later (1942), he became head of the Oil Price Section of OPA where he curbed exorbitant profits by keeping prices down. He resigned from the SEC on March 21, 1946. Pike was named by Pres. Truman, Oct. 28, 1946, to the U.S. Atomic Energy commission, whose responsibility was to direct and control the development of atomic energy in the U.S.

Pineapples: see FRUIT.

Pittsburgh. Despite prolonged strikes in the coal, steel, electric manufacturing, electric power and hotel industries industrial production in Pittsburgh, Pa., in the first 11 months of 1946 was 151% of the 1935-39 average—the decline of 11% from 1945 being somewhat less than that shown by the federal reserve board's national index. Steel production averaged 73.4% of capacity or 9% below 1945, and coal production was down 6%.

Employed persons in the Pittsburgh district were reported by the Bureau of Business Research of the University of Pittsburgh for the first 11 months at 114% of the 1939 average, 5.6% less than the corresponding period of 1945. Pay rolls were 193% of the 1939 average or 6% less than in 1945.

Retail trade in 11 months reported 34% higher dollar volume

than in the preceding year while department stores reported volume 27% higher.

Two notable bank mergers created the Peoples First National Bank and Trust company and the Mellon National Bank and Trust company, the larger, which had total resources of \$1,140,000,000 and deposits of \$980,866,000.

Advances were made in education, cultural and civic activities. A 3-day forum, marking the centennial of the birth of George Westinghouse, was attended by more than 600 of the nation's foremost scientists, educators and industrialists. The Carnegie Institute of Technology received \$8,000,000 for its capital funds from the Carnegie Corporation of New York after raising \$4,000,000 locally. A 2-month summer season of open-air civic light opera was attended by 270,000 persons.

Eighty communities joined the Allegheny County Sanitary authority in attack upon stream pollution. Voters approved a county bond issue of \$34,000,000 for highway, bridge and airport improvements. The Pittsburgh Redevelopment authority was organized to promote rebuilding of blighted areas. The Regional Planning association proposed a municipal parking authority to expend \$34,000,000 for erection of multilevel garages with capacity for 22,000 motor cars. Ground was broken for a high-speed parkway to bring U.S. routes 22 and 30 and the Pennsylvania turnpike into the city from the east.

The outstanding event in philanthropy was the decision of the A. W. Mellon Educational and Charitable trust to expend a major portion of its remaining assets, approximately \$50,000,000, in the Pittsburgh area.

Population was believed to have increased little above 671,659, as enumerated in 1940, slightly less than half that of Allegheny county, including 3 other cities, 68 boroughs and 53 townships. City area was approximately 54.3 sq.mi. and county area 747 sq.mi. Real estate was assessed for taxing purposes in 1947 in Allegheny county at \$1,885,000,500, of which \$958,080,935 was in Pittsburgh. (C. F. Ls.)

Pius XII (1876—), the 262nd successor of St. Peter in the see of Rome, was elected by the cardinals in conclave on his 63rd birthday, March 2, 1939, and was crowned as pope on March 12. (For details of his early life, see *Encyclopædia Britannica*.)

Consolidation of the peace and reconstruction of the world, particularly Europe, on humane and Christian lines continued to be the foremost concerns of the pope during 1946. On Feb. 20, addressing the cardinals after the new members of the sacred college had received the biretta, the pope once more stressed the universal and supranational character of the church. The pope rejected the idea that the church has imperialistic ambitions and said that for permanent peace basic rights and institutions must be safeguarded, notably those of the free individual, the family, the state properly conceived. Deportations and forced dislocation of peoples were condemned.

In line with his work for peace, the pope, on Jan. 6, issued an encyclical on the need of caring for youth in the world crisis. Relief to children was urged as a special duty. In March the pope conferred with former president Herbert Hoover on food relief needs, and on April 4, in a special broadcast, warned of political disorders unless immediate steps were taken to avert famine. He appealed to nations with food surpluses to co-operate. Receiving some U.S. immigration officials in March, the pope pointed out the need for lifting of immigration barriers to provide for refugees as the humane alternative to forced repatriation.

The Christmas message contained a strong plea for peace. Hostilities had ceased, the pope said, but peace was still in the future. That mankind might be spared this uncertainty, three

conditions would have to be fulfilled: (1) definite treaties must be signed promptly; (2) efforts for peace should be characterized by justice; (3) amendment and revision of agreements must be possible. The pope also urged continued aid to the hungry and needy peoples.

The pope's solicitude for the oriental churches was manifested in a number of ways. On Jan. 19 he issued an encyclical, *Orientales omnes Ecclesias*, commemorating the 350th anniversary of the Ruthenian church's reunion with Rome and lamenting the persecution of the Ukrainian clergy and people aimed at driving that church into schism. At the time of the consistory in which the cardinals received the red hat, the pope appointed eight cardinals to the congregation for the Oriental church, among them Cardinal Samuel Stritch. On the seventh anniversary of his coronation the pope was vested in accordance with the ancient Armenian liturgy at a solemn celebration of the Divine Liturgy in the Armenian rite, offered by Cardinal Agagianian, patriarch of Cilicia.

During 1946 Pius XII showed concern over the trend of events in Italy. He asked that the constituent assembly make provision for Catholic Christian teachings. On April 2 he urged the Italian Catholic Action Youth to fight anti-Christian forces in politics as well as in private life. When provisional President Enrico de Nicola and Premier Alcide de Gasperi visited the Vatican in July, the pope expressed hope that the Lateran pact would be observed and that the peacemakers at Paris would provide a just peace for Italy. On Dec. 22 a demonstration of loyalty to the pope, attended by several hundred thousand persons, was staged before the basilica of St. Peter's.

To better safeguard secrecy in the papal elections Pius XII drew up a revised Apostolic constitution, eliminating the provision that in a conclave for election of a new pope the ballots must be signed by the cardinals. This constitution was made public on March 9.

On Aug. 16 it was announced that Pius XII had sent notices to the bishops throughout the world asking that they gather views on the doctrine of the assumption of the Blessed Virgin, with a view to definition. On the occasion of the eighth national congress of the confraternity of Christian doctrine the pope addressed the delegates in Boston by radio, urging the need for lay participation in religious instruction. On Nov. 24, to the New York celebration of the 300th anniversary of the North American martyrs, he addressed the gathering by radio, stressing the need for U.S. missionary activity. (See also ROMAN CATHOLIC CHURCH; VATICAN CITY STATE.)

(J. LAF.)

Plague, Bubonic and Pneumonic. Though plague has not occurred as outbreaks of serious proportions during recent years it is endemic among rats and field rodents of areas which are widely scattered throughout the world. During 1946, infection of man or rodents was reported from these countries: Italy, Malta, Portugal (Azores); Algeria, Bechuanaland, Belgian Congo, Egypt, Kenya, Madagascar, Uganda, Union of South Africa; Palestine; Burma, China (north and south), French Indo-China, Formosa, India, Siam; Hawaiian Islands, Netherland East Indies; Bolivia, Brazil, Ecuador, Paraguay, Peru; Canada, United States of America (California, Kansas, Oregon, Texas).

Sharp outbreaks occurred in southern China with 293 cases and 104 deaths reported in Amoy between April 21 and July 31; 1,498 cases, 533 deaths in Foochow, Jan. 1 to July 30; 965 cases, 488 deaths in Hweian, Feb. 1 to May 20; 39 cases of pneumonic plague with 36 deaths between Feb. 25 and March 25 from Manchuria. The recovery of three such cases is exceptional in Manchuria and worthy of note.

The persistent endemicity of the disease with its recurrent sharp eruptions in areas which are brought closer to one another and to other centres of population through the facilities and speed of transportation were considered by national sanitary authorities as a threat of grave potentialities. Cognizance of these possibilities was recorded officially by the renewal and amendment in 1944 of international sanitary conventions establishing, until July 1946, provisions for quarantine procedures against plague in the practices of maritime and aerial navigation. In March 1946 these provisions were extended by protocol to an undetermined date of future conventions.

The prevention or suppression of plague may be attacked through destruction of the rodent host or the insect vector, or by immunizing exposed people, or by curative treatments of the afflicted patient. Heretofore the attack has been directed at the rodent in preventive methods, but with the development of insecticides of greater practical efficiency attention is being focused on the rodent flea. Dichloro-diphenyl-trichlorethane (DDT), the anti-house-fly-mosquito agent, was used in outbreaks at Dakar, South Africa, in 1944, and at Taranto, Italy, in 1945 under circumstances which made it difficult to assess its efficacy.

During Nov. and Dec. 1945, a sharp outbreak occurred at Tumbes, Peru. DDT was applied to all dwellings (1,357) of the town and to its public buildings with the reported results of a cessation of the epidemic four days later and a reduction of 81.6% in the number of fleas on collected rats, and 87.9% of the number in rat burrows of the principal focal areas.

The role of the flea in the indirect transmission of the disease through the soiling of clothes by its dejecta was the subject of study because of the development of cases in which the infection was contracted apparently by such contact analogously to the circumstances under which typhus sometimes occurs. It was found that the dejecta of plague infected fleas will produce the disease in animals when introduced by inoculation 18 months after collection and storage.

The prevention of plague in people exposed to the infection has been attempted for years through inoculating them with suspensions of the aetiological micro-organism (*Pasteurella pestis*), which have been killed by heat or chemicals, or of live but avirulent strains. It was believed by capable investigators that the use of live organisms for this purpose is attended with unnecessary risks. On the other hand the prophylactics made of dead organisms have not been conclusively satisfactory. A preparation has been made which under experimental conditions protects the very susceptible guinea pig against infection by inoculation or flea bite transmission better than prophylactics manufactured by some other methods. The bacterium is grown at a temperature, 39° Centigrade, which fosters the development of an envelope or capsule on the micro-organism; the growth is suspended in cold carbolized salt solution after which precipitation is brought about with ethyl alcohol, or with alcohol and alum. It is hoped that but one inoculation of this latter precipitate will suffice for adequate protection.

The prevention or cure of the disease has been sought also by the development of antiplague sera, and a difficulty in determining their probable value has been that of evaluating their effects in experimental animals. A study of the reactions of the blood cells of immune Bombay rats and of white rats to which the antiplague serum was administered against induced plague, indicated that the sera which are prepared from large proportions of the envelope of the bacterium are the better sera.

The treatment of experimental animals with streptomycin, an antibiotic made from *Actinomyces griseus* saved a large percentage of mice which were inoculated with a virulent strain of plague bacteria, and also guinea pigs which had developed the

disease from bites of infected fleas. The drug did not appear to be a better remedy than sulfadiazine.

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Plant Industry, Soils and Agricultural Engineering.
Bureau of: see AGRICULTURAL RESEARCH ADMINISTRATION.
Plasma, Blood: see MEDICINE; PHYSIOLOGY; SURGERY.

Plastics Industry. Production of plastics raw materials in the United States in 1946 exceeded all the expectations of the experts, many of whom predicted that there would be a surplus after the close of World War II. This increased production took place despite handicaps such as 90-day strikes among leading suppliers and other general strikes, such as the strike in the coal and steel industries which cut down the production of coal tar acids, from which are derived such chemicals as benzol, cresol and naphthalene, all of which are basic materials used in the production of plastics raw materials.

The production estimates of some of the most generally used plastics materials for the years 1939, 1945 and 1946 are given herewith to show the industry's expansion:

Production of Typical Plastics in Pounds

	1939	1945	1946
Cellulose acetate	21,000,000	76,000,000	103,000,000
Nitrocellulose	13,000,000	15,000,000	18,000,000
Urea and melamine, moulding powder only	12,000,000	30,000,000	35,000,000
Polystyrene	750,000	22,000,000	60,000,000
Phenolic moulding powder	65,000,000	115,000,000	140,000,000
Vinyls	1,200,000	122,000,000	140,000,000

Despite these increases in major plastics materials production, the supply in 1946 was far from sufficient to meet demand. Moulders in the industry asserted that they received less than 70% of the quantity they needed to fill orders. The reason was an intense consumer demand and increased capacity of the processors. In addition, injection presses were gradually increasing in size and thus required more material. They were able to operate faster and more efficiently than the prewar machines. Compression moulders widely adopted electronic preheating and transfer moulding which made it possible for them to double or redouble capacity by increasing speed of operation.

The number of extruders coming into the industry for handling thermoplastic materials was also significant because these machines could handle material at a much greater rate than injection presses.

The number of machines in the industry compared with previous years is as follows:

	1941	1944	1945	1946
Injection	1,000	1,450	1,720	3,275
Compression	8,000	11,500	12,065	12,975
Extrusion	—	650	850	1,150

Practically all raw material manufacturers announced expansion plans which if completed in 1947 would increase the capacity of the industry by at least 50%, but it was doubtful that their plans would reach fruition for several years. Most of the increased production in 1946 was the result of a more plentiful labour supply, improved technique and in thermosetting resins, particularly, producers were able to concentrate upon all-purpose

formulations rather than special formulations which were required for military use in wartime. Most companies had expected to increase their facilities and enlarge their plants in 1946 but were delayed for about six to nine months and it was expected to be at least the middle of 1947 before expansion plans announced in late 1945 would be ready for capacity operation.

The two most closely watched plastics raw materials in 1946 were polystyrene and vinyls. Their expansion from 1939 was a significant factor in the plastic industry.

Polystyrene polymerized from styrene monomer had already become a potent factor because of its all around usefulness and low cost. Styrene monomer production in the United States was at a rate of about 400,000,000 lb. per year according to the best obtainable sources. Most of it, however, was in 1946 used in the synthetic rubber program where it was combined with butadiene in a ratio of about 75% butadiene to 25% styrene to produce GR-S. During World War II, there was not much styrene available for polystyrene but shortly after V-J day styrene became available in increasing quantities for polystyrene and monthly production increased from around 2,000,000 lb. in Dec. 1945 to more than 9,000,000 lb. in Oct. 1946. In addition to its use as a moulding powder, both polystyrene and styrene showed other potentialities such as being blown up for an insulation material, extrusions, sheeting, emulsions and in protective coatings. It was expected that the production rate in 1948 might go to more than 200,000,000 lb.

Vinyl chloride was important during World War II particularly as an insulation material for coating wire where, because of its electrical qualities and water resistance, it became particularly useful in combat both on land and on sea. Wire insulation continued as the greatest outlet. It was just becoming known as a material for rain wear, shower curtains, etc., before World War II. Production at that time was little more than 1,000,000 lb. a year. But so versatile was this material that demand for it in many lines increased to such an extent that the 140,000,000 lb. produced in 1946 was nowhere near enough to meet demand. It was anticipated that several other companies would come into production in 1947 and that from 230,000,000 to 250,000,000 lb. might be produced in 1947. One authority said that the market could absorb 400,000,000 lb. for sheeting, fabric and paper coating alone. Vinyl resin, however, must generally be plasticized and the shortage of plasticizers was a severe handicap to the industry because many processors used inadequate substitutes with the result that much vinyl material reached the market in a degraded form and brought forth considerable complaints. The prospect for enough plasticizer to compound with vinyl resin in 1947 was even worse than it was in 1946.

The vinyls are so comparatively new that processing methods had in 1946 by no means reached perfection. But during the year progress was made in improved printing and embossing methods, heat sealing and other methods of fabricating. It was believed that 1947 would see the development of improved four-colour printing on vinyl, and possibly a method for permitting the material to breathe which would improve its qualities as rain wear and in shoe uppers. A great expansion in the use of vinyl as latices was also expected in 1947.

Cellulose Acetate.—Cellulose acetate, the thermoplastic with the greatest prewar production, moved forward from a figure of 76,000,000 lb. in 1945 to 103,000,000 lb. in 1946 without the addition of increased plant space because producers were unable to finish construction of their new buildings and facilities in operation.

Shortage of cotton linters, pigments and plasticizers handicapped the producers' ability to increase production. It is significant that cellulose acetate sheets, rods and tubes increased from

a 12,000,000 lb. total in 1939 to 19,000,000 lb. in 1946.

Phenolic Moulding Powder.—Production increased from 115,000,000 lb. in 1945 to 140,000,000 lb. in 1946. Yet moulders complained about inability to get this material more than any other. From a prewar production of about 6,000,000 lb. monthly a production rate of almost 15,000,000 lb. was reached in Aug. 1946. This particular branch of the industry was perhaps more affected by strikes than any other, by a critical shortage of wood flour used as filler and chemical shortages such as phenol and formaldehyde. The improved rate of production was the result of improved technique and ability of the producers to concentrate on all purpose formulations.

Urea and Melamine Moulding Powder.—Because of its particular adaptability for such things as radio cabinets, clock cases and other mouldings where colour is desirable, this material was in great demand in 1946. Producers were unable to come into production in new plants which had been planned but not completed. It was doubtful that the new facilities would be completed until the middle of 1947. A critical lack of urea crystal also hampered the industry in 1946 and was expected to be even more serious in 1947.

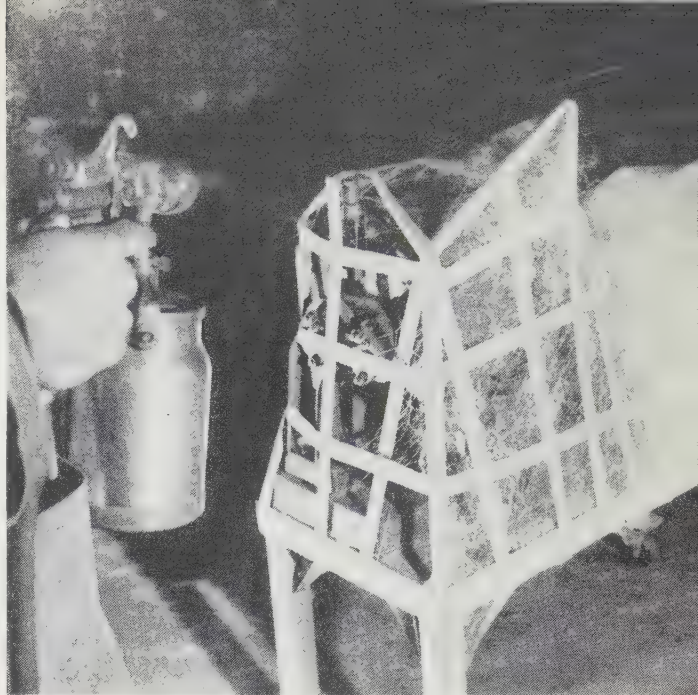
Ethyl Cellulose.—This thermoplastic is limited to specialty uses because it is slightly higher in cost than most other thermoplastics. It won a reputation in World War II as the nose-piece housing for the proximity fuse. The same characteristic that made it adaptable for that application, resistance to heat and dimensional stability, made it particularly desirable for specialty applications where nonwarping and dimensional stability, such as in boxes, is required. Ethyl cellulose was also used as a strip-pable coat for metal parts, as a lacquer for insulation over wire to be used in high altitudes. Production rose from a rate of about 800,000 lb. monthly in 1945 to a rate of 1,400,000 lb. in June 1946.

Acrylics.—This material which became important during World War II for its use as glazing for aeroplane cockpits and blisters continued in great demand during 1946 as a fabricating material for art work, jewellery, lamp stands, tables, etc. It was believed, however, that much of the scrap material used for this purpose and which was available in large quantities as the residue from aeroplane fabrication had already been absorbed and that fabricators from 1946 on would have to depend on virgin material. Moulding powder from this material which was only available at a rate of from 300,000 to 400,000 lb. a month during World War II was considerably increased and was in considerable demand for such end uses as toilet ware, high-grade ornamental boxes, jewellery, lighting effects, auto parts, etc.

Polyethylene.—Another plastic, originally developed in England, and which won great fame in World War II because of its use in radar, was particularly noted for its electrical properties. It was also being widely experimented with in sheeting for packaging, could be produced as a moulding powder and had great possibilities as a monofilament, which can be used as brush bristles and certain types of fabric. In addition to its development in England, two U.S. companies were producing it and both announced large expansion plans for 1947.

Nylon.—In addition to its wide usage as a fabric, Nylon was also breaking into other parts of the plastics industry as a moulding powder, for sheeting and brush bristles. Its high cost limited the field somewhat, but its characteristics of strength and dimensional stability made it peculiarly adaptable for some purposes, among which were zippers. It was also being made available for extrusion purposes.

Polyesters.—These comparatively new resins are used primarily as a laminating medium with glass mat or glass fabric as well as other materials to impart rigidity and strength. They may be either flexible or rigid. The resins used have most versa-



PREPARING a piece of equipment for storage or export shipping by covering with a cross-hatching of tape and then spraying with a cobweblike covering of plastic resins. This method was widely used by the U.S. navy in 1946 for storing surplus war equipment

tile characteristics and when used to impregnate glass cloth, glass floss, fabrics, paper or other materials may result in either flexible or rigid laminations with a wide range of usefulness extending from shock-resistant Doron body armour to thinly coated, flexible marquisette. Radomes were a typical wartime example. The better-known applications in 1946 were aeroplane fuel cell separators, kick plates on doors, luggage lining, lamp shades, templates, table mats.

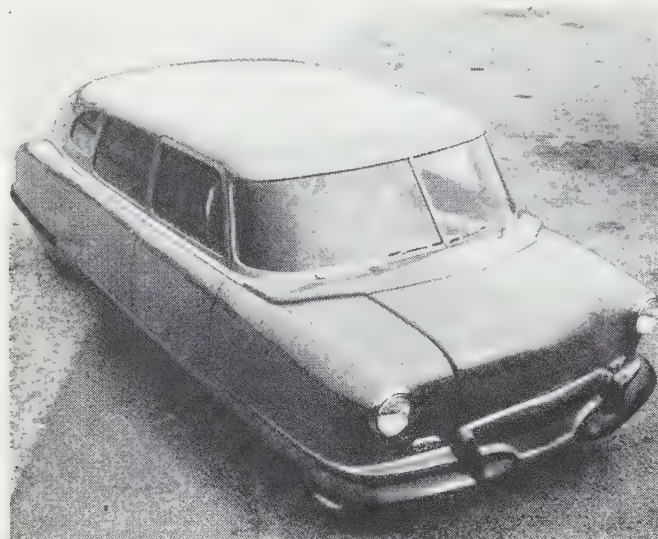
The continuous laminates application made with little heat or pressure may have untold uses. The "moulding" of materials impregnated with these resins offers a different group of markets, but most applications involved the use of considerably higher pressure than suggested when the material was new.

The art of low-pressure moulding was in development stage. Rubber bags and blankets were part of the standard equipment used in this process; the situation, however, was about to be reversed with low-pressure laminated moulds, because of their dielectric property, serving in the electronic vulcanization of rubber products. This development promised to cut processing time up to 80% to 90% in that industry, just as it had in plastics moulding.

Attention was also being called to the growing usage of synthetic resins and cellulose in the adhesive and textile-treating field. More than 20,000,000 lb. of phenolic resin were used in plywood laminations during 1946 and even more urea was consumed. In addition great quantities of these materials plus certain vinyls were used as a glue in fabricating such articles as furniture, handbags, shoes and other items. The same producers claimed that the new adhesives would bond anything to anything. One producer announced that he expected to demonstrate successfully that an adhesive could be used in the manufacture of shirts to replace sewing.

At least 15,000,000 lb. of synthetic resin and cellulose were used in treating textiles during 1946 to eliminate shrinking in wool, glazing and wrinkling in all fabrics, preserve crispness, give a permanent glaze, improve furs, improve the pile in fabrics, give a softer, better hand and other similar attributes. It is possible that this development might be responsible for a tremendous increase in synthetic resin production in 1947.

A new industrial resin polytetrafluoroethylene was announced during the year. This material is inert to all types of chemicals excepting alkali metals and does not have a true melting point.



PLASTIC AUTOMOBILE BODY, manufactured from glass fibre and synthetic resin, was one of the features of this experimental automobile, exhibited by its designer, William B. Stout, in 1946

Suggested applications include coaxial cable spacers, valve packings, gaskets, and plug cocks and tubing for chemical plant equipment. The silicon polymers which had been coming along for several years appeared to be headed toward applications in many branches of the industry including laminates, electrical insulation, radios, protective coatings, lubricants and rubberlike products.

World Situation in Plastics.—World War II completely upset plastics production in parts of the world other than the United States and statistics were in 1946 unobtainable. It was known, however, that in 1939 Germany was second to the United States when it consumed about 100,000,000 lb. of plastics raw materials. The greatest portion of that industry was destroyed. The U.S.S.R. was known to have employed plastics on an impressive scale during the war but there were no statistics available with which to estimate their general applicability. Japan made wide use of nitrocellulose and phenolics but that industry too was probably destroyed.

Canada in 1946 had plants producing cellulose acetate, polystyrene, phenolic and vinyls but their production was small in comparison with that of the United States.

The United Kingdom was third to the United States and Germany in 1939. It consumed approximately 600,000 lb. This amount increased considerably, largely as a result of the introduction of thermoplastics. Unavailability of certain raw materials hampered production. For example, the lack of a carbide industry through the later war years inhibited manufacture of vinyls. The lack of ethyl alcohol and certain high aliphatic compounds meant that such compositions as ethyl cellulose and cellulose acetate butyrate as well as some plasticizers had to be imported. Despite these handicaps the industry made substantial progress. Polyethylene, as noted before, came into production on a fairly large scale. A new polyvinyl chloride plant assumed great importance when supplies of natural rubber became difficult to obtain during the war, and in 1946 won a market, particularly in the insulation field.

Nylon production too was increased to a sizable extent. Methacrylates were manufactured in 1939 in considerable amounts but the tonnage made six years later was out of all proportion to the earlier figure. Great Britain was particularly interested in the development of plastics that would help to utilize waste products. One that they had already announced was a resin bonded sawdust timber for conventional wood applications. Another was a honeycomb core aluminum face panel proposed for

use in prefabricated housing. (See also CHEMISTRY; ELECTRICAL INDUSTRIES; MACHINERY AND MACHINE TOOLS; MUNITIONS OF WAR; PAINTS AND VARNISHES; RAYON AND OTHER SYNTHETIC FIBRES; RUBBER.) (C. A. BN.)

Platinum Group Metals. Palladium, iridium, osmium, rhodium and ruthenium are so closely associated with platinum that world production must be reported as a group.

Table I.—World Production of Platinum Group Metals

	(Thousands of fine ounces)						
	1939	1940	1941	1942	1943	1944	1945
Canada, total	284.3	200.0	221.7	507.8	345.7	200.4	317.6
Platinum*	148.9	108.5	124.3	285.2	219.7	157.5	162.0
O. P. M.†	135.4	91.5	97.4	222.6	126.0	42.9	155.6
Colombia‡	39.1	35.9	37.3	49.2	40.0	36.1	35.1
So. Africa§	59.3	72.0	85.7	73.3	58.9	76.4	65
United States|| . . . .	41.2	41.6	32.7	33.0	37.6	40.5	31.0
World Total (est.) . .	543	465	483	773	619	512	?

*Platinum content of nickel refinery residues. †Other platinum metals, mostly palladium. ‡Crude platinum. §Crude content of ores and concentrates; ordinarily these figures are increased by about 10% by recoveries of osmiridium in gold mining. ||Total crude and refined.

Table I includes all of the leading producers except soviet Russia, which has an unreported output that has been variously estimated at 100,000 to 150,000 oz. annually.

United States.—Salient statistics of platinum during the war years in the U.S. are summarized in Table II.

Table II.—U.S. Production of Platinum, 1940–45

		(Fine ounces)					
		1940	1941	1942	1943	1944	1945
Production, total	41,574	32,730	33,044	37,552	40,549	31,046	
Crude	33,800	26,236	23,239	27,162	33,625	26,551	
Refined	4,470	1,805	4,333	5,205	3,286	1,068	
O. P. M.*	3,304	4,689	5,472	5,185	3,638	3,427	
Imports, total	195,645	309,995	315,002	362,251	356,212	383,298	
Crude	91,054	244,849	263,376	263,893	137,192	172,029	
Refined	35,642	9,865	32,254	41,272	70,150	72,849	
O. P. M.*	68,919	55,281	19,372	57,086	148,876	138,420	
Supply, platinum							
Refinery, output	38,951	98,376	244,226	234,320	132,452	162,032	
Secondary	47,657	37,522	56,150	68,613	85,942	58,942	
Imports, refined	35,642	9,865	32,254	41,272	70,150	72,849	
Total	122,250	145,763	332,630	344,205	288,544	293,823	
Sales	122,978	190,075	269,176	344,719	275,648	336,851	
Stocks	144,302	150,887	160,724	176,560	159,173	138,839	

*Other platinum metals.

The marked shift in the uses of platinum are indicated by the figures in Table III of sales in ounces to consuming industries in 1939, the peak year 1943, and in 1945.

Table III.—Sales of Platinum in the U.S. to Consuming Industries

		(Fine ounces)		
		1939	1943	1945
Chemical	20,306	131,716	115,186	
Electrical	11,952	185,281	107,260	
Dental and medical	13,753	27,044	30,871	
Jewellery	47,385	438	81,305	
Others	6,868	240	1,599	
Total		100,266	344,719	336,851

The removal of restrictions on the use and price of platinum caused such a boom in demand, especially for jewellery, that early in May 1946 the price was raised from \$35 per ounce to \$56, continuing to \$90 in October and dropping back to \$70 in November. (G. A. Ro.)

Plums: see FRUIT.

Plutonium: see ATOMIC ENERGY; CHEMISTRY.

Pneumonia. One of the greatest problems in pneumonia was the determination of the cause of certain types of cases particularly prevalent. The common pathogenic bacteria do not seem to be concerned in the causation of these pneumonias and for that reason the modern antibacterial agents had little or no effect on their course except, perhaps, to prevent or eliminate secondary infections with susceptible bacteria. Two important series of studies bearing on this problem were published during 1946. One of these was the report of the Commission on Acute Respiratory Diseases on the transmission

to human volunteers of the kind of pneumonia which has been called primary atypical pneumonia and is generally known as virus pneumonia. The other was a series of reports by several groups of workers, most of them in the U.S. army, on a number of outbreaks of Q fever, a disease associated with pneumonia and caused by a filter-passing rickettsial agent.

The Commission on Acute Respiratory Diseases performed two experiments using groups of conscientious objectors. These subjects were kept under quarantine restrictions for about two months after which they were sprayed directly into the respiratory tract with pooled sputa and throat washings obtained from characteristic cases of primary atypical pneumonia. The inocula in both experiments consisted of autoclaved, filtered and untreated material. The volunteers were closely observed before and after inoculation by clinical, laboratory and X-ray examinations. In the first experiment the material for inoculation was provided by hospitalized soldiers and in the other it was obtained from six experimentally induced cases of pneumonia.

Respiratory illnesses having all of the features of the naturally occurring disease recognized as primary atypical pneumonia were observed in individuals in both experiments who received either the untreated or the filtered materials. The infection was thus transmitted through two successive groups of well persons. When the precautions taken during the inoculation were rigid, no cases of pneumonia developed in any of the individuals who received the autoclaved inoculum.

The results of these experiments indicated that bacteria-free filtrates, which presumably contained a virus, can induce primary atypical pneumonia in man. The incubation period of the experimental disease was approximately one week in subjects who received the untreated inoculum and about two weeks in those who inhaled sprays of the filtrate. Minor respiratory illnesses occurred in some of the subjects inoculated with both the untreated and the filtered material. This was interpreted as suggesting a relationship of that group of diseases to atypical pneumonia.

Q fever is an influenza-like disease which was first described in 1937 by E. H. Derrick in Queensland, Australia. There the disease was first noted among slaughterhouse workers and foresters. The causative agent of the disease was discovered by F. M. Burnet of Melbourne and proved to be a filter-passing agent which became known as *Rickettsia burneti*. The tick (*Haemophysalis humerosa*) and the bandicoot (*Isodon torosus*) might constitute an important vector and host reservoir, respectively. The association of this disease with pneumonia was not recognized in Australia. A similar agent was found in ticks collected from Montana and Wyoming by workers in the Rocky Mountain laboratory of the U.S. public health service and a disease similar to Australian Q fever is known to occur in that region. A laboratory outbreak of atypical pneumonia resulting from Q fever was described in 1940 among workers at the National Institute of Health. The various groups of workers in the U.S. army studied new outbreaks of Q fever associated with pneumonia that occurred in the Mediterranean area with secondary outbreaks in the United States. They were also able to isolate and identify a similar agent from a case in Panama.

An opportunity arose in Feb. 1945 to investigate one of these outbreaks that occurred in a British parachute regiment. The infection in this organization had been acquired in Athens, Greece. Although the outbreak was subsiding when the studies began, sufficient data were obtained to suggest that the disease differed in certain features from primary atypical pneumonia and the nature of the outbreak was subsequently identified by the laboratory examination of the serum specimens from the patients. Four similar outbreaks were investigated among U.S. troops stationed in northern Italy near Florence and Bologna. In the 15th medical general laboratory which was serving that area, a rickettsia similar to that of Q fever was isolated from the blood of some of these patients and shown to be the cause of the outbreaks. At the same time it was demonstrated serologically that 29 of 40 sporadic cases of atypical pneumonia in Italy were actually Q fever.

At about the same time it was also learned that there had been an outbreak of an illness resembling influenza in and around Athens during the preceding winter. The disease there differed from common influenza in that it lasted more than ten days and specific lesions of pneumonia were found in radiograms of the lungs. There were no deaths. The Germans who seemed to be more severely affected than the natives, presumably because they lacked immunity to the disease, referred to it as the "Balkan gripe." Dr. J. Caminopetros of the Pasteur Institute of Greece established a transmissible febrile illness in guinea pigs by inoculation of blood from one of these patients. The agent of Q fever was later identified from one of these guinea pigs in the laboratory of the Commission on Acute Respiratory Diseases at Fort Bragg, N.C.

During May and June 1945 other outbreaks occurred among troops in transit from southern Italy to Camp Patrick Henry, Va., and other ports of debarkation in the United States. Studies of the outbreak at Camp Patrick Henry indicated that it was probably the result of an agent similar to that of the "Balkan gripe."

In the course of these investigations outbreaks of atypical pneumonia

occurred among the personnel of the 15th medical general laboratory and the Respiratory Diseases commission's laboratory where all of these studies were being carried out. These outbreaks were shown both by isolation of the agent and by tests for the development of immunity in the blood of patients to be caused by the Italian and Balkan strains of rickettsia, respectively. Each of these strains and the one from the case in Panama closely resembled that of U.S. Q fever but were shown to have some distinct antigenic differences.

There was also a preliminary report of an outbreak of Q fever that occurred among civilians in Amarillo, Tex., in March 1946. More than 40 cases, mostly in men, were found and there were also some inapparent infections. There were two deaths in this outbreak. The cases occurred among employees of a stockyard and meat-packing company and in railroad workers around the stockyards. The illnesses varied from attacks of mild influenza-like infections to severe atypical pneumonia. The preliminary studies seem to indicate that cattle were the source of the human infection. All of these studies and the discovery of a new rickettsial agent as the cause of an outbreak of an influenza-like infection associated with a rash that occurred during July 1946 in New York city bring out the increasing significance which rickettsial agents are assuming in the field of respiratory diseases.

With respect to the therapy of pneumonia, two advances were made during 1946. The introduction of streptomycin widened somewhat the scope of specific antibacterial therapy. This antibiotic was effective against most of the gram-negative organisms which were not significantly influenced by sulfonamides or penicillin. Two of these gram-negative organisms in particular, namely, *Haemophilus influenzae* (the so-called influenza bacillus, not the influenza virus) and the Friedlander's bacillus (*Klebsiella pneumoniae*) may give rise to bronchopulmonary infections. The former occurs most often in infants and young children and causes severe laryngotracheobronchitis or pneumonia that may be highly fatal especially in the infants. It may also be associated with chronic bronchitis and bronchopneumonia in old people. The Friedlander's bacillus causes a very severe and highly fatal pneumonia particularly in older persons who have chronic respiratory or urinary tract infections. Streptomycin like penicillin must be given by injection. Good results were reported in the treatment of pneumonia caused by these two organisms.

The use of penicillin by inhalation of a nebulized spray has been gaining acceptance among the medical profession. The method, which was usually referred to as aerosolization, consisted of passing a stream of oxygen through a capillary tube into a solution of penicillin placed in a small glass container within a glass bulb. As the oxygen under pressure from a tank passed through the penicillin solution, it produced a spray of finely divided particles of the solution. It was then conveyed by a tube to the patient who then inspired the penicillin-laden oxygen. This offered an opportunity to get a high concentration of the antibiotic all through the structures of the respiratory tract. The method was most useful in the treatment of lung abscesses, bronchiectasis and other chronic bronchopulmonary infections in which penicillin-susceptible organisms are often involved. It might also be useful in the treatment of some types of pneumonia and their complications, particularly those involving the tracheal passages. Streptomycin was also used in this manner where organisms susceptible to that agent were causing the infection.

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Poetry: see AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; PRIZES OF 1946; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

Poland. A republic in northeastern Europe between the U.S.S.R. in the east and Germany in the west, the Baltic sea in the north and Czechoslovakia in the south. Area: 119,703 sq.mi. (Sept. 1, 1939, 150,486 sq.mi.); pop. (Feb. 14, 1946, census) 23,911,172; (est. Sept. 1, 1939) 35,339,000. The "recovered lands"—former German territories and the free city of Danzig—represent 39,120 sq.mi.; their pop. in 1939 was c. 8,300,000 including c. 1,000,000 Poles. The 1946 census disclosed there a population of 5,012,126, but a tremendous migratory movement continued after that time. 1,289,193 Germans left Poland from Feb. to Sept. 30, 1946; c. 1,500,000 Poles coming from former Polish eastern provinces took their places; other Poles (986,578 till July 31, 1946) were repatriated from Germany, Austria and western Europe; finally, up to July 1,



WOMAN WALKING through the ruins of a desolate street in Warsaw, Poland, in the spring of 1946

1946, 515,998 Ukrainians, Byelorussians and Lithuanians had left Poland to settle in their respective soviet republics. Warsaw, capital of Poland, had on Sept. 1, 1946, a pop. of 522,945 (est. Jan. 1, 1939, 1,289,000). Other chief cities (first figure est. Sept. 1, 1946; second figure est. Jan. 1 1939): Lodz (596,000; 672,000); Cracow (305,000; 259,000); Poznan (268,000; 272,000); Wroclaw (Breslau) (168,000; 625,000); Katowice (128,000; 134,000); Gdansk (Danzig) (118,000; 235,000); Szczecin (Stettin) (103,000; 272,000); Lublin (99,000; 122,000); Gdynia (79,000; 120,000). Acting president (1946): Boleslaw Bierut, chairman of national home council (provisional parliament); prime minister: Edward Osobka-Morawski.

History.—In 1946 the Polish people had shown once more their extraordinary resilience and powers of recuperation. It was a year of undeniable economic recovery despite a limited degree of real independence and the fact that the political tension, already acute in the previous year, had rather increased. There was no specifically Polish foreign policy. Polish representatives at the international conferences had no more freedom of movement than their Ukrainian or Byelorussian colleagues. After an experience of a year and a half it was obvious to any impartial observer that Poland had a totalitarian government controlled by a small Communist minority. The other political parties belonging to the "national unity," Socialist, Democratic, Peasant and National (Christian-Democratic) Labour, acted as agencies under Communist supervision. Well-known Socialist, Democratic, Christian-Democratic and National party leaders were still in the underground, or in prison or abroad. The only party allowed to fight openly for true democracy was the Polish Peasant party led by Stanislaw Mikolajczyk who joined the provisional government formed in Moscow in June 1945, but insisted from the beginning that free and unfettered elections should be quickly held. The Communist rulers—Boleslaw Bierut, Wladyslaw Gomolka (deputy premier) and Jakob Berman (undersecretary of state in the prime minister's office)—gave Mikolajczyk to understand that either his party would join a government bloc and accept a single list of candidates in every constituency or he would be crushed.

Meanwhile, in order to gain time, to train its own political machinery and to test the mood of the people, the Communist triumvirate suggested a referendum in which the Polish electorate would answer the three questions: (1) Are you for abolition of the senate? (2) Are you for making permanent, through the future constitution, the economic system instituted by land reform and nationalization of basic industries, with maintenance of the rights of private initiative? (3) Are you for the Polish western frontiers as fixed on the Baltic and on the Oder and the Neisse? The Polish Peasant party decided to take part in the referendum but, in order to count not so much its own supporters but all the Poles opposed to the Communist regime, asked the nation to vote "yes" to the second and third questions, but "no" to the first. The referendum took place on June 30 and, according to the Polish Peasant party, 83.5% of the electorate voted "no" to the first question. The regime, however, published on July 12 (after a delay of 12 days) completely different results. It alleged that the answers to the first questions were 7,844,522 "yes" and only 3,686,029 (32%) "no." The answers to the second question were given as 8,896,105 "yes" and 2,634,446 "no"; to the third—10,534,697 "yes" and 995,854 "no."

On Aug. 19 the British and U.S. ambassadors presented to the Polish provisional government sharp notes protesting against oppressive acts which prevented normal democratic political activity in Poland. The British note said, for instance, that "it is widely believed in Poland that grave irregularities occurred in connection with the referendum." Both notes insisted that the Polish government should make as soon as possible the necessary arrangements for the "free and unfettered elections." As Maj. C. P. Mayhew, undersecretary for foreign affairs, said on Oct. 18 in the house of commons, this was not a Polish domestic affair; it was "an international bargain" agreed upon at Yalta. But the regime continued to consider the Polish Peasant party as enemy No. 1. At a foreign press conference on Oct. 20, Mikolajczyk disclosed that 13 members of his executive and 797 other party members were imprisoned by the security police; he further alleged that 95 members of his party were killed during the preceding five months.

Finally, on Nov. 13, Bierut signed a decree fixing the Polish

elections for Jan. 19, 1947. On Nov. 22 Victor Cavendish-Bentinck, the British ambassador, and Gerald Keith, the U.S. chargé d'affaires, again delivered strongly worded notes in Warsaw pointing out that both the governments could not regard the assurances of the Polish provisional administration as having been fulfilled unless all democratic parties in Poland had equal facilities to conduct a campaign freely and without intimidation, and unless all parties were represented on all the electoral commissions concerned with the elections at all levels.

Although the Poles are mainly Roman Catholic, only 64.9% of the inhabitants of pre-1939 Poland belonged to that religion. In the new Poland 97% are Catholic. When the Polish provisional government was organized in Warsaw the Catholic Church adopted a policy of neutral expectation. With the elections forthcoming, the Polish episcopate had to take a stand. It chose a form of a pastoral letter signed by August Cardinal Hlond, primate of Poland, which was read in every church in the country on Oct. 20. The letter declared that Catholics must not vote or be candidates on lists associated with a program or methods of government which were against Christian morality and the Roman Catholic concept. For the first time Cardinal Hlond also told Catholics that they must not belong "to organizations or parties whose principles are contrary to Christian teachings and whose activity aims at undermining Christian ethics." On Nov. 23 Bierut said in a press interview that whether the Catholic Church would continue to "enjoy its present rights in Poland depended entirely on whether or not the Polish clergy was prepared to accept the new state of affairs in this country."

Education.—In the school year 1945-46 there were 18,423 primary schools (as against 28,881 in 1938-39) with 3,004,007 pupils (4,953,000 in 1938-39). No figures were published for the secondary schools which in 1938-39 were 784 with 197,500 pupils. In 1938-39 Poland had 25 universities and other schools of higher education with a total of 48,000 students enrolled. The three pre-1939 state universities of Warsaw, Cracow and Poznan and the private (Catholic) university of Lublin, which were closed by the Germans in 1939, reopened in the autumn of 1945. New universities were founded at Lublin, Gdansk, Wroclaw, Torun and Lodz. Besides the old school of engineering, reopened in Warsaw, new colleges were founded at Cracow, Gdansk and Gliwice. The total number of students enrolled in 1946 was estimated at 60,000.

Banking and Finance.—Budget est. (from April 1 to Dec. 31, 1946) revenue \$358,680,281; expenditure \$393,266,083. Bank notes circulation (Aug. 31, 1946) \$442,179,000. Exchange rate (Aug. 1946) 1 zloty = 1 U.S. cent. In December the U.S. government announced the unfreezing of Polish gold to the nominal value of \$27,000,000 and of \$10,200,000. The Polish assets in Great Britain (mainly £7,000,000 of gold) continued to remain frozen.

Trade and Communication.—Foreign trade (first six months of 1946, in thousands of dollars): imports 45,141 (78% from the U.S.S.R.); exports—68.6% of which was coal—41,875 (72% to the U.S.S.R.). Railways, main lines (1946) c. 16,000 mi.; rolling stock (Aug. 1, 1946) locomotives 5,647 (43% under repair), wagons 118,750 (24% under

repair), passenger carriages 7,852 (50% under repair). Monthly average of freight traffic (first half of 1946) 1,278,210,000 short ton-miles; corresponding figure for passenger traffic 15,840,000 persons. Est. turnover of the ports of Gdansk and Gdynia (1946) 8,500,000 tons (50% of 1938); shipping (July 1946) 140,000 gross tons.

Mineral Production and Manufacturing.—(In short tons) average monthly production (1946): steel 104,500 (75% of 1938); crude oil 10,700 (22%); cement 163,900 (109%); artificial fertilizers 15,211 (97%); cotton yarn 3,821 (64%); woollen yarn 337 (33%); electric energy 446,000,000 kwt. (134%). Total output of coal in 1946 was estimated in December at 51,700,000 short tons (123%).

Food and Agriculture.(In short tons, 1945): grain (rye, wheat and barley) 6,359,000; potatoes 1,392,000; sugar beets 114,000. In other words, Poland's crops in 1945 were 563 lb. of grain and 128 lb. of potatoes *per capita*, as against 741 lb. of grain and 2,393 lb. of potatoes in 1938. Therefore, without the help of the United Nations Relief and Rehabilitation administration a serious famine would have been unavoidable. In March 1946 Herbert Hoover stated that Poland's food situation was among the worst in Europe. In October General Charles Drury, head of the U.N.R.R.A. mission in Poland, said that the 1946 harvest had produced only 4,400,000 short tons of grain—1,959,000 less than in 1945. Other deficits for 1947 were: 78,100 short tons of edible fats, 71,500 short tons of meat and 170,000 gal. of milk. Reliable mortality figures from cities showed that independently of war casualties the death rate in Poland rose during the years 1939-45 to a figure ten times higher than in England; at least 250,000 persons with open, infectious tuberculosis lived in the same room with others. Poland had never been dependent on food imports, but wartime devastation and loss of equipment and livestock had evidently caused a considerable drop in production. Cattle were in 1946 about 40% of 1938 level (10,554,000), horse numbers were down to 30% of the 1938 figure (3,910,000) and pigs to 23% (1938: 7,525,000). (K. S.M.)

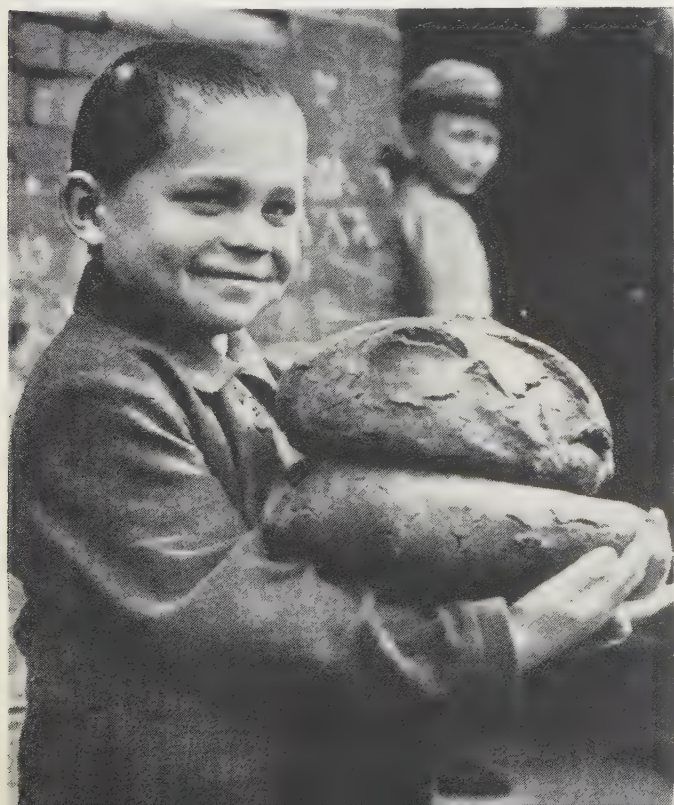
Pole Vaulting: *see* TRACK AND FIELD SPORTS.

Police. In democratic governments throughout the world the year 1946 brought major changes of police structure and administration. Largest single development was represented by the Police act (1946) passed by parliament for the further consolidation of police forces in England and Wales. While the process of integration had been under way for many years, this action was especially significant because it seemed to forecast an ever-declining number of municipal police establishments. In effect, the long-range outlook was for fewer and larger police forces. Chief feature of the 1946 act was the requirement that most of the noncounty borough forces be consolidated with the adjoining county constabularies. As a consequence, 47 local police forces, some of considerable size, were expected to disappear entirely as independent police agencies. The net result of these and earlier consolidations would be that only 133 police forces would remain in the service of some 490 counties, cities and boroughs.

Also of striking character was the apparent trend toward a shorter work-week for English police. The five-day week had become pretty well established in many industries, although the 48-hour week still prevailed in police employment. The necessarily long hours of emergency duty during the war years had brought reaction in the form of agitation for a 40-hour week. Although this admittedly would involve considerable increases in the police establishment, without any enlargement in the number of police on duty at a given time or place, the point was made that the increased number of police who would be "off-duty" under the scheme for a shortened work-week, would in effect increase the amount of reserve manpower, thus adding at least to police resources in times of emergency. In a land where the preceding six or seven years had been marked by an almost continuous state of critical emergency, such arguments might well be persuasive. Should they prevail, the effect upon police employment policies would be felt far and wide in many parts of the world.

Almost coincident with the foregoing proposals however was the announcement that the number of regular police in England and Wales had steadily declined from the outbreak of World War II to a point 20% below that of 1940. While the gaps thus left in the regular ranks were more than filled by temporary constables, the immediate outlook was for large-scale

POLISH BOY carrying home two loaves of bread made from wheat supplied by U.N.R.R.A.; two loaves was the daily ration in 1946 for a family of six persons



recruiting of regular personnel. Despite such dislocations, the total strength of police in England and Wales averaged slightly more than 2 per 1,000 of population—not by any means a grossly inadequate quota for the protection of both urban and rural areas.

As a direct result of the centralizing influences of the war period, eight district boards were established to co-ordinate recruitment for all police forces, thereby making a surplus of qualified recruits in any given area readily available to other areas where the response might be less favourable. Also significant was the installation of training centres in each of the eight districts, to the end that a uniformly high standard of recruit training might be maintained throughout the decentralized police system.

As the year 1946 opened in the United States, many police forces were confronted by industrial strikes that threatened to disturb the public peace but the most ominous of these were less violent than had been feared and even the simmering racial issue produced no large scale disturbances. Considering the early indications of serious trouble in both of these fields, U.S. police could congratulate themselves upon the generally satisfactory record they compiled in such activities during the year.

Less gratifying was the anticipated postwar increase in crime and traffic accidents which gave the impression that police everywhere were being overwhelmed. This in turn led to demands for quick replacement of wartime losses in police strength, but since these last were of moderate degree, restoration of prewar levels of crime and traffic accidents were employed in many jurisdictions to raise police man-power quotas to a point never before reached. Indications were that these increases in police personnel would be projected into 1947 and thus add still further to the police establishment. Whether U.S. cities could assume these enlarged burdens of police manpower and at the same time meet the necessary or desirable increases in police compensation seemed unlikely, once the postwar boom had spent its strength.

Table I.—Numerical Strength of U.S. Municipal Police Forces, 1941–46

Population groups of cities	(Number per 1,000 inhabitants)					
	1941	1942	1943	1944	1945	1946
Group I—Over 250,000	2.12	2.13	2.07	2.02	1.94	2.14
Group II—100,000 to 250,000	1.45	1.50	1.47	1.45	1.42	1.56
Group III—50,000 to 100,000	1.37	1.46	1.40	1.36	1.35	1.52
Group IV—25,000 to 50,000	1.23	1.29	1.24	1.21	1.22	1.36

Meanwhile the re-equipment of U.S. police departments was proceeding slowly because of the slowdown in the production of motorcars and other mechanical aids of modern police. In many forces deferred replacement during the war period had been joined with deferred maintenances in the confident expectation that industrial production schedules would be stepped up rapidly at war's end. Despite such apparent handicaps, it appeared that U.S. police had returned to their prewar levels of performance, and if these were not satisfactory in some instances, the fault did not lie with equipment shortages.

The proportion of crimes that were cleared by arrest in 1,422 U.S. cities having a total population in excess of 47,000,000 inhabitants, showed declines as to some crimes and increases as to others, but none of these changes were large enough to be significant.

Since the police record of accomplishment in clearing cases depends in part upon the burden of investigations imposed by the number of crimes committed, it is pertinent to point out that the war years showed many declines in crime frequency with the higher prewar levels tending to be restored as the nation returned to a peacetime basis. Hence the 1945 clearances shown in Table II reflect the return of U.S. municipal police to a more normal level of crime frequency and a more normal

Table II.—Per Cent of Crimes Cleared by Arrest in U.S. Cities 1941–1945

Offenses	1941	1942	1943	1944	1945
Murder and nonnegligent manslaughter	88.1	90.6	90.5	90.8	86.9
Negligent manslaughter	86.6	86.1	84.0	81.5	82.7
Rape	76.2	81.2	74.0	74.8	74.1
Robbery	40.4	43.3	38.1	38.7	36.2
Aggravated assault	75.0	80.5	73.7	75.7	76.2
Burglary; breaking or entering	32.0	31.5	30.7	31.6	31.3
Larceny (except auto theft)	22.7	25.0	24.1	23.6	22.8
Auto theft	24.4	24.6	26.5	24.4	26.4

level of success in dealing with it.

In all countries the year was one of readjustment of the police services from a wartime to a peacetime basis, although under the authoritarian regimes the clear indications were that close police controls would be tightened rather than relaxed. Symptomatic of this condition was the announcement late in Dec. 1946, that the Communist party in Poland had taken over control of the *Urzad Bezpieczenstwa* (forces of security). This body numbered 170,000 full-time police operatives, or about 20,000 more than the strength of the regular army. Hence it was likely that party control of such a police agency would prove far more important in determining Poland's political future than the decisions made through constitutional conventions and popular elections.

The Nuernberg trials of major war criminals held special interest for those concerned with police and policing, since the International Military Tribunal declared certain police groups of the nazi regime—viz., the SD or Security Service and the Gestapo—to be criminal organizations. Thus all former members of such police agencies became subject to summary trial and punishment. Conclusion of the Nuernberg trials was marked by the conviction of Ernst Kaltenbrunner, head of the nazi secret police under gestapo chief Heinrich Himmler. Kaltenbrunner suffered the death penalty by hanging in the large-scale executions of outstanding nazi leaders.

The annual congress of the International Association of Chiefs of Police was held in Mexico City in Sept. 1946. Its discussions tended to cluster around questions relating to interforce collaboration among police of North, Central and South America. If early plans for the next meeting of the association were to be followed, the 1947 police congress would be held in Duluth, Minn. (See also CRIME; FEDERAL BUREAU OF INVESTIGATION; KIDNAPPING; SECRET SERVICE, U.S.)

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Poliomyelitis: see INFANTILE PARALYSIS.

Political Parties (U.S. and Great Britain): see COMMUNISM; CONSERVATIVE PARTY, GREAT BRITAIN; DEMOCRATIC PARTY; ELECTIONS; LABOUR PARTY, GREAT BRITAIN; LIBERAL PARTY; REPUBLICAN PARTY; SOCIALISM.

Pollock, Channing (1880–1946), U.S. playwright, was born on March 4 in Washington, D.C., and in 1897 was graduated from Bethel Military academy (Warrenton, Va.), subsequently continuing his studies at the Polytechnique in Prague. When he was 16 years old, he obtained a job on the *Washington Post*, becoming drama critic for the newspaper two years later. At 19, he was the drama critic for the *Washington Times*. In 1900 he went to New York and became the general press agent for William A. Brady. Shortly thereafter his plays, *The Pit* (1900), *Napoleon the Great* (1901) and *The Little Gray Lady* (1903), made their appearance. Three of his most famous dramas, *The Sign of the Door* (1919), *The Fool* (1925) and *The Enemy* (1926), were hits in New York

and London. Pollock was an indefatigable and prolific producer of plays, books, reviews and essays, as well as being a crusading lecturer in the interests of the theatre. A harsh critic of literary censorship, he maintained that it stifled endeavour, and he once delivered the opinion that state censorship boards "would have obliterated Shakespeare, buried Balzac, smashed Shelley, mutilated Molière, destroyed Dante and rendered impossible the publication of the Holy Bible." His books include *Star Magic* (1933), *Synthetic Gentleman* (1934), *The Adventure of a Happy Man* (1939), *Guide Posts in Chaos* (1942) and *Harvest of My Years*, an autobiography (1943). Among his other plays are *The House Beautiful* (1931) and *Stranglehold* (1932). He died at Shoreham, Long Island, N.Y., on Aug. 17.

Polo. Polo staged a remarkable comeback after four years of inactivity caused by World War II with approximately 25 centres of the game resuming play throughout the United States. The first international polo after 1939 highlighted the season at Meadow Brook on Long Island, N.Y., when a high-goal Mexican team played a two-out-of-three game series against a picked United States four for the General Manuel Avila Camacho cup. The United States won in two straight matches, but the Mexicans were victorious in the national open championship, highest polo honours of the U.S., in the series that followed.

The first annual meeting of the United States Polo association after 1941 took place in the fall with delegates attending from all over the country as well as from Hawaii and the Philippine Islands. Robert E. Strawbridge, Jr., Elbridge T. Gerry and George C. Sherman were elected governing officers and plans for revivals in 1947 of sectional, national and collegiate tournaments were made. (R. F. K.)

Popcorn. The 1946 United States crop of popcorn was estimated at 266,752,000 lb., compared with the record 1945 crop of 427,780,000 lb. and an average of 116,300,000 lb., 1935-44. The 1946 acreage was 163,300, a little less than half the 311,900 ac. harvested in 1945, but double the average of 87,156 ac., 1935-44. The yield was 1,634 lb. per acre compared with 1,372 lb. harvested in 1945 which was near the average. The quality of the crop was unusually good in 1946. Iowa led with a crop of 81,900,000 lb.; Indiana 36,290,000 lb.; Illinois 34,650,000 lb.; Ohio 27,495,000 lb.; Missouri 24,000,000 lb. and all other of the 12 states less than 20,000,000 lb. each. Hybrid seed was used on a larger portion of the acreage in 1946. The market for popcorn expanded rapidly from 1941, when the first crop of more than 125,000,000 lb. was harvested. The farm price was about \$1.50 per 100 lb. except in years of short crops, then rose to more than \$4 in 1943 and continued at about that level through 1946.

(J. C. Ms.)

Popular Music: see MUSIC.

Population, Movements of: see REFUGEES.

Populations of the Countries of the World: see AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

Porter, Paul Aldermandt (1904-), U.S. government official, was born Oct. 6, in Joplin, Mo. A graduate of the University of Kentucky Law school, he practised law and also worked as city editor of the *Lexington Herald*. He entered the government service in 1932 as special counsel to the department of agriculture. Two years later (1937), he left the AAA to become Washington counsel for a broadcasting chain. In 1942, he was deputy administrator in charge of rent control in the Office of Price Ad-

ministration, and became associate administrator in the War Food Administration in 1943.

Porter handled Democratic publicity in the 1944 presidential campaign and on Dec. 21, 1944, he was appointed by Pres. Franklin D. Roosevelt to the chairmanship of the Federal Communications commission.

He became director of OPA by appointment of Pres. Harry S. Truman on Feb. 14, 1946. The new administrator pledged himself to hold down prices until the "tide of inflation passed." He barred increases in rent ceilings and clashed with Secretary of Agriculture Clinton Anderson on food price controls. He resigned Nov. 29, 1946, after the OPA had been shorn of most of its powers, and on Dec. 11, 1946, the state department disclosed that he was named to head a U.S. economic mission to Greece with the rank of ambassador.

Porto Rico: see PUERTO RICO.

Portugal. A republic of western Europe, forming part of the Iberian peninsula and bounded on the N. and E. by Spain and on the S. and W. by the Atlantic ocean. Area (including Azores and Madeira): 35,413 sq.mi.; pop. (census Dec. 12, 1940) 7,722,152. Chief towns: Lisbon (cap. 709,179); Oporto (262,309); Coimbra (35,437). Language: Portuguese; religion: predominantly Roman Catholic. President: General Antonio Oscar de Fragozo Carmona; premier in 1946: Dr. Antonio de Oliveira Salazar.

History.—An unsuccessful military revolt broke out on Oct. 10, 1946, in the Oporto cavalry barracks. The rebels, marching on Lisbon, surrendered to superior forces at Coimbra without a fight. Their aim was the establishment of a Republican military government to hold free elections. In January the government sanctioned socialist meetings but closed the offices of the other chief opposition party, the Democratic Union movement, both in Lisbon and in Oporto. In August three leaders of that movement were arrested and in October widespread criticism followed the dismissal of two Republican university professors by the minister of education.

In February, despite help from the United States and Canada, bread rations had to be cut by from 14% to 18½%. Inefficient distribution of meat and fish caused street rioting in Lisbon in March and discontent continued throughout the summer.

Portugal led the world in aviation by opening all its territory to civil aircraft; Pan American Airways reduced flying time between New York and Lisbon to less than nine hours. An air transport agreement was signed between Portugal and Belgium.

(E. A. P.)

Education.—In 1942-43: elementary schools 7,714, scholars 542,925; secondary schools 42, scholars 15,346; universities 3, students 9,927.

Trade and Communication.—External trade (1945): imports 3,952,500,000 escudos; exports 3,265,000,000 esc.; re-exports 1,107,500,000 esc. Communications and transport (1945): roads, first and second class, 9,180 mi.; railways open to traffic 2,191 mi.; vehicles licensed (1944): cars 47,469; motorcycles 4,604; cycles 141,872; shipping (Jan. 1, 1943) 313,534 gross tons.

Banking and Finance.—Revenue (est. 1946) ordinary 3,018,000,000 escudos; extraordinary 1,363,000,000 esc.; expenditure (est. 1946) ordinary 3,017,000,000 esc.; extraordinary 1,363,000,000 esc.; public debt (Dec. 1944), domestic and foreign, 9,389,000,000 esc.; notes in circulation (June 1946) 8,039,000,000 esc.; gold reserve (June 1946) 6,057,000,000 esc.; exchange rate (1946) 1 escudo=4.03 U.S. cents.

Agriculture and Other Production.—Production, 1945 (in short tons): wheat 325,110; maize 243,012; rye 132,944; oats

81,344; barley 73,224; potatoes 692,000; beef 31,700; pork 6,100; mutton 3,500; wet-fish 4,537; cement 24,000; wine 276,957 gal. (See also PORTUGUESE COLONIAL EMPIRE.)

Portuguese Colonial Empire. Total area (approx.): 803,833 sq.mi.; total population (1940 census): 10,879,415 excluding metropolitan Portugal, the Azores and Madeira. Certain essential facts and figures relating to the colonial possessions of Portugal are given in the accompanying table.

History.—In April 1946, a contingent of 1,000 Portuguese

legs." In order to control and limit the use of the penalty mail privilege, congress passed the "penalty mail law," effective July 1, 1944, which provided that departments and agencies (except the war, navy and post office departments) account for all matter bearing the penalty indicia and pay into the treasury as miscellaneous receipts, and not as postal revenue, the cost of handling such matter. The records disclosed that during the fiscal year ended June 30, 1946, there were mailed 1,694,994,749 free pieces, weighing 251,940,174 lb., a decrease of 213,784,213 pieces and a decrease of 58,236,407 lb. from the 1945 fiscal year.

Portuguese Colonial Empire						
Country and Area (in sq.mi.)	Population Census, 1940 (000's omitted)	Capital, Status, Governor	Principal Products Exports—1945 (in short tons)	Imports and Exports—1945 (in thousand escudos)	Road, Rail and Shipping 1943	Revenue and Expenditure est. 1945 (in thousand escudos)
AFRICA						
Angola (Portuguese West Africa) , 481,351	3,738	Luanda, colony, governor-general: Commander Vasco Lopes Alves	maize 116,676 cane sugar 40,796	imp. 587,750 exp. 645,525	rds. 21,949 mi. rly. 1,477 mi. shpg. (entered) 2,147,315 tons	rev. 368,252 exp. 368,252
Cape Verde Is. 1,557	181	Praia, colony, governor: Commander João de Figueiredo	salt 6,907 preserved fish 640 coffee 160	imp. 165,750 exp. 151,100	rds. 326 mi. shpg. (entered) (1945) 2,258,140 tons	rev. 22,778 exp. 22,778
Portuguese Guinea 13,944	351	Bolama, colony, governor: Commander Manuel Maria Sarmiento Rodrigues	groundnuts 40,105 palm kernel oil 560	imp. 82,275 exp. 94,775	rds. 1,649 mi. shpg. (entered) (1945) 95,234 tons	rev. 44,616 exp. 44,616
São Tomé and Príncipe Is. 372	60	São Tomé, colony, governor: Capt. Carlos de Sousa Gorgulho	cacao 7,039 coffee 415	imp. 27,775 exp. 52,600	rds. 199 mi.	rev. 11,831 exp. 11,831
Mozambique (Portuguese East Africa) 297,731	5,086	Lourenço Marques, colony, governor-general: General João Tristão de Bettencourt	cane sugar 502,203 copra 44,415 wood 82,354	imp. 768,900 exp. 521,875	rds. 16,667 mi. rly. 1,349 mi. shpg. (entered) 4,521,425 tons	rev. 636,398 (actual) exp. 636,398 (actual)
ASIA						
Portuguese India 1,537	624	Nova Gôa, colony, governor-general: Colonel José Ricardo Pereira Cabral	fish, spices, coconuts and copra	(1940) imp. 102,025 exp. 16,900	(1940) rds. 411 mi. rly. 50 mi. shpg. (entered) 698,414 tons	rev. 47,013 exp. 47,013
Macao 5	375	Macao, colony, governor: Commander Gabriel Maurício Teixeira	fish, preserves and cement	—	rds. 12 mi.	rev. 64,121 exp. 64,121
Timor 7,332	(Census 1936) 464	Dilli, colony, governor: Capt. Manuel de Abreu Ferreira de Carvalho	coffee, sandalwood, wax and copra	(1940) imp. 3,625 exp. 4,150	(1939) rds. 1,039 mi. shpg. (entered) 91,215 tons	rev. 9,430 exp. 9,430

troops was sent to Timor to receive the Japanese surrender, returned from there to Lisbon after a voyage of exactly six months. (E. A. P.)

Portuguese Possessions in Africa: see PORTUGUESE COLONIAL EMPIRE.

Post Office. The audited revenues of the post office department for the fiscal year 1946, as stated in the records of the comptroller general of the United States, amounted to \$1,224,572,173.34.

There was also reported to the treasury department the items stated in the act of June 9, 1930, indicating the estimated postage that would have been collected if the services had been on a regular pay basis, in the case of penalty and franked mail, free-in-county mail, differentials in second-class mail matter and free matter for the blind. These amounted to \$100,246,983.

The expenses of the department for the fiscal year as audited amounted to \$1,353,653,679.31, of which amount \$35,990,700.82 was on account of prior years. There was \$54,992,030 unpaid on account of the 1946 fiscal year. This left a total expense for the fiscal year 1946 of \$1,372,655,008, resulting in a gross operating deficit on an accrual basis of \$148,082.835.

The tremendous increase in the volume of mail handled by the post office department for other branches of the government had been a matter of concern to congress and the department for a number of years. Thousands of tons of forms, pamphlets, circulars and supplies were sent by government departments and establishments free of postage under the "penalty privi-

The intensive bond and stamp sales program, inaugurated May 1, 1941, in co-operation with the treasury department, was greatly expanded after U.S. entry into World War II. On June 30, 1946, war savings stamps were on sale at 41,751 post offices. Sales from July 1, 1945, to June 30, 1946, amounted to \$92,117,543.40.

From March 1, 1935, when the U.S. savings bonds were placed on sale at post offices to June 30, 1946, there were sold through the postal service 158,355,685 bonds, having a sale value of \$9,163,683,281. During the fiscal year ended June 30, 1946, 13,484,517 bonds, having a sale value of \$619,509,000 were sold. At the close of 1946 bonds were on sale at 26,954 post offices, including 1,346 branches and stations, a net increase of 1,574 over the preceding year.

Through the 41,751 post offices and 3,324 stations being conducted under contract agreement as well as 1,994 classified stations and branches, there were received, transported and delivered 36,200,000,000 pieces of mail matter during the fiscal year, having a weight of 3,500,000 tons, representing a decrease from the previous fiscal year of 1,700,000,000 pieces of mail and 200,000 tons.

On June 30, 1946, there were 3,324 stations being conducted under contract agreement. The average cost per contract unit was \$776, and the total cost of operation during the fiscal year amounted to \$2,579,638, whereas the receipts from the sale of stamps at these contract stations amounted to \$46,423,736 during the calendar year 1945.

During the fiscal year, city delivery service was established in 199 additional cities, thereby increasing to 4,083 the number

of cities in which this service was in operation. Of this number, 140 were changed from village delivery to city delivery service. Village delivery was in operation at 111 post offices.

Postmasters.—During the fiscal year there were made 3,795 presidential appointments of postmasters at offices with salaries of \$1,800 to \$12,400 per annum. Fourth-class postmasters were commissioned to 1,148 offices during the year as vacancies occurred through various causes.

Dead Letters.—During 1946, 18,676,852 letters were impossible of delivery, an increase of more than 32.04% from the previous year. This number was due mainly to the large number of incorrectly addressed letters for the military and naval forces and for civilians who moved incident to changes in location due to war work. A total of 3,157,745 were returned to the senders, of which 405,879 were found to contain valuable enclosures; 83,648 of them contained money, amounting to \$213,079. There were also 871,849 unclaimed parcels and articles found loose in the mails. These parcels were sold at public auction and \$245,023 realized.

Air Mail.—On June 30, 1946, there were 57,377 mi. of domestic air mail routes, an increase of 528 mi. over June 30, 1945. During 1946 four new domestic air mail routes were established. On Oct. 1, 1946, the domestic air mail rate was reduced to five cents an ounce. This includes not only the United States and its territories and possessions, but wherever the United States postal service is in operation. The new rate also applies to Canada and Mexico.

In the foreign field air mail rates were reduced Nov. 1, 1946, from a previous high of 70 cents a half ounce to a maximum of 25 cents. To South America the new rate is 10 cents per half ounce; to Europe and North Africa, 15 cents per half ounce; the rest of Africa, near east, Asia and South Pacific, 25 cents per half ounce.

The air mail service, established as one of the most vital postal services, owing to the need it filled in connection with the demand for speed in the transportation of mail, performed a total of 102,000,000,000 pound miles of service during the fiscal year 1946.

Rural Delivery.—The rural delivery routes in operation on June 30, 1946, required a total daily travel of 1,441,538 mi. by rural carriers in providing service to approximately 29,641,722 patrons. The policy of consolidation of rural routes to absorb vacancies was continued. Operation of the rural delivery service resulted in an expenditure of \$117,335,322 for the fiscal year as compared with \$107,046,080 for the previous year, an increase of \$10,289,242 over 1945. The amounts saved through consolidation of routes were utilized to establish new routes and provide extension of existing routes. Thereby 6,479 more miles were covered by rural carriers at the close of the fiscal year 1946 than in 1945.

Postal Savings.—The postal savings system continued to merit a widespread public demand for its services; the depositors numbered 4,135,565 for 1946, an increase of 5% from the preceding year. The balance due depositors represented by outstanding certificates of deposits was \$3,119,520,810, an increase of \$460,211,876 or about 17.3%. In addition there was held in trust for depositors accrued interest of \$87,346,227 and unclaimed deposits of \$135,486, making a total of \$3,207,002,523.

At the end of the year, postal savings certificates were on sale at 7,187 depositories, including 902 branches and stations, but savings stamps were on sale at all post offices and practically all branches and stations.

Buildings.—During the fiscal year ended June 30, 1946, the post office department operated 3,261 government owned buildings. Because of World War II and the cessation of the public

building program, no new buildings were completed during the fiscal year. Through reassignments of space within these buildings, agencies of the government which were occupying or had intended to occupy commercial quarters were accommodated, with a saving of \$197,769.

Expiring leases numbering 522 were renewed in the year 1946. The square foot cost of renewing leases was increased from 88.7 cents in 1945 to 92.8 cents in 1946. There were 118 new leases made, including 67 for offices previously occupying space on a monthly rental basis, the new contracts providing improved quarters and in many instances complete new equipment.

(I. Gc.)

Great Britain.—The total of post office transactions with the public during the year ended March 31, 1946, reached the record figure of £3,157,945,000. Savings bank deposits increased from £428,388,000 in 1944-45 to £647,588,000 (including release benefits to service personnel) in 1945-46 and savings certificates purchased amounted to £204,211,000, a drop of £84,777,000 on the previous year. The number of separate deposit accounts in April was 22,000,000, representing a capital value of £1,800,000,000.

The number of letters and packets delivered was 6,230,000,000 as compared with 6,250,000,000 in 1945, but this figure was still below the prewar level. On the other hand the figure for parcels handled dropped from 284,000,000 to 257,000,000. There was a marked growth in both branches of the telegram service: 64,939,000 inland telegrams were handled in 1945-46 and 10,453,000 overseas and to ships, an increase of 1,976,000 and 2,453,000 respectively on the 1944-45 figure. There were also large increases in the number of effective telephone calls. Early in 1946 70,000 telephones were being installed a month (twice the prewar rate), while the demand was 100% higher than in 1939. The total number of exchanges in use was 5,800, 60% of this total being automatic exchanges. The development program for improving the telegraph and telephone services of the country involved the expenditure of £10,000,000 in the financial year 1945-46, and an estimated figure of £17,000,000 in 1946-47.

In 1946 air mails were made available to 200 countries. By the end of the year a daily service was in operation over the North Atlantic and air mails reached New York and Montreal two or three days after dispatch from London. British South American Airways service conveyed mails twice weekly to Brazil, Uruguay and the Argentine, and linked up with a network of air services in South America. Regular services were also started to Australia (thrice weekly) and to South Africa (twice weekly), bringing both postally within five days of London.

Land-line communications were reopened with France, Belgium, the Netherlands, Denmark, Norway, Sweden, Luxembourg, Switzerland and Italy. Further expansion was hampered by lack of plants on the continent. In January the post office completed for the war department the longest submarine telephone cable in the world (between Lowestoft and Borkum, northwest Germany). Public radiotelegraph services to ships at sea and radiotelephone services to 26 countries were restored.

Several improvements were made in the inland postal and telegraph services. By October the entire network of travelling post offices had been restored, giving a latest posting time of 6 p.m. in town areas throughout the country for first delivery the following weekday morning. By the prewar method of scheduling parcels to specific trains the interval between posting and delivery was reduced by as much as 24 to 48 hours. Telegraph transmission times were speeded up by the installation at a number of telegraph offices of the manual switching system which made it possible for the teleprinter offices to communicate directly with one another, and it was planned to have about 70

of the largest offices joined to the system by 1947. To expedite still further the postal services the post office was considering use of night-flying aircraft for conveyance of inland mails.

In addition to other extra-departmental business the post office assumed in August the function of paying out family allowances under the Family Allowances act (1946).

In June 1946 post office personnel numbered 338,000 with a wage bill of £77,900,000 per annum. There were still some 55,000 experienced post office staff with the forces, or on loan to other government departments.

The victory celebrations in June were marked by a special commemorative issue of postage stamps known as the Peace issue. The denominations were 2½d. and 3d., of which 300,000,000 and 42,000,000 respectively were issued. (See also PHILATELY; PHOTOGRAPHY.) (C. Ns.)

Postwar Planning: see RECONSTRUCTION PLANNING.

Potash. The potash industry of the United States made a new record high in 1945, for the 12th successive year. Output increased to 874,245 short tons of contained K₂O in 1945 from 834,568 tons in 1944, while the corresponding sales rose to 870,370 tons from 817,892 tons. During 1939-42 inclusive sales were in excess of production, and stocks declined almost to the vanishing point, but improved slightly in 1943-45.

The only European producer from which late data was received was Spain, where the gross output increased from 744.981 short tons in 1944 to 792,231 tons in 1945 but K₂O content decreased from 127,870 tons to 126,765 tons. Both French and German plants were handicapped by lack of fuel, power and transportation. The U.S.S.R. had added to its own reserves the former Polish fields and much of the German producing area. (See also FERTILIZERS.) (G. A. Ro.)



CARNALLITE, valuable source of potassium, was brought by barge during 1946 from evaporation pits at the north end to the south end of the Dead sea. Here it was unloaded for drying and final processing

Potatoes. The 1946 potato crop of the United States was estimated by the U.S. Department of agriculture at the new record of 474,609,000 bu., compared with the crop of 1945 of 418,020,000 bu. and the ten-year average of 372,756,000 bu. (1935-46). This big crop was due primarily to the high record yield of 184.1 bu. per ac. which compared with

155 bu. harvested in 1945, a record to that time, and 125.8 bu. the ten-year average for 1935-44. The acreage harvested in 1946 was 3.5% below that of 1945 and also less than the average; 2,578,000 ac. in 1946, 2,696,000 ac. in 1945 and 2,968,000 ac. average. While the U.S. as a whole made new records in production the 30 late potato states failed to reach their record of 1943, although their average yield was 195.1 bu. per ac. higher than the national average. The 18 leading potato states produced more than 325,000,000 bu. of the total crop of 474,000,000 bu. The weather was favourable for harvest without frost damage except in Idaho and Colorado where some freezing was reported.

Potato consumption was estimated to have increased to 130 lb. per capita in 1946 which was about the prewar level. Potatoes were abundant at moderate prices. Prices to growers ranged from \$1.47 per bu. in July to \$1.23 in November and were not affected by the OPA decontrol. Price support buying by the government continued through the year and several million bushels were accumulated by the government and dumped for feed and alcohol-making in early fall. Exports were small, amounting to only about 9,500,000 bu. The goal for 1947 was set at a slight reduction from the crop of 1946. Legislation required that prices of potatoes be supported at not less than 90% of parity through 1947. Individual farm acreages were established for 1947 plantings beyond which price support benefits would not be given. Loans by the government were made between Sept. 15 and Dec. 15, 1946, to support late potato prices at 75% of the support price announced for the respective areas. The government had large stocks of potatoes at the end of the year which were to be destroyed as they could not be sold.

Sweet Potatoes.—The 1946 sweet potato crop was estimated at 66,807,000 bu., slightly more than the 66,665,000 bu. crop of 1945 and only about 300,000 bu. above the ten-year average of 66,422,000 bu. The acreage was almost the same as in 1945 at 679,300 ac. and 10% below the average for 1935-44. The yield in 1946 at 98.3 bu. per acre compared with 96.3 bu. in 1945 and an average of 85.4 bu. Of the leading states, Louisiana and Georgia had smaller crops while North Carolina and New Jersey made notable increases. A government price support program was in effect for the 1946 crop which provided for buying from Sept. 1 to Nov. 15 and for loans from Nov. 16 to Jan. 15, 1947. The market was strong and prices were at \$2.80 per bushel in August and continued above \$2.00 through the marketing season. These prices were well above parity, which was \$1.86 per bushel in November. Consumption of sweet potatoes was estimated at 19.2 lb. per capita in 1946, compared with 20 lb. in 1945 and the prewar consumption of 23.5 lb. Sweet potatoes are not processed to any ex-

Table 1.—U.S. Potato Production by States, 1946 and 1945

State	1946 (bu.)	1945 (bu.)	State	1946 (bu.)	1945 (bu.)
Late Crop			Late Crop		
Maine . . .	77,745,000	52,785,000	Vermont . . .	1,392,000	1,375,000
New York . . .	42,570,000	28,970,000	New Hampshire . . .	1,159,000	986,000
Idaho . . .	41,160,000	44,220,000	Nevada . . .	672,000	780,000
Pennsylvania . . .	20,066,000	16,724,000	New Mexico . . .	340,000	450,000
Colorado . . .	19,780,000	19,110,000	Intermediate Crop		
Michigan . . .	18,327,000	18,700,000	New Jersey . . .	14,076,000	12,567,000
North Dakota . . .	17,760,000	23,360,000	Virginia . . .	10,676,000	8,568,000
Minnesota . . .	16,610,000	19,360,000	Kentucky . . .	3,996,000	3,999,000
California . . .	13,800,000	13,920,000	Missouri . . .	3,456,000	2,992,000
Oregon . . .	13,000,000	11,340,000	Maryland . . .	2,244,000	2,108,000
Wisconsin . . .	11,865,000	12,160,000	Kansas . . .	1,632,000	1,476,000
Nebraska . . .	11,725,000	12,075,000	Delaware . . .	354,000	333,000
Washington . . .	10,120,000	11,880,000	Early Crop		
Ohio . . .	7,560,000	7,130,000	California . . .	33,210,000	23,360,000
Connecticut . . .	4,209,000	3,344,000	North Carolina . . .	12,080,000	9,240,000
Massachusetts . . .	3,498,000	2,788,000	Florida . . .	6,249,000	5,285,000
Indiana . . .	3,120,000	3,915,000	Texas . . .	5,883,000	4,648,000
Iowa . . .	2,880,000	3,960,000	Alabama . . .	4,646,000	5,200,000
South Dakota . . .	2,842,000	2,912,000	South Carolina . . .	3,696,000	2,480,000
Wyoming . . .	2,498,000	2,625,000	Tennessee . . .	3,404,000	3,440,000
Utah . . .	2,775,000	3,366,000	Arkansas . . .	3,293,000	2,730,000
West Virginia . . .	2,770,000	2,880,000	Louisiana . . .	2,280,000	2,655,000
Montana . . .	2,080,000	2,016,000	Mississippi . . .	2,160,000	1,904,000
Arizona . . .	1,836,000	1,658,000	Georgia . . .	1,909,000	2,002,000
Illinois . . .	1,764,000	2,604,000	Oklahoma . . .	1,500,000	1,155,000
Rhode Island . . .	1,742,000	1,296,000			

Table II.—U.S. Sweet Potato Production, by Leading States, 1946 and 1945

State	1946 (bu.)	1945 (bu.)	State	1946 (bu.)	1945 (bu.)
Louisiana . . .	10,800,000	10,824,000	Tennessee . . .	3,150,000	2,716,000
North Carolina . . .	7,680,000	7,260,000	New Jersey . . .	2,720,000	1,725,000
Georgia . . .	7,020,000	8,010,000	Maryland . . .	1,698,000	980,000
Texas . . .	6,570,000	4,524,000	Arkansas . . .	1,558,000	1,900,000
South Carolina . . .	6,090,000	5,890,000	California . . .	1,224,000	1,080,000
Alabama . . .	5,525,000	6,375,000	Florida . . .	1,088,000	1,152,000
Mississippi . . .	5,152,000	6,936,000	Kentucky . . .	1,118,000	1,218,000
Virginia . . .	3,250,000	3,441,000	Missouri . . .	770,000	595,000

tent except for some canning. The crop of the last few years was not regarded as adequate, and the U.S. department of agriculture asked an increase to 799,000 ac. for 1947 which would be above the prewar average. Considerable quantities of sweet potatoes were used for relief work in 1946. (See also VEGETABLES.)

(J. C. Ms.)

Poultry. The poultry industry continued through 1946 at near the high-record level of 1945. The number of chickens on farms on Jan. 1, 1946, was estimated by the U.S. department of agriculture at 525,536,000 compared with 510,939,000 in 1945, the record of 576,441,000 in 1944 and the ten-year average of 433,638,000 in 1934-43. The total chicken meat output in 1946 was estimated at 3,150,000,000 lb. or 15% below 1945. Broiler production was reduced 22% from 1945. Civilian consumption of chicken was about 23 lb. per capita compared with 25.3 lb. in 1945, 28 lb. in 1943 and a prewar consumption of about 18 lb.

Commercial broiler production, while smaller in 1946 than in 1945, had grown rapidly in the previous few years. In the early 1930s the broiler output of the U.S. was less than 30,000,000 birds, while in 1945 it made the high record of 312,000,000 birds and amounted to 22.4% of the total dressed poultry production. The total chicken meat production in the form of broilers was estimated at 3,150,000,000 lb. in 1946, of which 650,000,000 lb. were commercial broilers and 2,500,000,000 were farm-raised chickens.

Egg production declined slightly from the high level of 1945 and the record of 1944. Total egg production in 1946 was estimated at 4,900,000,000 doz., compared with 5,050,000,000 doz. in 1945 and 3,335,000,000 doz. in prewar years. The average output per hen was 114 in 1946 compared with 118 in 1945, although weather conditions were favourable through 1946. Egg prices increased steadily but were lower during the first half of the year than in 1945. When ceilings were removed, prices advanced until late fall.

Prices of chickens were steady through 1945 and up to May 1946 at around 24 cents per pound to producers. The price rose to 29.4 cents in July and then to 34.4 cents in October and declined to 27 cents in December. In the retail market poultry declined when red meats were freed from price ceilings on Oct. 15. Stocks of poultry, not including turkeys, were higher than in 1945 on the average, fowl being more plentiful than young chickens. The demand for poultry meat was so strong in September that about 19,000,000 lb. of frozen chicken were withdrawn from storage, which had not occurred after 1925. The number of chickens hatched during the first five months of 1946 was about the same as in 1945 but declined in May and June as feeds advanced in price. Prices of chickens were more than 90% of parity throughout the war period.

The steady betterment of poultry under the National Poultry Improvement plan continued to increase. More than 24,000,000 birds were included during the 1945-46 season, an increase of more than 10,000 flocks from 1944. These birds produced eggs for hatcheries with a capacity of more than 250,000,000 eggs.

Turkeys.—The number of turkeys on farms increased to a new record on Jan. 1, 1946, of 8,734,000 birds, compared with 7,323,000 a year earlier and only 5,731,000 ten years earlier in 1936. Production in 1946 was estimated at about 600,000,000

lb. compared with 677,000,000 lb. in 1945 and 350,000,000 lb. in 1935-39. While the production in 1946 was below that of 1945, the large carry-over from 1945 and the reduction in military demands made more turkey meat available to civilians. Per capita civilian consumption was about 4.5 lb., compared with 4.3 lb. in 1945 and 2.6 lb. in 1935-39. Prices of turkeys to producers held steady from 1942 to July 1946 at an average of around 34 cents per lb. The price advanced in late summer to 40 cents in October and to an average of 35 cents in December.

The National Turkey Improvement plan begun in 1943 made a rapid increase. More than 2,000,000 breeding birds were listed in 1945-46, compared with only 756,000 a year earlier. The death loss of young turkeys, formerly a serious handicap to the business, was reduced from about 28% in 1941 to 22.5% in 1945. The increasing use of commercial hatching and more careful disease control also reduced losses and made the growing of turkeys more profitable. (See also EGGS.)

(J. C. Ms.)

Precious Stones: see GEMS AND PRECIOUS STONES.

Presbyterian Church. The Reformed Churches holding the Presbyterian system, within the United States of America were 12 in number in 1946 and included 18,351 ministers, 18,569 churches and 4,126,878 communicant members, with approximately 8,000,000 adherents.

The year was marked by a concerted effort for a closer unity in the Presbyterian and Reformed Churches. The Evangelical and Reformed Church after several years of negotiation with the Congregational Christian Church adopted a basis of union which was to be submitted to its synods for final approval or disapproval. If the vote were overwhelmingly in favour of a union, a meeting was to be called in June 1947 for its consummation. The United Presbyterian Church and the Reformed Church in America drafted a plan of union which was to be printed and mailed to judicatories and officers of both churches for their joint study and suggestions so that a revised plan might be presented to the supreme judicatory of each church in 1947. Negotiations between the Presbyterian Church in the United States (Southern) and the Presbyterian Church in the United States of America (Northern) continued and a revised plan of reunion was to be referred to the general assemblies of both churches. The movement for the union of the Protestant Episcopal Church and the Presbyterian Church in the United States of America proceeded to the point where proposed articles for a basis of union, prepared by the Commission on Approaches to Unity of the Episcopal Church and the Department of Church Co-operation and Union of the Presbyterian Church were submitted to the Episcopal general convention in Sept. 1946. The commission's recommendation was rejected by the general convention which then voted to continue negotiations toward a closer fellowship.

The distressed peoples and devastated areas of the world presented a challenge to the churches of the U.S. Many missionaries returned to their fields of labour. Special efforts to provide funds for relief and restoration abroad through yearly collections were instituted by Presbyterian and Reformed churches. These funds were usually turned over to the Committee on Overseas Relief and Reconstruction. The Presbyterian Church in the United States of America launched a \$27,000,000 restoration fund for relief and restoration in Europe and the far east. By Dec. 2, 1946, the returns had reached \$18,191,271.

Europe.—A renewed emphasis was placed upon evangelization as a result of the experiences of World War II. The general assembly of French Protestantism, meeting at Nîmes from Oct. 23 to 26, 1945, and expressing its gratitude for the return of the Lutheran and Reformed Churches of Alsace-Lorraine

along with the other churches of the Protestant federation of France, summarized its conclusions in four affirmations: "God is faithful," "Jesus is merciful," "The Church is the Body of Christ" and "Jesus is Lord of the nations." The national synod of the Reformed Church of France, held at Lyons in May 1946, emphasized the nature and responsibilities of the pastoral ministry in the call to evangelism. The status of the Protestant church in Italy remained somewhat uncertain because of undefined relations between the church and state. Religious broadcasts, however, were permitted from stations in Rome, Turin, Milan, Florence, Venice and Cagliari. In various communities of Italy, evangelistic centres were established to make known the attitude of evangelical Christians on vital problems of the hour by conferences and publications such as the journal called *Protestantesimo*.

In Hungary the work of evangelization was confronted with a lack of ministers to carry on the parish work. It was estimated that 30% of the clergy left their parishes. Lack of security, of food and of financial resources, loss of property and inflation handicapped the work of the Protestant Church. But willing workers and large contributions from some of the congregations overcame some of the handicaps. The synodical council of the Hungarian Reformed Church stressed the need for an evidence of faith by an exemplary life and for greater unity among the churches. In line with this movement toward unity the Evangelical Church of Austria accepted the invitation to join the World Council of Churches. (See also CHURCH MEMBERSHIP.) (W. B. Pu.)

Presidents, Sovereigns and Rulers.

The following list includes the names of those holding chief positions in their countries as of Jan. 1, 1947.

Country	Name and Office	Accession
Afghanistan	Mohammad Zahir, Shah	1933
Albania	Dr. Omer Nishani, President of the Presidium of the People's Assembly	1946
Arabia, Saudi	Col. Gen. Enver Hoxha, Prime Minister	1924
Argentina	Abdul-Aziz ibn Abdurrahman al-Faisal Al-Sa'ud, King	1926
Australia	Gen. Juan Domingo Perón, President	1946
Austria	Duke of Gloucester, Governor General	1945
	Joseph B. Chifley, Prime Minister	1945
	Karl Renner, President	1945
	Leopold Figl, Chancellor	1945
Belgium	Leopold III, King (in exile)	1934
	Prince Charles, Regent	1944
	Camille Huysmans, Prime Minister	1946
Bolivia	Dr. Tomás Monje Gutiérrez, President	1946
Brazil	Gen. Eurico Gaspar Dutra, President	1946
Bulgaria	Vasil Kolarov, President of the Grand National Assembly (Provisional)	1946
	George Dimitrov, Premier	1946
Burma	Sir Hubert Elvin Rance, Governor	1946
Canada	Field Marshal Lord Alexander, Governor General	1946
	W. L. Mackenzie King, Prime Minister	1935
Ceylon	Sir Henry Monck-Mason Moore, Governor	1944
Chile	Gabriel González Videla, President	1946
China	Generalissimo Chiang Kai-shek, President of the National Government	1943
	T. V. Soong, President of the Executive Yuan	1945
Colombia	Mariano Ospina Pérez, President	1946
Costa Rica	Teodoro Picado Michalski, President	1944
Cuba	Dr. Ramón Grau San Martín, President	1944
Czechoslovakia	Dr. Eduard Beneš, President	1940
	Klement Gottwald, Premier	1946
Denmark	Christian X, King	1912
	Knud Kristensen, Prime Minister	1945
Dominican Rep.	Gen. Rafael Leónidas Trujillo y Molina, President	1942
Ecuador	José María Velasco Ibarra, President	1944
Egypt	Farouk I, King	1936
	Mahmoud Fahmy el-Nokrashy Pasha, Premier	1945
Eire	Seán T. O'Kelly, President	1945
	Éamon de Valera, Premier	1932
Ethiopia	Haile Selassie I, Emperor	1930
Finland	Juho K. Paasikivi, President	1946
	Mauno Pekkala, Prime Minister	1946
France	Léon Blum, Premier of the Provisional Government	1946
Germany	Allied Control Commission:	
	Lt. Gen. Joseph T. McNarney (U.S.);	1945
	Marshal Sir Sholto Douglas (Gr. Brit.)	1946
	Marshal Vasily D. Sokolovsky (U.S.S.R.)	1946
	Lt. Gen. Pierre Koenig (Fr.)	1945
Great Britain	George VI, King	1936
	Clement R. Attlee, Prime Minister	1945
Greece	George II, King	1922
	Constantin Tsaldaris, Premier	1935
Guatemala	Juan José Arévalo y Bermejo, President	1945
Haiti	Dumarsais Estimé, President	1946
Honduras	Gen. Tiburcio Carías Andino, President	1933
Hungary	Zoltán Tildy, President	1946
	Ferenc Nagy, Prime Minister	1946

Country	Name and Office	Accession
Iceland	Sveinn Björnsson, President	1944
	Olafur Thors, Prime Minister	1944
India	Field Marshal the Right Honourable Viscount Wavell, Viceroy	1943
Iran	Mohammed Riza Pahlavi, Shahinshah	1941
	Ahmad Gavam-es-Salteneh, Premier	1946
Iraq	Faisal II, King	1939
	Abdul-Ilah, Prince Regent	1941
Italy	Enrico de Nicola, Provisional President	1946
	Alcide de Gasperi, Prime Minister	1947
Japan	Hirohito, Emperor	1926
	Shigeru Yoshida, Premier	1946
	Gen. Douglas MacArthur, Supreme Commander for the Allied Powers	1945
Lebanon	Sheikh Bishara el Khoury, President	1943
	Riyad bey el-Solh, Premier	1946
Liberia	William V. S. Tubman, President	1944
Liechtenstein	Franz Joseph II, Sovereign Prince	1938
	Alexander Frick, Chief of Government	1945
Luxembourg	Charlotte, Grand Duchess	1919
	Pierre Dupong, Premier	1937
Mexico	Miguel Alemán, President	1946
Monaco	Louis II, Prince	1922
Morocco	Sidi Mohammed ben Youssef, Sultan	1927
	Erik Labonne, French Resident General	1946
Nepal	Tribhuana Bir Bikram, King	1911
	Sir Padma Shumshere Jung Bahadur Rana, Prime Minister	1946
Netherlands	Wilhelmina, Queen	1898
	Louis J. M. Beel, Prime Minister	1946
Newfoundland	Sir Gordon MacDonald, Governor	1946
New Zealand	Gen. Sir Bernard Freyberg, Governor General	1946
	Peter Fraser, Prime Minister	1940
Nicaragua	Gen. Anastasio Somoza, President	1937
Norway	Haakon VII, King	1905
	Einar Gerhardsen, Prime Minister	1945
Oman (Muscat)	Sir Sayyid Sa'id bin Taimur, Sultan	1932
Palestine	Lt. Gen. Sir Alan Gordon Cunningham, High Commissioner	1945
Panamá	Enrique A. Jiménez, Provisional President	1945
Paraguay	Gen. Higinio Morínigo, President	1940
Peru	José Luis Bustamante y Rivero, President	1945
Philippines	Manuel A. Roxas, President	1946
Poland	Boleslaw Bierut, President of the National Council of the Homeland of the Polish Provisional Government	1945
	Edward Osobka-Morawski, Prime Minister	1945
Portugal	Gen. Antonio Oscar de Fragoa Carmona, President	1928
	Dr. Antonio de Oliveira Salazar, Prime Minister	1932
Rumania	Michael I, King	1940
	Peter Groza, Premier	1945
Salvador, El	Gen. Salvador Castañeda Castro, President	1945
Siam	Phumiphon Aduldet, King	1946
	Thawan Thamrong Nawasawat, Premier	1946
South Africa	Maj. Gideon Brand van Zyl, Governor General	1946
	Field Marshal Jan C. Smuts, Premier	1939
Spain	Gen. Francisco Franco, Chief of State, Prime Minister (President of the Council of Ministers)	1936
Sudan	Lt. Gen. Sir Hubert Huddleston, Governor General	1940
Sweden	Gustavus V, King	1907
	Tage Frihof Erlander, Prime Minister	1946
Switzerland	Philipp Etter, President	1946
Syria	Shukri el-Quwatli, President	1943
	Jamil Mardam Bey, Premier	1946
Trans-Jordan	Abdullah ibn Husayn, King	1946
Tunisia	Sidi Mohammed Lamine Pasha, Bey	1943
	Gen. Charles Mast, French Resident General	1943
Turkey	Ismet Inönü, President	1938
	Recep Peker, Premier	1946
Union of Soviet Socialist Republics	Nikolai Mikhailovich Shvernik, President of the Presidium of the Supreme Soviet	1946
	Generalissimo Joseph V. Stalin, Chairman of the Council of People's Commissars	1946
United States	Harry S. Truman, President	1945
Uruguay	Juan José Amézaga, President	1943
Vatican City	Pius XII, Pope	1939
Venezuela	Rómulo Betancourt, Provisional President	1945
Yemen	Imam Yahya ben Muhammed ben Hamid ed Din, King	1904
Yugoslavia	Ivan Ribar, President of the Praesidium	1945
	Josip Broz (Tito), Premier	1944
Zanzibar	(Sir) Shaikh Khalifa ben Harub, Sultan	1911
	Sir Vincent Glendary, British Resident	1946

¹Greece was a republic from 1924 to 1935.

Price Administration, Office of.

The Office of Price Administration, created by the Emergency Price Control act of 1942 to stabilize prices of goods and services and the rents of dwellings, became part of the Office of Temporary Controls in Dec. 1946 under the terms of an executive order establishing the latter agency in a consolidation of the remnants of the wartime programs, which by then had been liquidated in substantial part.

The course of prices during the first half of the year reflected a number of policy developments, which included liberalization of the use of wage increases as basis for price adjustments, the adjustment of prices to remove any threat that reconversion might be held back and the decontrol of commodities where supply and demand were found to be in reasonable balance or where resulting price increases would be insignificant for living or business costs. Although the over-all rise of prices was modest, amounting by June to 2.6% in the case of consumers' prices and 5.4% in the case of wholesale prices, it contrasted sharply with previous stability. In turn, however, these in-

creases were outstripped by those that took place during the latter half of the year.

Between June and Dec. 1946, consumers' prices rose 15%, with food prices up most sharply—by 30%. At wholesale, prices rose on the average 24%, with foods up 40%. At the close of the year the consumers' price index stood 55.5% above the level of Aug. 1939, as against 31.7% at the end of 1945.

These sharp increases resulted from the progressive abandonment of price control, beginning with the expiration of the stabilization statutes on June 30. Following a presidential veto, June 29, of the original extension act, there was a lapse of price and rent control lasting nearly a month, until the Price Control Extension act of 1946 was approved. The new act seriously weakened the authority of the agency to restrain price increases. In addition, it required immediate decontrol of certain commodities and set up a mechanism for expediting decontrol generally. A Price Decontrol board was established with final authority to decontrol and recontrol prices, and a method was provided whereby industry advisory committees could petition for decontrol. Decision as to continuance of control over prices of agricultural commodities was transferred to the secretary of agriculture. New limitations were placed upon the use of government subsidies to producers, which from May 1943 had been a key element in the program to hold prices stable.

The new act became effective July 25, with June 30 ceilings reinstated on most products and services that remained under control. Price increases were granted very promptly in order to conform with the provisions of the new act. Particularly important in requiring these increases was the provision that ceiling prices for distributors must reflect average current costs of acquisition plus the average percentage markup in effect March 31, 1946. Previous to enactment of the new legislation,

OPA INVESTIGATOR (features censored) clutches a Los Angeles automobile salesman by the throat and appears about to strike him with a blackjack. Salesman allegedly attempted to flee investigation of violations of used car price ceilings, in Sept. 1946



OPA had required distributors to absorb all or part of the increase granted to producers.

OPA at once proceeded to expedite the decontrol process as intended by the congress, but still endeavored to avoid a cumulative unstabilizing effect. Prior to June 30 a very large number of products had been decontrolled, so that as of that date roughly 70% of the economy remained under price control, as compared with 80% at the wartime peak. In addition, a total of 840 industry-wide price increases had been allowed following V-J day without permitting the consumers' price index to rise more than 3%. Continuation of this record of holding prices in leash proved impossible under the new legislation.

During the second quarter of the year, the prospect that price control would not be continued made itself felt in the withholding of goods from market. This was particularly true in the case of livestock and meats. Upon the ending of price control, these prices rose sharply, meats as a whole increasing nearly 70% with livestock up more than 20%. At these prices, livestock and meat began once more to flow. The price rise slackened off immediately prior to the signing of the new act, but upon approval of that legislation, with its mandatory decontrol of livestock and meat prices, the rise was resumed and by the end of August, when control was reimposed, wholesale meat prices had risen on the average by nearly 90%.

Reported slaughterings, which had declined far more than seasonally during the second quarter, turned up sharply in July and August. They fell short, however, of offsetting the earlier withholding. Meantime, stocks, which had been shrinking from the end of meat rationing in Nov. 1945, reached the lowest point in several years. Upon the restoration of price controls, reported slaughterings approached the vanishing point and retail shortages rapidly spread. This renewed withholding contributed substantially to breaking price control of meats. It persisted despite the fact that increases in meat prices, averaging 12% at wholesale and 14% at retail over June 30 levels, had been allowed, when controls were restored, at the direction of the secretary of agriculture. On Oct. 14, in an effort to salvage the rest of the stabilization program, which was jeopardized by the campaign against meat controls, controls over meat prices were, by presidential directive, permanently lifted.

This action resulted in a rise of prices even sharper than before, wholesale meat prices increasing 93% the first week. These increases were moderated in the following weeks and at the close of the year meat at wholesale was 40% higher than when last controlled and 65% higher than at the end of June. Following decontrol, reported slaughterings spurted up from their abnormal low, but were restrained by the record feed supply from equalling fourth-quarter records of prior years.

Removal of control over meat prices hastened decontrol of other products, and by the end of October virtually all food and a long list of other products had been returned to a free economy. Selective decontrol had led, however, to general withholding of goods from the market as sellers waited for decontrol of their own products. This became so serious as to threaten paralysis to key segments of the economy. At presidential order, therefore, all control over prices was removed, as of Nov. 10, except that necessary to implement the allocation and rationing programs for rice and sugar, and except for control over dwelling rents. (See also CANADA, DOMINION OF; CIVILIAN PRODUCTION ADMINISTRATION; PRICES.)

(M. MH.)

Prices. Prices in the United States during the war were under a substantial inflationary pressure because the total pay rolls of the country were increased tremendously at the

same time that the supply of civilian goods was declining. The workers were being paid on the basis of total production and could buy only a fraction of that production. The difference was the so-called inflationary gap. In a free economic system prices probably would have risen until the gap was closed and all of the workers' income was used to purchase the goods available to them.

The social consequences of such inflation were certainly not desirable and the government's economic stabilization program was designed to combat this potential inflation. One of the chief methods was the use of price ceilings with accompanying allocation and rationing of scarce goods.

Victory in Europe and Asia did not bring an end to the inflationary pressures on prices. It had appeared earlier that at the end of the war all productive facilities would be turned to the production of civilian goods and that with a matching of pay rolls and available consumers goods the inflationary gap would be closed and the upward pressure would drop. This was not the case. With final victory there were many large cancellations in war production. It was necessary to maintain some in order to provide food and other necessities for the troops in the demobilization period and for those required for occupation of enemy territory. There was also need for large shipments of supplies to the devastated countries. These were mostly in the form of food, but considerable quantities of machinery were sent in an effort to restore the countries to a basis of self-sufficiency as soon as possible. The magnitude of these requirements was, of course, far below the requirements of total war. Another factor retarding the production of civilian goods was the necessity of reconverting the war plants into efficient machines for the production of consumers' goods. Though individual companies converted more rapidly than expected, the resulting over-all production machine was not in balance. Production in many factories was curtailed because of the shortage of component parts and the unfavourable labour situation. This set a lower level on the supply side of the equation than had been expected. On the demand side there was the normal demand plus the deferred demand for the durable goods not produced during the war. This deferred demand was not merely desire, but desire backed up by willingness and ability to pay from the accumulated savings of wartime.

In view of these circumstances, it was decided not to drop wartime price control upon the surrender of Germany and Japan. Prices of a few of the uncontrolled commodities such as cotton and rye advanced markedly after victory and indicated the temper of the underlying situation. Farm and residential urban real estate also rose markedly in price. Prices received by farmers rose gradually during the war months of the year and then weakened slightly, but the gain in November and December left the wholesale price index of farm products 4% above the level prevailing in Dec. 1944. Foods rose 3% and all other commodities 1% during the year 1945. This combination of rises resulted in a net rise of 2% in the combined wholesale index, leaving it at a level of 107.1 in Dec. 1945, as compared to 75.0 in Aug. 1939, the month before the start of the war in Europe, and 98.7 in April 1942, the month before the promulgation of the General Maximum Price Regulation.

The various subsidy programs in effect during the war were, in general, continued throughout the year. Some subsidies were removed, such as that on butter, and the ceiling price was raised by the amount of the cancelled subsidy. Gradually during the latter part of 1945 and the early part of 1946 ceilings were removed from various products if they were not essential to the cost of living and if supply was becoming adequate

to answer demand at but a small increase in price. Some of the more important commodities decontrolled were fish, white potatoes and automobile parts.

In addition to the ceiling and subsidy removals there were also substantial upward revisions of ceilings in the postwar months of 1945 and in the first half of 1946. Under these revisions the combined wholesale price index increased from 105.2 in Sept. 1945 to 112.9 in June 1946, about 7%. The prices of goods other than farm and food products had held fairly constant during the war with the index showing a rise of about five points, from 99.8 in Sept. 1945 to 105.6 in June 1946; this rise in a period of ten months was greater than the rise during the whole time the United States was at war. It was almost entirely accounted for by ceiling revisions made in an effort to stimulate production of strategic materials in short supply and to compensate for wage increases given in settlement of the large wave of strikes called in this ten-month period (discussed below). Increases of \$5 a ton were granted for steel and 75 cents a ton for pig iron. These raised the prices of finished products in this industry 11% whereas the increase to this point had amounted to about 4% from Aug. 1939 just before war started in Europe. Similar increases were granted for copper, lead, brass and bronze products in May. The next month increases were granted for products made from these materials.

Prices of building materials also advanced about 10% in these first postwar months. This was, in part, an effect of increases in metal prices; and lumber prices rose markedly as shown by the index of these products which rose from 155.0 to 176—14%.

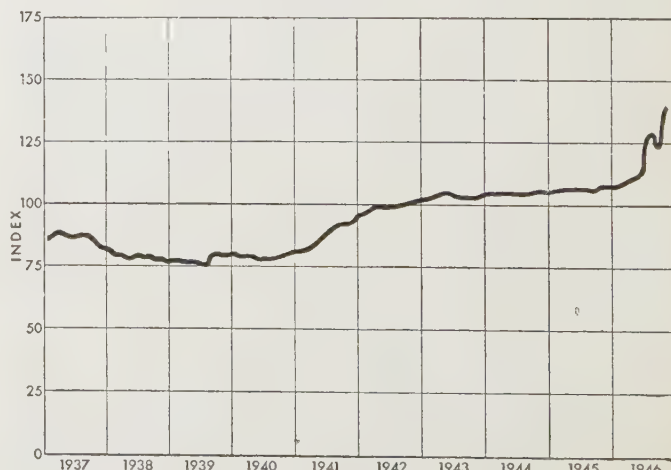
This placed the price of lumber in June 1946 about 90% above the Aug. 1939 level.

Many of the increases in these industrial products were allowed in the hope that they would bring out materials needed to start the large new-housing program.

Prices of cotton goods and clothing increased 16% from the end of the war to June 1946. This increase appeared at all levels in the cotton goods industry and was required by terms of the Stabilization Extension act of 1944 which specified that all cotton ceilings were to reflect parity to the grower. Prices of household furnishings according to the official indexes rose about 5%.

Prices of household furnishings purchased by the consumer, however, rose much more rapidly because of the disappearance of low-cost goods and the substitution of new and better grades of products.

Farm and food products prices were far less stable in this



WHOLESALE PRICES in the United States, 1937-46 (1926=100). (Source: U.S. department of labour, bureau of labour statistics)



JUSTUS of the *Minneapolis Star* saw inflation ahead in 1946 in his "Pussy's Only Choice"

immediate postwar period than the prices of industrial products. These took a sharp dip at about the end of the war, partly because of a bountiful harvest. After that they rose about 10% through June 1946. Again, most of this increase represented ceiling adjustments and subsidy cessations. In meats a large part of the ceiling increase was permitted in order to cover the rise in labour costs of meat packers which resulted from the settlement of the strike in 1946.

An important problem that had to be solved by the Office of Price Administration was the establishment of ceilings for products the production of which had stopped during the war. There was a considerable group of manufacturers and business men who contended that the abandonment of price controls on these products and on products which had been available in short supply would result in greater production, now stifled by distorted price relationships, and that prices would decline as adequate supplies became available. But this point of view was not accepted. As these products came back onto the market the prices were subject to control and, in general, set on the basis of the 1941 prices plus amounts to cover increases in basic material costs and wage rates that had occurred since that time. Profit was to be allowed equal to that percentage of profit on sales which had been earned in the 1936-39 base period.

With the end of the war there was a cessation of overtime and night shifts and a reduction in working hours for labour. Though not reducing the straight-time wage rates, it did reduce the amount of take-home pay. Downgrading of labour classifications was also important. On top of this there was the series of price rises discussed above, which increased the cost of living. This combination of factors brought about a period of labour demands for higher wages centered in the spring of 1946. These demands were supported in many cases by serious strikes. During the period a general pattern of settlement emerged. Prior to this the policy had been to hold

the price line and allow only such wage increases as could be absorbed by the manufacturer. This did not meet labour's demands and a new policy began to appear in Oct. 1945. Conformity to a set pattern of wage increases was encouraged by requiring prior approval of the new wage rate by the National Wage Stabilization board if the wage increase was to be used as a basis of price relief. The criteria for wage increases were broadened to allow for correction of gross inequities both within an industry and between industries. Under the new policy wage increases of approximately 17% were granted in certain prominent cases, such as steel and automobile production. The increases ran between 5% and 15% in the furniture, clothing and building-material industries.

The pressure for price increases during the ten months from the end of the war (about Sept. 1, 1945) and the end of June 1946 thus came from three sources: increases granted in prices of basic commodities, gradual elimination of subsidies and the further time required to achieve balance in the demand-supply relationship. During this period the inflationary gap of the war years had been reduced to a considerable extent, but consumers' disposable income was running 70% above 1941 whereas production of consumers' goods was only about 40% higher. In addition to this inflationary factor there was less willingness on the part of individuals to save from current income and to maintain the large savings balances built up during the war period. It was difficult to continue to resist the purchase of the small supply of long unseen goods when it was generally feared that there would be more price advances. Consumers were urged to exercise caution on the ground that soon the supply of goods reaching them would increase tremendously (1) as the inventories of merchants reached a normal level in relation to sales and (2) as reconversion problems including labour and parts shortages were resolved.

The existing price control act was scheduled to expire on June 30, 1946. For several months congress had been considering legislation to extend controls, but marked differences in philosophy were emerging. One school of thought felt that controls with the attendant unwise pricing, unrealistic regulation and long delays in obtaining relief were hindering reconversion and fostering the black markets and that they should be substantially relaxed. Another felt that the tight controls of wartime should be continued. A compromise bill was passed and sent to President Harry S. Truman for his signature late in June. In his opinion the bill was not sufficiently strong, and, in vetoing it just before the expiration of the existing act, he asked congress to extend the existing bill a few days until new legislation could be passed. Congress did not oblige, and price control in the United States expired June 30, 1946. It was not until July 25 that a new bill became law extending price control until June 30, 1947.

During the four-week period without price control, prices of foods and many industrial materials advanced, but certain stabilizing influences were felt at once. One factor was the unwillingness or inability of consumers to pay the inflated prices. A second factor was the restraint of manufacturers and distributors. There were several reasons for this. Most important were the fear of a buyers' strike, the fear of strengthening the demand for a strong price control bill and the desire to maintain good will and competitive positions, especially if price controls were reinstituted with the consequent reductions in price. Also important was a feeling of individual responsibility for helping to maintain the economic system intact. Increased supplies were brought to market by the prospect of better prices. Under ordinary circumstances this would have been a stabilizing influence but, with the prospect of reconrol, some markets were demoralized by efforts to reap the reward

of high prices while possible and by an attempt on the part of consumers to buy while possible regardless of prices.

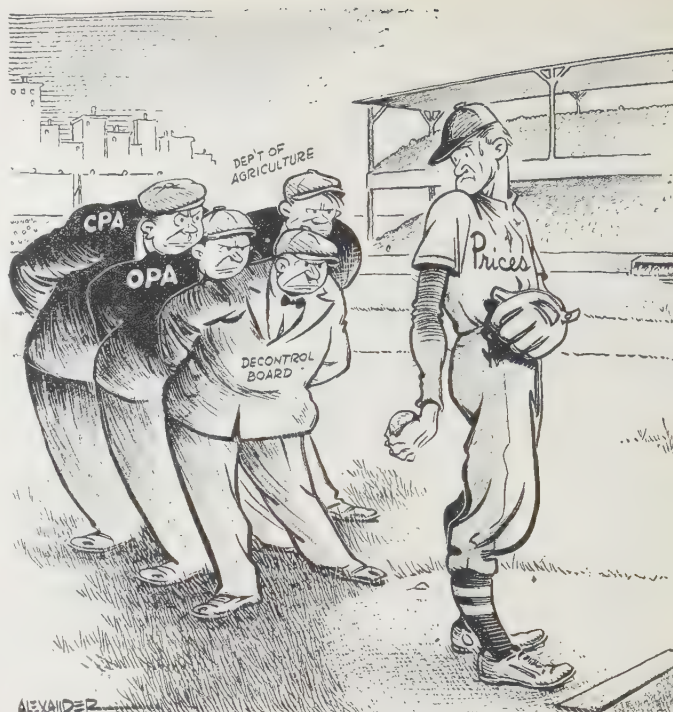
During the first two weeks of this period without price control the bureau of labour statistics index of 28 basic commodities compiled daily from spot quotations showed a 25% rise. After that, however, the index levelled off. The 25% rise was not so disastrous as it first appeared. The cessation of all subsidy payments at once had to be reflected by an increase in price. The end of the black markets, which some observers said were patronized by a substantial per cent of the people, made an effective price reduction even though the official figures showed a rise. The *New York Journal of Commerce* made a survey and concluded that more than 60% of the increase in the 28 basic commodity prices was attributable to the elimination of subsidies and the ending of black markets. The bureau of labour statistics index showing a 25% rise, was also questioned because of its inclusion of a figure for raw silk for which a normal market had not been maintained throughout the war. Because of the construction of this index, single isolated transactions in this commodity had a disproportionate effect.

The passage of the new price control act was reluctantly received by many. It was generally felt that the cessation of price control inevitably would bring a marked adjustment in the economic situation. Now that the adjustment had been partially completed, two more adjustments were necessary: an adjustment back to controls and eventually an adjustment to a free market. The new bill set up machinery for and expressed the intent that all price controls were to end with the expiration of the act on June 30, 1947. The plan called for orderly decontrol throughout the year according to a schedule written into the law. The Price Decontrol board had authority to accelerate this program when the demand-supply relationship warranted. The decision to control prices on grains and animal products, cotton seed and soy beans, tobacco and petroleum and their products was deferred by law until Aug. 20.

Under the new act, a three-man Price Decontrol board was established. This board had review powers in cases of dispute about specific ceilings and was responsible for deciding whether any decontrolled commodities should be placed under ceilings and what action should be taken with respect to subsidy payments. This board was also given control over the decision to control or not to control various farm prices, which by terms of the act became eligible for recontrol on August 20. The criteria for the decision to recontrol these or any other products were three-fold: that the price had risen unreasonably after the expiration of the former act after making allowances for cessation of subsidies, that the supply was short and that regulation was practical and enforceable and that such recontrol was in the public interest. The first major decision of this board was that livestock, meat and oilseeds were to be recontrolled but that grains, dairy products and other farm products were to remain free. By the terms of the act this board had the power to order the recontrol of these latter products at any time such action was deemed necessary.

Another provision of the act required that all subsidies (reduced by the act to a level approximately half that of the preceding year) be eliminated by April 1, 1947, except subsidies on copper, lead and zinc which might extend until the expiration of the act on June 30, 1947. In addition, the act specifically directed the president to recommend to congress legislation along monetary and fiscal lines which would aid in the control of prices before and after the termination of the price control act, in order to minimize the danger of inflation during and after the decontrol period.

Immediately after the act went into effect, the June 30, 1946 ceilings were reimposed in most cases not prohibited by law.



ALEXANDER

IN "PLENTY OF UMPIRES" Alexander of the *Philadelphia Evening Bulletin* indicated some of the government agencies which supervised the control of prices in 1946

Many of those reimposed were revised promptly. Some were in process of revision at the time of the expiration of the former act and other revisions were made necessary by developments during the free period. New rules for ceilings on manufactured products were made in the act. Presumably these were directed to the stimulation of production. One of the most important was the provision requiring ceilings on manufactured products to be equal to the base period price for the product plus a percentage adjustment. This percentage was to be the average cost increase on the product to the industry as a whole. The base period was also changed from the 1936-39 average to 1940, thus providing larger profits and a greater stimulation to produce. Relief was also provided for distributors by allowing increases in their ceiling prices to compensate for increased prices from manufacturers instead of requiring distributors to absorb these increases as they were required to do under the regulations of the previous act. Wage stabilization controls were also maintained through the provision that price increases need not be allowed to compensate for unauthorized wage increases.

In the first three months after passage of the act, prices of manufactured goods were rising to compensate for the increased costs and production was proceeding more smoothly. A few items increased markedly in price, but the majority of prices remained the same or increased but slightly. The bureau of labour statistics index of wholesale prices of manufactured products increased from 107.3 in June to 117.2 in September. Labour, of course, had the opportunity to make new wage demands to compensate for the increased cost of living. Most of the strikes during the third quarter of 1946, serious though they may have been, were local in character. The only ones of broader proportions affected ocean shipping by tying up U.S. ports. These strikes did not directly affect the price of manufactured products.

With respect to food prices the situation was quite different. Prices of a few farm products did not rise greatly. These were products in which bumper crops were expected. The recontrol of meat prices on Aug. 20, 1946, was accompanied by a drying

up of the huge meat supplies brought to market in the "free" period. The shortage of these products diverted demand to other products, the prices of which were not controlled. Dairy products were among this little group; their price at wholesale increased 68% between June and September. Price rises in this class and the severe shortage of meat under the reimposed ceilings, accompanied by strong public demand for action led to a presidential directive on Oct. 14, decontrolling meat prices and accelerating the whole decontrol time table.

On Nov. 9 President Truman removed practically all remaining controls over prices and wages. He pointed out that a large proportion of the economy had already been freed of controls under the decontrol provisions of the new act and that continuance of price control regulations would bring with it disadvantages of lack of balance in the economy more serious than any price increases likely if prices were freed from controls. Since most farm products had already been freed, price changes in these as a result of the presidential order were minor. The major changes occurred among certain basic industrial commodities and manufactured products. Many of the industrial raw materials showed marked increases in prices, but the price quotations were not wholly accurate because of the partial elimination of the practice of upgrading which had been carried on under OPA regulations. These price increases were expected to work their way through to manufactured products, but for the remaining two months of 1946 manufacturers were trying to maintain their former prices. There were some notable exceptions, especially when in one day the General Motors corporation announced a flat \$100 increase in the price of their automobiles and the General Electric company announced an increase in the price of their products averaging 30%.

The work stoppage in the bituminous coal mines from Nov. 20 to Dec. 7 added to the inflationary tendencies by retarding the availability of still-scarce goods. However, the remaining three weeks of the year did not allow sufficient time to show clearly the effects of this strike on prices.

At the end of the year only residential rents, rice, sugar and sugar syrups remained under price ceilings. Sugar and rice controls were expected to be removed in 1947, but the need for continued, but possibly revised, ceilings on rents was generally recognized. Transfer of the rent controls to state administration was under consideration. (See also AGRICULTURE; BUSINESS REVIEW; CONSUMER CREDIT; INCOME AND PRODUCT, U.S.; PRICE ADMINISTRATION, OFFICE OF; STOCKS AND BONDS; WAGES AND HOURS; and articles on individual commodities.)

(F. E. C.; J. H. Ms.)

Primary Education: see EDUCATION.

Prince Edward Island. Smallest province of Canada, Prince Edward Island lies in the Gulf of St. Lawrence 9 mi. from the mainland. The 2,184 sq.mi. crescent-shaped island is 130 mi. long; average width 21 mi. Population was 95,047 (1941 census), 71% rural. The dominion bureau of statistics estimated a population decline to 92,000 in 1946. Largest centre is the provincial capital Charlottetown, 14,821 (1941). Administered by a lieutenant governor, an executive council and a 30-member legislative assembly, the island is represented federally by 4 members of parliament and 4 senators.

History.—Liberal Premier Walter J. Jones remained in office during 1946. Two by-elections were held—the Liberals winning one and the Progressive-Conservatives the other, leaving the assembly standing unchanged.

Transportation with the mainland was a topic of interest. A \$5,000,000 ferry terminal improvement program got under

way, mostly dredging to increase winter service by reducing ice hazards. A third ferry line from the western tip of the island, supplementing the central and eastern ferries, was approved by the department of transport. A new and larger ferryboat capable of carrying 19 railway cars, 60 autos and 950 persons, was launched at Sorel, Que. Air services to the island expanded slightly, with freight planes running for the first time.

A bumper potato crop for a time threatened a glut. Shipment of purebred registered Yorkshire swine to western Canada for breeding purposes was a new and successful enterprise. A record \$2,000,000 lobster harvest was offset by heavy winds in December which smashed expensive lobster catching equipment. Collection of Carrageen (Irish moss) from the beaches netted cash returns higher than any previous year. (C. Cy.)

Education.—For the school session, 1943-44, enrolment in all educational institutions was 19,142; the total revenue of all provincially controlled schools in 1944 was \$612,488. The two chief educational institutions of the island are Prince of Wales college and St. Dunstan's university, both situated at Charlottetown.

Agriculture and Industry.—In 1944 the estimated gross value of agricultural production was \$27,240,000; income of farmers \$13,800,000. In 1943 the value of fur production was \$1,588,037. In 1945 the value of field crops was \$18,755,000 (1944, \$18,248,000). In 1944 the value of the fisheries was \$1,762,000.

Princeton University. An independent institution, devoted to the liberal arts and sciences, situated in Princeton, N.J. In the fall of 1946, Princeton opened a year-long celebration of the 200th anniversary of its founding. Among the formal events was the Charter day convocation in October, in observance of the granting of its royal charter, at which honorary degrees were conferred upon 23 eminent scholars.

The first 8 of a series of 15 bicentennial conferences were held during the closing months of the year. International leaders met together to apply, in the words of the invitation, "our common skills, knowledge and wisdom to the reconsideration of the fundamental obligations of higher learning to society." Individual conferences were devoted to such subjects as "The Future of Nuclear Science," "The Development of International Society," "The Humanistic Tradition in the Century Ahead" and "University Education and Public Service."

Princeton announced plans for the third century of its existence, estimating the cost of fulfilment at \$57,000,000. Its objective was not expansion, but improvement, of existing program and facilities. Included was the further development of the school of public and international affairs which Princeton named during the fall in honour of Woodrow Wilson, 13th president of the university.

In common with other educational institutions, Princeton's capacity was overextended by the postwar demand for higher education. Undergraduate enrolment was half again as large as the prewar normal; graduate school registration doubled. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (H. W. Do.)

Principe: see PORTUGUESE COLONIAL EMPIRE.

Printing. Outstanding development in the graphic arts for 1946 was the announcement of a machine for composing type photographically. The machine was designed to produce composed type matter from a keyboard of many different sizes and kinds of faces in negative film form already

photographed and ready for the final step of transferring by vacuum printing to a lithographic plate. An automatic computing mechanism calculates the space for each line in advance of the photographing operation. The corresponding letter character is not photographed on the film immediately but is "stored up" by an electrical selector system until the entire line has been composed. Upon completion of the line the operator depresses a keybutton and the device automatically spaces the words in the line. The photographing mechanism then automatically exposes the letters one by one on the sensitized film. While the camera mechanism is exposing the previously justified line, the operator composes the next line, and so on. A removable and readily interchangeable master character plate in negative form is used for the complete alphabet, figures and points from which the corresponding characters are reproduced in the actual composition. Speed of composition is comparable to a standard typesetting machine.

Announcement was made of the Letouzey method of letterpress printing. The Letouzey process is a system of printing letterpress without makeready, interlay or overlay. Victor Letouzey, Letouzey and Co., Paris, France, was the developer. The system was based on varying heights of type characters, the height regulated according to printing density of each character, that is, its surface printing area. As universally practised with all type at 0.918 in. high, a period on the press does not require so much impression as a capital M. In the Letouzey system the height of the type is cast according to the area of printing face, thus eliminating press makeready. Variance from type high is graduated from 0.914 in. to 0.920 in. with perhaps certain characters grouped together in five different heights. The varying heights are obtained by punching the characters in the matrix at different depths. A special cylinder covering is used on the press. The method entails precision operations from typecaster to press but are too lengthy to describe in detail here. Letouzey reported the engineering control method results in obtaining 82% of the total theoretical production capacity of the press.

Magnesium (obtained from sea water) was available in photoengraving plate form. Its chief advantages were: It could be etched with diluted acid solution and was from four to five times lighter in weight than standard zinc or copper plates. A photographic film manufacturer announced a new colour film which enabled photographers to finish films immediately instead of sending them to out-of-town processing stations. The Murphy halftone screen was announced; with this screen a line and halftone negative could be combined by simply changing filters.

Newspaper full-page three-colour process reproduction speed record was achieved by the San Francisco *Call-Bulletin* in taking a three-colour picture with a one-shot camera of the Shrine convention parade at 10:35 A.M. and reproducing it on three presses within 3 hr. 45 min.

A machine was developed for the *Boston Herald and Traveler*. It automatically tips with adhesive flat preprinted four-colour process enamel-paper inserts on the newspaper page. The attachment keeps up with the newspaper web on presses operating at 50,000 copies per hour. Inserts are attached to web before paper is folded.

In co-operation with the *Milwaukee Journal* a manufacturer announced development of a machine for automatically feeding, wire-tying and ejecting newspaper bundles into a chute connected with a delivery truck. Heretofore, all operations except the wire-tying were manually performed. (M. St.)

Printing Office, U.S. Government. The office was established by congress in 1860 and was in continuous operation from that time.

In addition to doing all of the printing and binding ordered for congress, the office executes all the printing and binding required by the various executive and judicial departments, all independent establishments and emergency war agencies of the U.S. government.

The total area occupied by the government printing office proper in 1946 was 1,396,973 sq.ft. or 32.1 ac. In addition, the office occupied seven warehouses in various sections of the United States, all of which were closed by June 30, 1946, with the exception of one in Alexandria, Va., and one in Baltimore, Md. During the fiscal year 1946 it was necessary to place orders with outside contractors for printing in the amount of \$13,706,307.29, as the government printing office was unable to handle the volume of printing ordered. The value of the office buildings in 1946 was \$9,634,825; machinery and equipment \$6,471,750; making the total value of the plant \$16,106,575. During the fiscal year 1946, there were 6,928 employees on the rolls with a pay roll of approximately \$20,200,000. The office made charges for 710,418,936 copies of publications of all classes. This total included 9,144,234 copies of the *Congressional Record*, 5,327,308 copies of the *Federal Register*, 3,088,414 copies of specifications of patents, trademarks, designs, etc., and 309,138 copies of the patent office *Official Gazette* and annual indexes. The number of postal cards printed amounted to 2,309,892,200 and money orders 284,196,930. The stores division and warehouses handled 4,196 carloads of paper weighing 167,428,434 lb. The division of public documents mailed out 138,812,000 publications and forms; its receipts from the sale of government publications during the year amounted to \$2,156,379.60. The total charges made to congress and all other government agencies during the fiscal year were \$47,224,867.36. (A. E. Gr.)

Priorities and Allocations. The Civilian Production administration, the agency charged with facilitating the reconversion of U.S. industry, operated under the broad policies laid down by the Office of War Mobilization and Reconversion in the executive office of the president. Policies set by the director of the OWMR and actions of the administrator of the CPA were almost constantly in the direction of curtailing the number of commodities governed by priorities and allocations, the quantities of supplies distributed by government regulation and the number of users granted preference ratings for their orders.

With the goal of rapid withdrawal of government from industrial management CPA reduced the number of regulations in effect to 61 controls at the beginning of 1946 and 32 at the end. The wartime high of the War Production board was 650. Most of the year, the agency worked with 40-50 controls. Some of these were inactive but were kept on the books in case of emergency. In this group were some of the utilities orders which imposed "dim-out" schedules and provided for orderly curtailment of other utilities services during the two coal strikes.

After V-J day CPA's predecessor, the WPB, and then CPA itself launched a vigorous program of liquidating priorities and allocations controls in the belief that there would be "enormous stocks of idle and excess materials and components of all kinds." These predictions, however, proved inaccurate. Although there were larger quantities of most materials available than ever before, with the exception of certain imported materials such as tin, the volume of production undertaken was even higher. Serious and widespread shortages developed.

Although CPA issued 19 new orders during the year, these centred principally around the housing program. Revocation of 35 other orders carried the decontrol trend along steadily.

No attempt was made to restore a comprehensive network of distribution regulations, although some general measures were taken to alleviate

the impact of shortages on the economy. One was the limitation of exports of goods in inadequate supply within the United States. Action was taken in co-operation with the department of state, the Office of International Trade and other interested governmental agencies. Another measure involved orders regulating inventories of scarce materials at both wholesale and retail levels. These orders not only spread supplies but prevented speculative hoarding and thus aided the stabilization program.

However, the use, production or distribution of some materials and products were controlled if supplies fell far below demand and if essential needs were not being met.

Under complete allocation control (*i.e.*, where the entire supply was distributed under CPA regulations) were: gypsum liner, lead chemicals, ethyl fluid, lead, tin, burlap, molasses, strategic imported materials, cans, manila and agave fibre and cordage, antimony, cinchona bark and alkaloids, uranium, penicillin, streptomycin, potash, hides, skins and leather, tapioca flour and rubber.

A second group of materials and products was partially distributed by means of CPA allocations and priority ratings. These included cadmium, iron castings, merchant pig iron and steel, lumber and other building materials, kapok, phenolic resin moulding compound and certain fabrics for processing in Puerto Rico and for low-cost and work-clothing programs and industrial uses.

Other shortage commodities which had been under specific allocation control around V-J day were controlled to some extent under the "bottleneck-breaking" priorities regulation. Priority ratings were given for the purchase of items whose lack constituted a bottleneck in the production of important reconversion goods. This aid also was extended to small businesses, new firms and businesses operated by veterans to enable these producers to operate at a minimum economic rate.

Wherever possible, CPA preferred to rely on voluntary co-operation by private industry to solve reconversion problems. The voluntary quota system adopted by the steel and plastic-moulding-powder industries to distribute unallocated supplies was regarded as fair and equitable inasmuch as the shortages which continued were general. When insufficient freight-car capacity began to hinder distribution toward the end of 1946, the agency set about expediting the construction and repair of freight cars. Much of this expediting was informal, through requests to steel and lumber companies to give preference to car builders' orders and through discussions with car builders to give preference to domestic over foreign orders.

The Veterans' Emergency Housing program required the greatest utilization of CPA powers to make industrial readjustments. The agency's full powers were used to route materials and equipment to producers of building materials, so that supplies could support the maximum amount of home and other construction. CPA also co-operated with other government agencies to adjust price ceilings, recruit labour, raise wages and arrange transportation of materials.

To minimize the competition for scarce building materials the agency limited construction other than housing to the most urgent projects and required that certain percentages of some of the scarcest building materials be reserved to meet priority-rated orders placed by builders of veterans' homes.

In December the housing program too was placed, in the words of Pres. Harry S. Truman, "within the framework of the government's announced policy of relaxing controls." Issuance of priorities to builders of veterans' homes was ended and at the beginning of 1947 measures limiting other types of home construction were relaxed. Thus U.S. industry neared the end of an era and, as 1946 closed, stood closer to a laissez-faire economy than at any time after the depression days of NRA. (See also BUSINESS REVIEW; CIVILIAN PRODUCTION ADMINISTRATION; PRICE ADMINISTRATION, OFFICE OF.) (K. KR.)

Prisoners of War and Displaced Persons.

The rapid repatriation of axis prisoners of war held in the United States begun in 1945 was concluded by mid-1946. Approximately 100,000 German prisoners of war were still in U.S. hands in Europe at the end of the year, some retained as war criminal suspects, some serving sentences for criminal acts and others for miscellaneous reasons. A residue of 200 axis prisoners remained in the U.S. on Dec. 31, 1946, and 400 were held by the U.S. in the far east. Illness, criminal convictions and other reasons caused their continued retention.

There was comparatively little repatriation by the other Allied powers during 1946. Great Britain held approximately 700,000 and France 1,250,000 axis prisoners at the year's end. An unknown number of German prisoners continued to be held by the U.S.S.R. Unofficial estimates of the number ran as high as 3,000,000.

Technically the holding powers were not required to repatriate prisoners until the signing of the peace treaties, but the long delay in negotiating the treaties prompted appeals for their early repatriation. The International Red Cross committee formally urged the Allied governments to repatriate prisoners as soon as possible. The Vatican on a number of occasions publicly called for their return without waiting for the conclusion of treaties. Various other groups called attention to the desira-

bility of early repatriation.

The first of several meetings to consider revisions of the Geneva Prisoners of War convention of 1929 was convened by the International Red Cross committee at Geneva, Switz., in August. At this meeting representatives of national Red Cross societies submitted recommended changes designed principally to increase the protection of prisoners in enemy hands. There was much discussion of ways in which to extend the protection of the convention to civilian internees, a group not formally protected by the convention but which during World War II had been generally assimilated to prisoners of war. A further meeting bringing together representatives of governments was scheduled for March 1947, also to be held at Geneva.

Displaced Persons.—Although occasionally used loosely to apply to all refugees, the term "displaced persons" as used during 1946 by the Allied military and by the United Nations Relief and Rehabilitation administration (U.N.R.R.A.) was applied to civilians of foreign nationality found in territories liberated or occupied by the Allied forces. They consisted of United Nations displaced persons and ex-enemy displaced persons depending upon their nationality. Persons of enemy nationality and stateless persons who because of race, religion or political activity had been held by the enemy in concentration camps were described as persecuted persons and given special assistance by the Allies. During 1946 these distinctions began to mean less than they did immediately following the conquest of Europe and the term "displaced persons" without qualifications was usually applied to all of them.

Efforts to repatriate or find new homes for displaced persons continued during 1946 but, in spite of the repatriation of approximately 500,000 persons during the year, the census of displaced persons in Europe stood at approximately 1,000,000 people at the end of the year. More than three-fourths, or 771,500, were in camps operated by U.N.R.R.A. in Germany, Austria and Italy. The remainder consisted of those living outside of camps and about 130,000 living in other countries such as Denmark and Sweden.

At the end of the year U.N.R.R.A. operated 251 camps in Germany with 656,000 in the camp population, 33 camps in Austria with 93,000 population and 11 camps in Italy with 22,-

GERMAN PRISONERS OF WAR studying American history at Fort George G. Meade, Md.; by midyear of 1946 all but a few hundred German P.O.W.'s in the U.S. had been returned to their homeland



500 population. The bulk of the D.P. camps in Germany were in the U.S. zone of occupation. In addition to the U.N.R.R.A.-operated camps in Germany, 42 camps were operated by the military and 15 were operated by private agencies.

The largest single group among the D.P.'s were the Poles, numbering approximately 285,000 in U.N.R.R.A. camps. Jews (principally stateless) constituted the next largest group, approximately 200,000 and persons from the Baltic states had nearly the same number. In much smaller numbers many other nationalities were represented, including Yugoslavs, Russians, Greeks and Czechoslovaks.

Repatriation.—By the end of 1946 it was estimated that D.P. repatriations in Europe from the time of the surrender of Germany had totalled 7,000,000 persons. Most of these repatriations were accomplished in mass movements during the last six months of 1945. Approximately 500,000 were repatriated from Germany in 1946. Repatriations from Austria and Italy were in relatively small numbers during 1946. More than half of the 1946 repatriations, viz., 337,000, were of Poles, principally from the U.S. and British zones of occupations. No figures were available, but reports continued to be made during 1946 that Poles once repatriated to Poland were returning in substantial numbers to the U.S. zone of occupation in Germany. Other nationalities repatriated from Germany in 1946 included approximately 4,000 each of Yugoslavs, Russians, Dutch, Belgians and Czechoslovaks. Among the 110,000 ex-enemy nationals repatriated during the year were 64,600 Hungarians, 25,000 Austrians and 3,000 Rumanians.

D.P.'s in the Far East.—Both because of the numbers and the political problems involved, the D.P. problem in Europe received much more attention than in the far east. U.N.R.R.A. and the occupying military authorities provided assistance. Voluntary organizations extended considerable help to Jewish refugees in China. U.N.R.R.A. reports in Oct. 1946 showed 14,600 European D.P.'s in the far east, mostly Jews and White Russians. Oriental D.P.'s in China at the same time were reported as numbering 42,000, the largest single group consisting of 15,000 Malaysians. Other nationalities represented were Filipinos, Burmese, Siamese and Indonesians. Substantial movements of

ONE-LEGGED GERMAN PRISONER OF WAR presenting his papers to Russian officers at the entrance to the reception camp at Frankfurt-on-the-Oder in Russian-occupied Germany, where he was to be processed for return to his home in 1946



MILITARY POLICE challenging a German in nazi uniform about his insignia in 1946. He would be released when he could prove to their satisfaction that he had not yet been discharged from the German army

Koreans from Japan and China to their homeland were arranged by the U.S. military authorities, and there were large numbers of Koreans infiltrating from northern Korea into southern Korea.

"The Hard Core."—There remained in Europe at the end of 1946 a "hard core" of D.P.'s of approximately 1,000,000 persons who would not or could not be repatriated. Many were from Poland, Yugoslavia or the Baltic states who feared to return to their homelands and who, according to Allied policies, could not be forced to return. Included in the "hard core" were 200,000 Jews in Germany and Austria, most of whom were seeking permission to proceed to Palestine.

The Soviet Union reiterated many times in 1946 its position that the D.P.'s of eastern European nationality should be forced to return, claiming that propagandists among them distorting the facts about home conditions were influencing them to remain. On the other hand, the Americans and the British were equally emphatic in holding that these persons should not be forced to accept repatriation.

The International Refugee Organization.—Late in 1946 the general assembly of the United Nations approved the constitution of the International Refugee organization, a nonpermanent specialized agency affiliated with the United Nations, to identify, register, classify, assist, transport, protect legally and politically, repatriate and resettle refugees or displaced persons.

Agencies of the United Nations were engaged throughout 1946 in the development of plans for the I.R.O. and in bringing its constitution to the point of acceptance by the general assembly. A special committee appointed in February by the Economic and Social Council had extended deliberations in London during April and May. Its report, dated June 1, was adopted by the Economic and Social Council on June 21. At the same time the council appointed a committee on finances for the proposed I.R.O. The council gave final approval to the constitution of the I.R.O. on October 3, approved a budget for its first financial year and adopted an arrangement for a preparatory commission for the I.R.O. These proposals came before the general assembly in December and were adopted with a reduction of the proposed budget from \$260,000,000 to \$160,000,000.

The constitution was then presented for ratification to the member governments of the United Nations and to other states qualified to sign. It was to become effective when 15 states had

become parties to it. In the meantime the preparatory commission was to work out arrangements for taking over the D.P. responsibilities of U.N.R.R.A. by June 1947. (See also FEDERAL BUREAU OF INVESTIGATION; INTERNATIONAL LAW; RED CROSS; REFUGEES.) (P. E. R.)

Prisons. Because of a continued shortage of vital materials, no new buildings were erected in any state or federal prisons during 1946. But some states completed plans for erecting new institutions, construction of which would start shortly. And some local communities, announced that they would erect new jails, welcome news, indeed. For while there were some modern, well-managed jails, the majority of the 4,000 throughout the United States, were wretched holes, hardly fit for human habitation. They were old, dilapidated buildings with tiny barred windows that shut out fresh air and sunlight. Inside they were dark, damp, crawling with vermin. Cells, just wide enough for a cot, didn't even have one, and inmates, some as young as ten, had to sleep on thin, dirty mattresses on hard cement floors. What is more, some of those inmates, the bulk of whom were awaiting trial, were often beaten so unmercifully because of the operation of Kangaroo courts that they were permanently injured.

Some communities, too, announced plans for the erection of modern, well-staffed detention homes for juvenile delinquents awaiting disposition of their cases. Such homes were a vital necessity. For if a delinquent is placed in a jail pending trial, he is immediately made worse. Generally, he comes in contact with older offenders awaiting trial or serving short sentences, alcoholics, sex delinquents, even the diseased, all habitués of disgraceful jails.

During 1946 there was a noticeable improvement in the educational setups of many state prisons. More vocational courses were provided and civilian teachers added to staffs. Likewise, more attention was paid to modernizing prison libraries and obtaining suitable books and periodicals. In too many institutions, however, libraries still had books so old, that they were of little use to the inmates, the majority of whom craved good reading matter since they spent so much time in their cells.

The problem of providing work for inmates was a vexing one. During World War II, when inmates were kept busy producing matériel for the armed services their morale increased. But with the termination of the war, idleness again became rampant in many prisons. As a result, every effort was made to place penal industries on a firm peacetime foundation. As previously suggested, the most practical way to create inmate jobs was to have prisons produce food, clothing and other articles for state institutions (e.g., hospitals, asylums, etc.) under what was known as the state use system. And there should also be exchange of products between states. In this way, inmates would be kept busy, an essential element for their rehabilitation. (See also CHILD WELFARE; CRIME.) (L. E. L.)

Private Schools: see EDUCATION.

Prizes of 1946. The literary prizes for the year 1946 were as follows:

ACADEMY OF AMERICAN POETS, \$5,000 fellowship to Edgar Lee Masters.

AMERICAN ACADEMY OF ARTS AND LETTERS.—\$1,000 grants to nine writers "to aid in furthering creative work by American artists and to honour them for past achievements": Gwendolyn Brooks, Kenneth Burke, Malcolm Cowley, Peter de Vries, Langston Hughes, Arthur Laurents, Marianne Moore, Arthur Schlesinger, Jr. and Irwin Shaw.

NATIONAL INSTITUTE OF ARTS AND LETTERS, \$1,000 "for distinguished achievement" to Ralph Hodgson, English poet living in the United States.

ANISFIELD-WOLF AWARD (*Saturday Review of Literature*) for the best books on the subject of race relations, \$500 each to Wallace Stegner and editors of *Look* magazine for *One Nation* (Houghton) and to St. Clair Drake and Horace R. Cayton for *Black Metropolis* (Harcourt).

ATLANTIC MONTHLY AND METRO-GOLDWYN-MAYER AWARDS for "Atlantic Firsts," \$1,500 to Cord Meyer, Jr., for "Waves of Darkness" (Jan. 1946) and \$750 to Thomas Heggen for "Mister Roberts" (April 1946) (Houghton).

JAMES TAIT BLACK MEMORIAL AWARDS (British) for the best biography to D. S. MacColl for his *Life, Work and Setting of Philip Wilson Steer*; for the best novel to L. A. G. Strong for *Travellers*.

CANADIAN GOVERNOR-GENERAL'S AWARDS, silver medals for the best books by Canadian authors. To Hugh MacLennan for *Two Solitudes* (fiction) (Duell); to Earle Birney for *Now Is Time* (poetry) (Ryerson); to Ross Munro for *Gauntlet to Overlord* (academic non-fiction) (Macmillan); to Evelyn M. Richardson for *We Keep A Light* (creative non-fiction) (Ryerson). Also to runners-up: Charles Bruce for *Grey Ship Moving* (poetry) (Ryerson); G. Joy Tranter for *Plowing the Arctic* (academic non-fiction) (Longmans); Captain Leo Heaps, M. C., for *Escape From Arnhem* (creative non-fiction) (Macmillan).

CAREY-THOMAS AWARD for the most distinguished example of creative publishing to Alfred A. Knopf, Inc., for *The American Language* by H. L. Mencken, of which the first supplement was issued in 1945. Honourable mention to Simon & Schuster for the handling of *General Marshall's Report* (paper and cloth editions) and to Lothrop, Lee and Shepard for the publication of *One God: The Ways We Worship Him* by Florence Mary Fitch, a book explaining to children the three great religious groups, Jewish, Catholic and Protestant.

COMMONWEALTH CLUB OF CALIFORNIA.—GOLD MEDAL FOR GENERAL LITERATURE to Adria Locke Langley for *A Lion is in the Streets* (Whittlesey House); GOLD MEDAL FOR SCHOLARSHIP AND RESEARCH to Laura L. Hinkley for *Charlotte and Emily* (the Brontës) (Hastings House); SILVER MEDALS to John J. Espey for *Minor Heresies* (Knopf); to Idwal Jones for *High Bonnet* (Prentice-Hall); to Victor Wolfgang von Hagen for *South America Called Them* (Knopf); to Margaret Leighton for *The Singing Cave* (best juvenile) (Houghton).

DODD, MEAD PRIZES.—DODD, MEAD-REDBOOK FICTION PRIZE, \$10,000 for the best novel to Loula Grace Erdman for *The Years of the Locust*; RED BADGE DETECTIVE STORY PRIZES, awarded semi-annually, \$1,000 each to Franklyn Pell for *Hangman's Hill* and to Lee Wilson for *This Deadly Dark*; INTERCOLLEGIATE LITERARY FELLOWSHIP, to Hilda D. Osterhout for a novel about modern Mexico, *Field of Old Blood*.

DOUBLEDAY, DORAN NOVEL PRIZE, \$20,000 to Oswald Wynd of Edinburgh, Scotland, for *The Black Fountains*, a story of Japan.

FEMINA-VIE HEUREUSE PRIZE, 5,000 francs to Anne-Marie Monnet for *Le Chemin du Soleil* (Editions du Myrtre).

FRIENDS OF AMERICAN WRITERS, \$750 for a book about the middle west, to Dorothy Langley for her novel, *Dark Medallion* (Simon).

GONCOURT PRIZE, to Jean-Louis Bory, the youngest writer ever to receive the prize, for *Mon Village à l'Heure Allemande*. The 1940 prize, delayed until after the liberation, to Francis Ambrière for *Les Grandes Vacances*.

JOHN SIMON GUGGENHEIM MEMORIAL FOUNDATION POST-SERVICE FELLOWSHIPS, \$2,500 each to Dr. Herbert Aptheker, John Bakeless, Sam Byrd, Paul Horgan, Everette Howard Hunt, Jr., Oliver La Farge, Dr. Stephen Addison Larrabee, Caroline Backe McMahon, James R. Newman, Dr. Donald McGranahan, Bradford Smith, Dr. Ernest Robert Tinkham.

O. HENRY MEMORIAL AWARD PRIZE STORIES, \$300 first prize to John Mayo Goss for "Bird Song" (*Atlantic Monthly*); \$200 second prize to Margaret Shedd for "The Innocent Bystander" (*Harper's Magazine*); \$100 third prize to Victor Ullman for "Sometimes You Break Even" (*Atlantic Monthly*); \$100 to Cord Meyer, Jr., for a first published story, "Waves of Darkness" (*Atlantic Monthly*).

HARPER PRIZE NOVEL CONTEST, \$10,000 to Jo Sinclair for *Wasteland*.

W. H. HEINEMANN FOUNDATION FOR LITERATURE, £200 divided between Dormer Creston for *In Search of Two Characters* (Macmillan in England, Scribner in U.S.) and Andrew Young for *Prospect of Flowers* (Cape).

AVERY HOPWOOD FICTION AWARDS, to Andrina Iverson for *The Gifts of Love* (Duell); to Peggy Goodin for *Clementine* (Dutton); to Josephine Eckert for *The Practicing of Christopher* (Dial).

HOUGHTON MIFFLIN LIFE IN AMERICA AWARD, \$2,500 to Russell Lord for *The Wallaces of Iowa*; \$2,500 to James Thomas Flexner for *First Flowers of Our Wilderness*, a social history of colonial America in terms of its paintings. HOUGHTON MIFFLIN LITERARY FELLOWSHIPS, \$2,400 each to Jacqueline Shohet Margolish for *The House of Jacob*; to Helen Mears for a book about postwar Japan; to Donald MacRae for his novel, *Dwight Craig*.

INTER-ALLIE PRIZE for a novel by a practising newspaper man, first award after 1940, to Roger Vailland for *Drole de Jeu* (Correa in France; Houghton in U.S.).

IOWA LIBRARY ASSOCIATION AWARD.—The JOHNSON BRIGHAM MEMORIAL PLAQUE to Darrell Garwood for *Artist in Iowa*, a life of Grant Wood (Norton).

LEAGUE OF AMERICAN PEN WOMEN AWARD, to Taylor Caldwell for *This Side of Innocence* (Scribner).

JULIAN MESSNER, INC., \$5,000 for the best book combating intolerance in America to Shirley Graham for her *There Was Once a Slave: The Heroic Story of Frederick Douglass*.

METRO-GOLDWYN-MAYER ANNUAL NOVEL AWARD, \$125,000 to Mary Renault (pseudonym) for *Return to Night* (Mortow).

HARRIET MONROE POETRY AWARD (University of Chicago), \$500 to Wallace Stevens for *Notes Toward a Supreme Fiction*.

NEW ENGLAND WOMEN'S PRESS ASSOCIATION MEDAL, to Elisabeth Ogilvie for *Storm Tide* (Crowell), judged the most outstanding novel by a New England woman.

W. W. NORTON & COMPANY MEDICAL AWARD, \$3,500 to Dr. Edward H. Hume for *Doctors East, Doctors West*, a U.S. physician's life in China.

OHIOANA LIBRARY AWARDS.—Medals for outstanding books by Ohio authors: Dorothy James Roberts for *A Durable Fire* (Macmillan); Arthur M. Schlesinger, Jr. for *The Age of Jackson* (Little); James Thurber for *The White Deer* (Harcourt); Carl Frederick Wittke for *Against the Current* (Univ. of Chicago); Alice Monk Mears for *Brief Enterprise* (Dutton); Louis Bromfield (special medal).

THEOPHRASTE RENAUDOT PRIZE, one of three major French prizes, to

Henri Bosco for *Mas Théotime* (Charlot). The 1940 delayed prize to David Rousset for *L'Univers Concentrationnaire*.

SCRIBNER PRIZE IN AMERICAN HISTORY, in commemoration of the 100th anniversary of Charles Scribner's Sons, 1846-1946: \$10,000 to Allan Nevins for *Ordeal of the Union* (2 vols.).

SHELLEY MEMORIAL AWARD (Poetry Society of America) to Karl Shapiro for *Essay on Rime* (Reynal).

CONSTANCE LINDSAY SKINNER AWARD (Women's National Book association), a bronze plaque to Amy Loveman, associate editor of *Saturday Review of Literature*.

SOUTHERN AUTHORS AWARD, \$150 to Josephine Pinckney for her novel, *Three O'Clock Dinner* (Viking).

SEWANEE REVIEW AND PRENTICE-HALL AWARD, \$200 to Malcolm Cowley for his essay, "William Faulkner's Legend of the South"; \$200 to Andrew Lytle for his short story, "The Guide"; \$100 to Sergeant Randall Jarrell for his poem "Marchen."

WALT WHITMAN SOCIETY OF AMERICA AWARD, to Robert Payne for *Torrents of Spring* (Dodd) and to Louis Adamic for *A Nation of Nations* (Harper).

YALE SERIES OF YOUNGER POETS, 1945 award to Eve Merriam for *Around the House*; 1946 award (posthumous) to Joan Vincent Murray for *Poems*, edited by Grant Cole.

Children's Books.—CALDECOTT MEDAL for the most distinguished picture book to Maud and Miska Petersham for their illustrations to *The Rooster Crows* (Macmillan).

JULIA ELLSWORTH FORD FOUNDATION, \$1,250 to Genevieve Torrey Eames for *A Horse to Remember* (Messner).

JUNIOR SCHOLASTIC GOLD SEALS, to Marguerite Henry for *Justin Morgan Had a Horse* (Wilcox and Follett).

HERALD TRIBUNE SPRING BOOK FESTIVAL, \$200 each to Clayton Knight for *The Quest of the Golden Condor* (Knopf); to Jean Bothwell for *The Thirteenth Stone* (Harcourt); to Gustav Tenggren (illustrator) and Kathryn and Byron Jackson (authors) for *Farm Stories* (Simon).

JOHN NEWBERY MEDAL, to Lois Lenski for *Strawberry Girl* (Lippincott).

YOUTH TODAY CONTEST, \$3,500 to Phyllis Whitney for *Willow Hill* (Reynal).

Pulitzer Prizes.—The Pulitzer prizes in journalism and letters, awarded by the trustees of Columbia university acting on the recommendation of the advisory board of the graduate school of journalism were given their 30th annual award in 1946. The prizes in letters were as follows: \$500 drama award to Howard Lindsay and Russel Crouse for *State of the Union* (Random House); \$500 history award to Arthur M. Schlesinger, Jr., for *The Age of Jackson* (Little); \$500 biography award to Linnie Marsh Wolfe for *Son of the Wilderness*, a life of John Muir (Knopf); \$500 music award to Leo Sowerby for his "Canticle of the Sun."

Prizes in journalism were as follows: \$500 for meritorious public service rendered by a U.S. newspaper to the *Scranton Times*; \$500 for distinguished editorial writing to Hodding Carter of the *Delta Democrat-Times* (Greenville, Miss.) writing on racial, religious and economic intolerance; \$500 for distinguished correspondence to Arnaldo Cortesi of the *New York Times* for his Argentine exposures; \$500 for a distinguished cartoon to Bruce Russell for his cartoon, "Time to Bridge That Gulch," a plea for better U.S.-soviet relations; \$500 for reporting national affairs to Edward A. Harris for his series on tideland oil resources; \$500 for reporting international affairs to Homer Bigart for his Pacific war coverage in 1945, in the *New York Herald Tribune*; \$500 for domestic reporting to William L. Laurence of the *New York Times* for his atom bomb stories, including his eye-witness account of the bombing of Nagasaki.

Nobel Prizes.—Four of the Nobel prizes went to U.S. citizens in 1946 and the fifth to a naturalized Swiss. They amounted in 1945 to about 130,000 Swedish krona (\$36,205) each. They were as follows:

The physics prize went to Dr. P. W. Bridgman of Harvard university for his production of extremely high pressures which duplicate those prevailing in the interior of the earth.

Half the chemistry prize went to J. B. Sumner of Cornell university for his distinguished research in the field of enzymology. The other half was divided between Dr. W. M. Stanley and Dr. J. H. Northrop of the Rockefeller Institute for Medical Research in Princeton for their preparation of virus proteins in pure form.

The prize in medicine and physiology went to Dr. Herman J. Muller of Indiana university for his work in discovering that mutations, or biological changes in a species, may be produced by X-rays.

The peace prize was divided between John Raleigh Mott (aged 81), a Methodist layman, leader in international religious movements, who in World War I headed the Y.M.C.A.s canteen and prisoner-of-war work, and Emily Greene Balch (aged 79), a Quakeress, once a professor at Wellesley and a founder of the Women's International League for Peace and Freedom at The Hague in 1915.

The literature award went to Hermann Hesse, a German who became a naturalized Swiss citizen. (For prizes in other fields see ART EXHIBITIONS; CANADIAN LITERATURE; MATHEMATICS; MINERALOGY; MOTION PICTURES; RED CROSS; SCULPTURE; SOCIETIES AND ASSOCIATIONS; THEATRE, etc.) (B. Gm.)

Production, Industrial: see BUSINESS REVIEW; CIVILIAN PRODUCTION ADMINISTRATION.

Profits, Company: see BUSINESS REVIEW; TAXATION.

Progressive Education: see EDUCATION.

Proportional Representation: see MUNICIPAL GOVERNMENT.

Protestant Episcopal Church. In the Episcopal Church the year of 1946 was marked by efforts toward the relief of the suffering

people in war-devastated countries, by a deepened interest in the world-wide missionary work of the church, and by a fervent desire for the establishment of just and lasting world peace with the realization that this was absolutely imperative in view of the possibilities of atomic and modern scientific warfare. The organization of the United Nations was a great forward step and demands the support of all men of good will, but the church knows that only the power of Christ can meet the world's need and bring brotherhood and peace to mankind.

The triennial meeting of the general convention was held in September in Philadelphia and important work was accomplished. A notable event was the presence of the archbishop of Canterbury, the Most Reverend and Right Honourable Geoffrey Francis Fisher, whose visit made a great impression upon the whole church and was most warmly welcomed.

The statistics reported for the year show an increase in the number of baptized members of the church, the number being 2,300,575, and a slight increase in the number of communicants, the number reported for 1946 being 1,583,338. An especially important gain was that shown in the number of church school pupils and teachers, the total number of pupils reaching 402,253 and the number of teachers 48,407. The total contributions for the work of the church reached the all-time high of \$53,011,393 an increase of \$6,841,356 over 1945.

The presiding bishop of the church, the Right Reverend Henry St. George Tucker who had held this office for nine years, retired at the end of 1946 and was succeeded by the Right Reverend Henry Knox Sherrill, bishop of Massachusetts, who was elected to the office of presiding bishop at the meeting of the general convention. (See also CHURCH MEMBERSHIP.)

(W. T. M.)

THE RT. REV. WILLIAM T. MANNING (left), bishop of the diocese of New York, about to embrace Bishop Nicholai of the Zicha and Ochrida (Yugoslavia) diocese of the Serbian Orthodox church. The occasion was a ceremony on June 2, 1946, in New York city celebrating the completion by Bishop Manning of 25 years as bishop of the diocese of New York



Protons: see ATOMIC ENERGY; PHYSICS.

Prunes: see FRUIT.

Psychiatry. The bulk of the psychiatric literature for 1946 contained the final war report from observers under combat conditions, both on land and sea, the preliminary studies on rehabilitation of the demobilized soldiers and sailors and a growing volume of discussion on industrial psychiatry. No discoveries in psychiatry were known to have originated in the axis countries that were not recognized, at least in large part, by the Allies during the war period.

Psychiatry and the War.—*Psychiatric Casualties.*—Reports clearly indicated that the actual incidence of psychiatric casualties was significantly higher in World War II than in World War I. The increase was due, in part, to more alertness on the part of army psychiatrists in World War II than in the earlier conflict and to improved diagnosis. In active theatres of war the rate of psychiatric casualties for World War II was two or three times that of World War I. This higher incidence was not attributed to inferior screening of recruits, for the examinations in general were much more rigid in 1942–43 than they were in 1917–18. The chief cause of the increase appeared to lie in the fact that warfare was more terrifying in World War II than ever before and the mental hazards were considerably greater than those encountered in the trench warfare of 1918. New weapons of intricate pattern, such as the Flying Fortress, the tank and the amphibious landing crafts, meant great responsibilities for those entrusted with their operation and the additional requirements in mechanical skill and knowledge needed in modern battles were important factors in bringing about psychiatric casualties. All these, however, did not fully explain the increased rate in nervous breakdowns, and stress was put upon a re-evaluation of the emotional conviction contained in the concept, “why we fight.” The spirit of fighting a war “to end all wars” was conspicuously absent in World War II. Men were often drafted in a spirit of resignation in World War II and soldiers frequently expressed a feeling of resentfulness that they, rather than someone else, were selected. Competent observers concluded that an absence of the will to fight, the lack of a sense of immediate threat to home or country and the failure to engender a true spirit of anger at the enemy were predisposing causes that lead to an increased incidence of psychiatric casualties in World War II, particularly in the European theatre of combat.

Demobilized Servicemen.—With psychiatric casualties two or three times as great in active theatres of war in 1945 as in 1918, it was expected that the stress of war would lead to an increase also in the number of demobilized soldiers with psychological problems on returning home. This proved not to be the case, at least as far as the U.S. army was concerned. Only 257 men out of 10,000 examined, all of whom had seen combat service or who had had 3 or more years of service overseas, showed sufficient signs to warrant a diagnosis of a psychiatric disorder and only 51 of these had symptoms severe enough to cause some degree of incapacity. The mentally and physically ill were not included in this study so that the figure of slightly over a half of 1% incapacitated as the result of their prolonged and strenuous service represented the reaction of the general soldier who did not break down in warfare or battle conditions in World War II. The “adjustment problems” and the frank neuropsychiatric disorders in the returned serviceman were shown to be greatly overemphasized by the popular press. Most of the disorders, moreover, did not require hospitalization. Many soldiers learned to accept psychiatry as a special form of medicine while in the army. The same skilled professional assistance was easily available to them when they returned home.

Misconceptions.—An enlightening experience regarding human behaviour occurred in the medical corps of the army of the United States. Attempts were made to reject the unfit recruit at the induction centres. By further screening at training centres, others who slipped through the first examinations were detected and discharged. It was thought by some observers that by this method the U.S. army might be made relatively free from insubordination, “A.W.O.L.ism” and indifference to duty on the part of the soldier, thus increasing the morale and fighting efficiency of all units. Furthermore, an effort was made to assign every man to duties that best suited him and his total personality. Pressure was thus exerted, particularly after Dec. 1942, to try to rid the army of the medical, legal and military misfits, without complete realization that in any group there is always 10% who are the lowest in efficiency, motivation and ability. Being the bottom tenth, this group is always dissatisfied, unable to compete with the more competent and frequently showing signs of escape and rebellion in one form or another. The problem of separating the noneffective was tackled vigorously but as soon as thousands of misfits were released thousands more poorly motivated soldiers took their places, filling the dispensaries, casualty stations, hospitals and guardhouses. Another 2,000 were discharged but again there were thousands more who filled the lower ranks of the unstable and inadequate. When these, too, were separated, the avalanche did not stop but grew bigger; rumours were rampant that a soldier was a “sucker” to stay in the army. Men talked freely of building up an impressive record of sick calls to indicate that they were noneffective soldiers. Morale in all organizations suffered and psychiatrists began to have consultations with soldiers who were known to be moderately well-adjusted to military life a few months before and had suddenly begun to show evidence of anxiety.

After an adequate trial of this rejection experiment, it became evident that there was a misconception in the psychiatric formula. Some important factors in human behaviour had been overlooked. Finally, in Nov. 1943, the orders were changed. As a result of this experience, re-evaluation of the principles of psychiatry was undertaken by the army. A new, more thorough understanding of the aetiology and treatment of psychiatric disorders was recognized with an acute awareness of limitations. A strong motivating force as a basis and code for living was accepted as one of the greatest defenses against the development of psychiatric disorders, this force often transcending the destructive effects of bad environment and genealogy. A soldier was considered not only as the sum total of his genealogy and his past performances but to these must be added his present incentive. It was thus shown that pure psychiatric disorders, as well as attitudinal disorders, were contagious, especially when secondary gains resulted. A large group of soldiers was found which had latent potentialities of psychiatric disorder. Within limits this section of the army functioned satisfactorily under heavy stress so long as no escape from that stress was readily available.

Psychiatric Problems at Oak Ridge.—The release from secrecy of the activities at Oak Ridge, Tenn., where the atomic bombs were made, led to appraisal of the psychiatric problems connected with this mushroom city. From a mudhole, a city of 75,000 with all the usual conveniences of a well-organized town was rapidly organized. All the employees had high wages and were provided with a place to live. At first it was thought by some that there would be no need for any social service organization. It was soon found, however, that all the usual problems of the ordinary city were present. There were difficulties arising from the transplanting of people, particularly when the new inhabitants could not find the usual resources that they were accustomed to. There was never enough of anything to go all

the way around; not enough stores, not enough finished roads and never enough finished houses. The large number of young people living in dormitories presented a special problem and it was necessary to inaugurate a system of dormitory counsellors.

Few examples of major psychoses were seen by the psychiatrists, the greatest problem being the care of patients with acute anxiety neuroses, comparable to battle fatigue encountered in overseas units. This resulted in a serious situation. Because there was a big job to be done hurriedly and under pressure, with a good many handicaps, the presence of acute anxiety states was of considerable importance. The population had a curious range from top-flight, world-renowned scientists down to local hill folks. Oak Ridge was predominantly a young people's town, the median age being 26; consequently it had the highest birth rate of any city in the United States. Fatigue reactions with associated tension states were most prevalent in the executive group. The scientific group, used to laboratory research in a university city, were prone to become irritated by the more practical engineering group and vice versa. One sort of frustration to many of the minor scientific groups was that they were required to spend months of repetition of a single chemical analysis without knowing what had gone on before or what was to happen afterward. Most of them were equipped to do work of a broader character and they often felt thwarted that their activities were so limited. The mounting tension that resulted frequently led the workers to the psychiatric department, via the medical department where the patients had reported with vague symptoms of a psychosomatic nature.

Many workers knew that they were dealing with an unknown toxic material. Safeguards against accidents were effective but the constant watchfulness in checking laid the ground for anxiety and subsequently to acute panic states in the more unstable. Employees with basic paranoid tendencies found much to accentuate suspicion; no one knew who belonged to the intelligence force or when he or she was under surveillance. The surprising thing was the lack of curiosity by the average worker as to what was really going on. Everyone surmised its importance. At the same time each was so busy with his job that the rest of the vast undertaking seemed relatively unimportant. Many felt more comfortable inside the barricade around Oak Ridge than outside, for there were many more attempts at prying into secrets outside the reservation than inside.

The psychiatrist was forced to keep most of his patients in the hospital. Only those who were working in non-critical categories, meaning that they had no intimate contact with secret procedures, could be transferred out. It was necessary therefore to create a closed treatment unit. Several patients who were acutely psychotic never once broke secrecy or discussed secret work even in the depths of their psychoses.

The need for secrecy made it necessary for every military transfer from one department to another to be supervised by the psychiatrist. Other developments had to do with child guidance, the problem of juvenile delinquency, some adult delinquency and the usual emotional problems that go with any accentuation of strenuous living conditions. On the whole the Oak Ridge community emerged as a rather successful venture apparently far more wholesome and smoothly functioning than most uncontrolled wartime communities that sprang up around many newly-hatched industries. Oak Ridge proved to be a reasonably comfortable and satisfactory place to live considering the hurry and the atmosphere in which it developed.

Industrial Psychiatry.—During the period of about 30 years that industry and psychiatry have been co-operating a few major gains were made, but much of the progress was slow and often uneven. In most cases, the utilization of the concepts of psychiatry and mental hygiene in the present industrial scene was not

advanced beyond the pioneering and exploratory stages. World War II finally laid the foundation for a more rapid and more extensive development in this field than had occurred in the previous three decades. Stimulation to industrial psychiatry was given by the concern over the placement and readjustment of men discharged from military service with neuropsychiatric conditions, and from the recurrent deeply seated problems in the human relations field growing out of unresolved conflicts between individuals and groups representing the opposing point of view of management and labour. Dearth of psychiatrists with adequate industrial experience and orientation was still present in 1946, for there was a lack of training facilities for psychiatrists in industry. This, and also the absence of established precedence for initiating psychiatric programs, were practical obstacles which stood in the way and prevented the appreciation and acceptance of contributing possibilities of psychiatric understanding and technique to industry. Some programs failed because the psychiatrist narrowed his field and identified himself with purely medical or clinical activities. Collaboration and adaptation of psychiatric technique to those of other departments within industry dealing with human relations, such as personnel counselling, psychological services, employee research and various industrial relation activities which are sometimes grouped under the term "human engineering," were found to be essential. The psychiatrist could not work in isolation but had to act as a catalyst to all activities which have to do with the handling of people and the prevention of damaging interpersonal relations.

Some of the broader consulting and educational functions in which the industrial psychiatrist played a leading part concerned the correlation of techniques for improving the selection, placement and promotion of employees presenting some degree of emotional, mental or intellectual disorder, the elucidation of techniques for uncovering actual as well as potential "problem employees" and for the handling of such individuals by supervisors, medical and personnel consultants. The participation in training programs for counsellors and supervisors in respect to understanding and handling the psychological factors influencing the productivity of both normal and problem workers, and the checking of effectiveness and developing techniques for improving all employment, medical and personnel functions involving interviewing and counselling were also undertaken. Provision was made by the psychiatrist in industry for a consulting service open to both management and labour union officials as well as others who voluntarily request interviews, and for the organization of research projects to throw light on causes and remedies of personality problems in both employees and at the supervisory level.

In general, industrial management became open-minded about the application of psychiatry in industry, providing the psychiatrist was willing to learn about industry and its problems. Top management in industry was increasingly asking for psychiatric help in personnel problems. It was felt that the basic causes of all functional mental disease existed, grew and caused some manifestations in normal people, that normal people were the hosts or carriers from whom unfortunate individuals contract the more serious recognized form of this group of ills. Industry offered the psychiatrist a unique opportunity to explore this important area of a cycle now vaguely known. (See also PSYCHOLOGY.)

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Psychology. The trend in psychology for more than a decade was away from a simple mechanical conception of man. During 1946 there was a further realization of this movement in many specific areas of psychological investigation. The basic change in point of view comes from two main sources: Gestalt psychology with its devastating attack upon the machine theory of mind and Freudian doctrines with their emphasis upon the dynamics of personality formation. Though the general shift was toward the recognition of mind as a creative force, capable not only of reacting to stimuli but of organizing its experiences and imposing its own interpretation, the older concepts of stimulus-response psychology held on tenaciously for much of the specific content of U.S. psychology. Their replacement was a gradual process and was facilitated by the increasing practical contacts of academic psychologists with problems of human relations outside their laboratories.

Advances In Dynamic Psychology.—The wholistic, dynamic approach made the following advances: (1) More humanistic concepts were emerging in the field of the social behaviour of children. H. H. Anderson showed the inadequacy of such constructs as dominative leadership, fear, maladjustment, conflict and repression to account for the nature and development of social behaviour. Integrative leadership and co-operative activity are in fact more common among preschool and kindergarten children than dominative behaviour, and concepts like social integration, spontaneity and harmony are necessary for accurate description.

(2) Client-centred, nondirective therapy, based upon the individual's own capacities for self-realization, was being developed as a therapeutic and research instrument of wide application. Freudian theory had always assumed the significance of the patient's attaining insight into his own basic conflicts, but psychiatric and even psychoanalytic practice gave the therapist an important directive role. Carl Rogers and his school in their nondirective approach, however, radically changed the part played by the counsellor or psychologist. Instead of making direct, positive suggestions, the counsellor creates a warm and permissive atmosphere for the free expression of the patient and conveys to the patient his deep understanding of the attitudes expressed. Experimentation with this procedure established the fact that there exists in most individuals, growth forces for adjustment which can operate spontaneously under proper psychological conditions. In addition to its success in counselling and mental therapy, the nondirective method became one of the principal tools by which public-opinion and survey interviewing could get at the personal values and motives of respondents.

(3) Allied to the client-centred approach of Rogers was the work of K. Lewin, R. Lippitt and A. Bavelas in effecting changes in group habits and group relationships. They found that external pressure in changing group-ways succeeded only temporarily. Sooner or later the old behaviour pattern reappeared. When, however, the group itself made the decision to adopt new ways, the changes were permanent and in some cases progressive. For example, workers given added incentives to speed their production rates tended in time to resume old work rates. But when the workers were given the problem to solve themselves with assurance that wage rates would not be cut back, the increased productivity was permanent. Similarly, in the field of race relations, the community which on invitation investigated its own racial problems and devised plans for improving the situation had more continuing success than the community upon which the program of reform was imposed from above. The Lewinian group also had excellent results with role-

playing techniques in which individuals modify their behaviour not because of threats or exhortation but through the voluntary assumption of new behavioural roles. The same use of spontaneous internal motivation is to be found in the psychodramatic technique of J. L. Moreno. In this method individuals act out their difficulties and problems with limited direction from the psychologist. In the creative acting process they objectify their conflicts, obtain fresh insight and accordingly restructure their behaviour.

(4) Projective tests for personality diagnosis and evaluation were replacing the paper-and-pencil item-tests of personality traits. Projective tests present unstructured or incomplete material to the subject who in his imaginative constructions reveals his own motives and mental processes. The specific-item test which sought to measure single traits in personality by summing self-reports on particulars of behaviour were found wanting in validity. Studies indicated its inability to differentiate behaviour-problem children from normal children, delinquents from nondelinquents and neurotic from nonneurotic subjects. On the other hand, the Rorschach and Thematic Apperception tests, both projective instruments, were used successfully in identifying personalities and in predicting behaviour difficulties.

(5) The older description of popular thinking as the blind tying of old stereotyped labels to superficially related facts was being revised because of its over-emphasis upon the passive and irrational aspects of social attitudes. The present formulation in terms of assimilating material to frames of reference makes allowance for the organized and rational pattern of prejudices. Experiments showed that social fictions to be accepted must make some sort of sense even to the gullible and must fit into a larger framework of belief. The nature of productive thinking, moreover, was brilliantly examined in Max Wertheimer's posthumous work, *Productive Thinking*. Rational solutions arise when the problem situation is conceived in terms of its intrinsic structural interrelationships. The problem solver selects the relevant characteristics and relations and restructures the situation with a regrouping of parts in accordance with the requirements of the needed solution. In this process the rearrangement goes on as gaps and inconsistencies appear until an organization is found which meets the significant and implicit demands of the problem. Productive thinking is not blind trial-and-error with accidental success, but a grasp of the inherent relationships of the situation and a succession of patternings that are sensibly related to the important dimensions of the problem.

The Growth of Clinical Psychology.—The largest single development in the whole field of psychology after the end of World War II was the growth of clinical psychology. The war years brought about a *rapprochement* between psychology and the medical profession, as the diagnostic tools and research skills of the psychologist gained recognition. The concept of the psychiatric team made up of neuropsychiatrist, clinical psychologist and psychiatric social worker became widely accepted. This acceptance broadened the area of operations for the psychologist to include individual or group therapy for minor psychoneurotic conditions and new research opportunities on the relative efficacy of various therapeutic techniques.

Though there had been a growing awareness of the need for more adequate clinical-psychological services in the nation generally, the expansion was in good part in answer to the immediate requirements of the Veterans' administration. The neuropsychiatric patients in Veterans' administration hospitals were expected to outnumber all other types of illness; on April 1, 1946, there were about 44,000 neuropsychiatric cases as against only 30,000 cases of other kinds of illness. Then, too, there were the psychological problems in the re-education of the crippled and physically handicapped. Finally, the federal laws pro-

vided a guidance and advisement program for all veterans which included educational, vocational and psychological counselling.

To implement its objectives the Veterans' administration set up a division of clinical psychology in the neuropsychiatric services under Dr. James Miller and was employing clinical psychologists in these five types of installations: mental hygiene clinics, neuropsychiatric convalescent centres in general medical and surgical hospitals, neuropsychiatric hospitals, paraplegia centres and aphasia centres in general hospitals. The mental hygiene clinics attempted preventive psychiatry. In the paraplegia and aphasia centres the work of the psychologist was to be largely retraining and re-education. To staff these services the Veterans' administration initiated a training program in which the trainees, mostly veterans themselves, were taken on as part-time workers while they pursued their graduate training at co-operating universities.

The Veterans' administration also embarked upon the most ambitious guidance program ever undertaken in creating facilities for vocational, educational and personal counselling for all veterans. The work was done through guidance centres organized in hundreds of colleges and universities all over the U.S. The Veterans' administration contracted with the educational institution for the types of services furnished but directed the procedures to be followed. Moreover, research was conducted by the central offices on the effectiveness of the various counselling and psychometric services.

Even after the peak of the veteran load was expected to be past, the rising morbidity rate for mental disease in the U.S. would call for expanded psychological and psychiatric services. The United States public health service was already planning for an extension of public mental health clinics.

Research Findings.—Prefrontal lobotomy, the surgical severing of the nerve tracts connecting the frontal lobes and the thalamus of the brain, was used as a treatment for psychosis with considerable apparent success. Many schizophrenic patients after this operative treatment lose their psychotic symp-

toms and resume their place in community activities. Before its use as a therapy, prefrontal lobotomy had been tried in animal experiments to discover the functions of the prefrontal lobes, and it was established that infrahuman primates with frontal lobe destruction suffered definite loss of the faculty of immediate memory. The first reports from the testing of human patients after the operation showed little intellectual impairment. More careful, systematic testing by M. F. Robinson, however, indicated that the operation does affect the capacity for prolonged attention and deliberativeness, a finding similar to the earlier work on animals. It seemed that the success of the operation is the result of a simplification of total neural organization with the knocking out of some of the higher nervous controls. The withdrawn, schizophrenic patient becomes more emotionally extraverted but also less capable of intellectual deliberation.

Behaviourism overgeneralized John B. Watson's epoch-making experiments on the conditioned nature of emotional reactions in children. Research evidence had accumulated to indicate that fear and rage are evoked in new situations in which learning is not involved. D. O. Hebb demonstrated such spontaneous fear in chimpanzees when presented with mutilated and dismembered bodies and other unusual stimuli with which the laboratory-bred animals had had no experience. The explanation was not that these fears are innate but that situations which disrupt the existing sequence-patterns of neuropsychological organization are emotion-arousing. Pain because of the intensity of the stimulation may have a direct disrupting effect. Dead and mutilated bodies and similar "weird" stimulus patterns upset the normal organization of responses because they call out incompatible perceptual and intellectual processes.

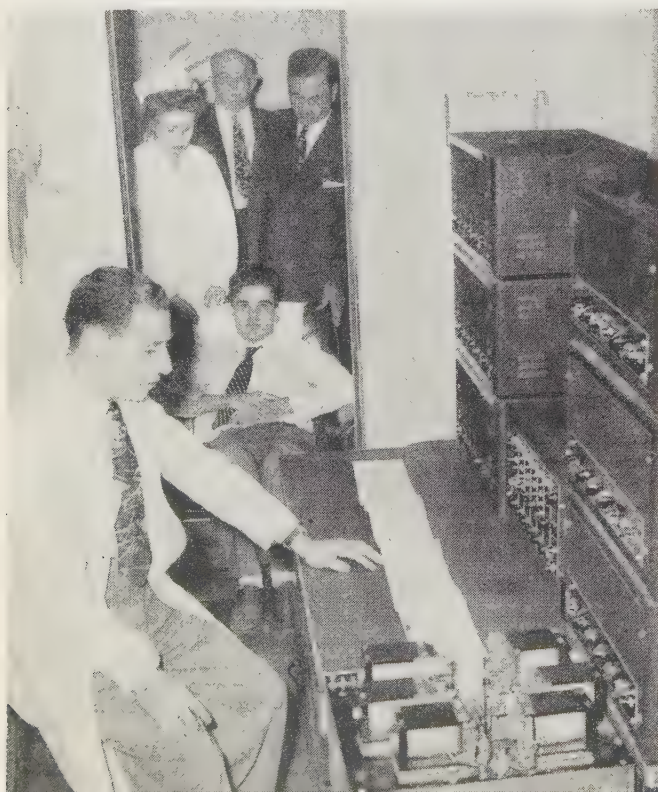
The superiority of the whole to the part method of learning was confirmed in studies of concept formation. Where material can be logically organized by the learner there is a relative saving in time by increasing the amount to be learned at one session. Research on incidental learning has had important implications for the psychology of testimony. People under no specific set or intention to observe will be able to report correctly on the general trend of events but not on specific details. Thus, the witness to an accident may not be necessarily unreliable about major happenings because he is inaccurate about the details.

The development of a sense of time in the young child was at last studied systematically. Spontaneous verbalization indicates that children first use words which refer to the present, then words denoting future time and finally words which refer to the past. There are marked individual differences in children's orientation in time. Some children develop an excellent temporal frame of reference at an early age; others never seem to be well oriented in terms of temporal perspective. As a rule, however, words implying duration do not appear until about three years. As to general divisions of time, the child knows whether it is morning or afternoon before he knows what day it is; days of the week are named correctly by five years; months of the year not until eight years.

Since the suggestion theory of hypnosis was formulated it had been common to explain the results in the hypnotic state as the result of expectancy. In a set of experiments, W. R. Wells demonstrated that the strength of grip could be increased under hypnosis although the hypnotically-induced belief was one of weakness. The suggestion theory apparently over-simplifies the real facts of dissociation.

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Public Assistance: see CHILD WELFARE; RELIEF; SOCIAL SECURITY.

Public Buildings Administration: see FEDERAL WORKS AGENCY.

Public Health Engineering. **Water Supply.**—The U.S. public health service, under its authority over interstate quarantine matters, issued four successive standards of quality for the water used on interstate carriers. Three of these were issued in 1914, 1925 and 1942. The fourth appeared in 1946. The standards were intended to be used in evaluating the quality of water furnished or made available to passengers on railroad trains, steamships or other forms of transportation across state lines.

For the first time these federal standards were officially accepted in 1946 by the American Water Works Assn. for application to all public water supplies, whether used in interstate traffic or for intrastate purposes. They thus became by implication professional standards commanding a broad and general acceptance usually accorded to such professional specifications. The standards for 1946 differed in certain essentials from those promulgated in 1942, with particular reference to administrative responsibilities of official state and local health agencies and of local water departments. The bacterial and chemical requirements, except for clarification, remained approximately the same.

In this connection increasing search was being made for more rapid techniques for the examination of drinking waters for evidence of sewage pollution. The measurement of the fluorescence of drinking water was reported as an index of pollution. Those and other techniques for rapid indirect determination of sewage pollution were still in the investigative stage.

The use of chemicals for the economic control of weeds in and around reservoirs made large advances. Understanding and availability of improved compounds had progressed sufficiently far to give some promise of ultimate success in controlling or even eliminating the ever-present objectionable weeds, the sources of tastes and odours in water and of general interference with the operation of reservoir and river channels. The new 2, 4-D compounds are among the most effective materials of this type. Chlorinated hydrocarbons, with dosages as high as 50 gal. per ac. and with long contact periods, gave successful results with submerged aquatic weeds. Extensive field operations had taken place in the Los Angeles, Calif., and in the Tennessee Valley authority areas.

Sewage.—The importance of poliomyelitis virus in sewage still offered one of the debatable issues in the field of public health engineering. Claims as to the importance of the transmission of this disease through water or through flies naturally reached a high point during 1946, because 1946 showed one of the highest incidences of epidemic poliomyelitis in U.S. history. Sensational press reports linked sewage pollution with polio and a few engineers at least attached the label of "filth disease" to polio. The most careful investigations of epidemics of polio, however, did not record any instance of its spread by a common water supply. Small groups of cases were associated with a common milk supply. No instance was at hand in which any

other common food had been definitely incriminated as the medium of transportation of an explosive outbreak.

Considered epidemiologic opinion suggested that there was no reason to believe that improved methods of sewage treatment and disposal, more rigid standards for the purification of water supplies or the dusting of DDT over a city from aeroplanes would have any measurable effect on the incidence of infantile paralysis. Such a judgment, however, did not mean that careful and continuing field and laboratory studies were not essential for the ultimate clarification of the relationship of environmental structures and their control to this and other virus diseases.

Food.—The control of food continued to offer one of the major challenges to public health engineering practice. The literally filthy conditions disclosed by the detailed New York city enforcement program during 1946 could probably be matched throughout the U.S. and other countries.

A report of an outbreak of infectious hepatitis in 1944 among the students at Western Reserve university school of medicine (Cleveland, O.) merely gave additional emphasis to the necessity for this eternal supervision. The outbreak consisted of 24 cases, involving only members of one fraternity house and primarily those who ate regularly at the fraternity dining table.

Similar circumstantial incrimination of milk occurred in Georgia in 1945 with an outbreak of infectious hepatitis. There, too, the direct incrimination of a single dairy was significant, if not complete.

Air.—Interest in the control of air for the purposes of prevention of disease continued at the usual high level. A critical review of studies on disinfection of air in military establishments was prepared by the Committee on Sanitary Engineering of the Division of Medical Sciences of the National Research council. The committee concluded that, although both ultraviolet light and glycol had their merits and demerits, knowledge was too limited to make any definite claims or predictions concerning their ability to reduce air-borne infection. The design and operation of apparatus for air disinfection was still on an empirical basis and the use of these disinfection agents was not without danger to the user. Extravagant views for promotion of sales of disinfecting apparatus might well retard progress and injure the industry. The committee did not recommend the general use of these disinfecting devices. Much research and development work by qualified personnel remained to be done.

Insects and Rodents.—A hitherto unknown type of spotted fever affecting nearly 100 persons in Queens borough of New York city during the summer of 1946 was identified as a new disease spread by the bite of a mite. The mite lives on the bodies of mice. The disease was named rickettsial pox.

The mite which spreads the disease was found in storerooms and around incinerators of apartment houses in which the disease occurred. The new disease follows the pattern of the other seven known rickettsias depending upon the bite of an insect.

In Baltimore, Md., during 1946 several cases of typhus fever were traced to insect-bearing rats. For several years a rodent oecology study had been under way in Baltimore under the joint auspices of Baltimore city, the Johns Hopkins university school of hygiene and public health and the Rockefeller foundation. The study was directed toward a detailed investigation of the habits of rats, their adaptation to the physical environment and the use of rodenticides as a control measure.

(AB. W.)

Great Britain.—Plans were afoot in 1946 for the renewal of old plants and the construction of new installations for water

supply. The Metropolitan Water board, London, drew up a comprehensive program, estimated to cost £37,250,000, of which replacement of worn-out plants would account for £6,750,000, improvement to existing works for £8,250,000 and new works for £22,250,000. Worthing town council, Sussex, received approval for a 2,000,000-gal. reservoir at Patching Hill, with a new electrical pumping plant (cost £150,000). Purification plant at the Tees Valley waterboard's works at Broken Scar, near Darlington, Yorkshire (for Middlesbrough), was to be superseded by a modern gravity-filtration plant, the cost of the whole scheme being £235,000. A number of large water undertakings were projected in very remote rural districts, hitherto largely dependent on wells or rain water, such as Skye and the Outer Hebrides (£1,400,000), Orkney county council (£1,000,000) and Perth and Clackmannan (£1,695,000) in Scotland and north Cornwall (£678,627) in England.

Sewage.—A report submitted to Middlesex county council late in 1946 dealt with the subject of sewage disposal at the Mogden works and remarked on the extent to which the capacity of the works was tested by heavy rainfall, especially by the two great storms of July 26 and Sept. 8, when the total rate reached 365,000,000 gal. per day. Full pumping capacity, which had not been used from 1937, was thus required twice in six weeks. Mogden, which had the largest sludge beds in the British empire, was still regarded by engineers as a model and served as such for the Nottingham sewage disposal committee's new works at Stoke farm (estimated cost £1,250,000). The ministries of health and of town and country planning, in considering new sites for housing, gave their attention to questions of sewage and drainage; a report on the proposed £1,353,000-scheme for water supply, outfall sewage and sewage disposal for the new satellite town of Stevenage was submitted to the Hertfordshire county council. Several other authorities applied for sanction to proceed with new schemes, among them Witney rural district council, Oxfordshire (sewage and sewage disposal undertaking to serve 34 villages; estimated cost £350,000), Havant and Waterloo urban district council, Hampshire (scheme for constructing trunk sewers and for sewage disposal works at Dudd's Farm, Brockhampton, estimated cost £371,000) and Norwich city council, Norfolk (proposed scheme involving 6½ mi. of pipes at an estimated cost of £246,240). A number of large draining schemes also were contemplated, the biggest being the £10,000,000 North Surrey project. Fife county council proposed to spend £700,000 on various drainage schemes, including purification of the waters of the River Leven.

Smoke Abatement.—The problem of smoke abatement received much attention among local authorities, and in reply to a question in the house of commons, Aneurin Bevan, minister of health, stated that the possibility of granting general powers to take measures for smoke abatement was being examined with a view to introducing the necessary legislation.

(J. LN.)

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Public Health Service: see EPIDEMICS AND PUBLIC HEALTH CONTROL; FEDERAL SECURITY AGENCY; VENEREAL DISEASES.

Public Housing Authority, Federal: see HOUSING.

Public Libraries: see AMERICAN LIBRARY ASSOCIATION; LIBRARIES.

Public Opinion Surveys. **Elections.**—The election record of the polls during 1946 was not distinguished. Errors of 4% or more were common in the forecasts made of the general elections in France and Australia and in the U.S. congressional and state governorship contests. The *New York Daily News*, using a massive rather than a strictly representative sample, erred by nearly 10% in predicting the outcome of the governorship election in New York. The Texas poll, re-established early in the year after a wartime lapse, made a useful contribution to polling knowledge by publishing a careful analysis of its errors in the first Texas primary election of the year. The difficulty of estimating the turnout of the voters and especially the difficulty of finding out to what degree the Negroes would use their franchise seemed to be at the root of the errors recorded.

New Organizations.—The trend toward the establishment of new surveying organizations, noted in 1945, continued during 1946. International Public Opinion Research of New York city reported operations established in nine countries of Latin America. An Italian poll, with the title of *Doxa* and with headquarters at Milan, made reasonably accurate forecasts of the plebiscite held on Italy's royal family and went on to publish a variety of political and marketing reports thereafter. A Norwegian Institute of Public Opinion, affiliated with the International Gallup Polls, published its first reports in Feb. 1946. Releases were also issued during the year by new polling organizations in the Netherlands, Belgium and Hungary.

Public opinion surveying received important new academic recognition with the opening late in 1946 of a Survey Research Centre at the University of Michigan under the guidance of Dr. Rensis Likert, professor of sociology and former director of the division of program surveys of the U.S. department of agriculture. He was accompanied by Dr. Albert A. Campbell and other members of his Washington staff. The new centre was to study survey methods, give college courses in opinion surveying and undertake survey work on special grants.

Applications and Findings.—The year was notable for the widespread application of opinion surveying to the acute labour problems that disturbed the U.S., especially the strikes and the high turnover of labour that afflicted many of the mass production industries. Surveys were in some cases able to forecast the severity and duration of strikes and nearly always were able to reveal the principal causes of high labour turnover. Most of these surveys, made for private corporations, were not published. Toward the end of 1946, as commodity prices in the U.S. began to fall and the restoration of normal markets seemed imminent, many corporations began to expand their surveying work as a preparatory measure.

The *Fortune* Survey of Public Opinion, having established a sample of army and navy veterans, discovered that those who had been in Europe liked the British for their bravery, the Germans for their cleanliness and efficiency and the French for their friendliness. On balance the veterans preferred the Germans over the French, but those who had fought the Germans in many campaigns in the Mediterranean and northern European areas retained a dislike for the Germans.

The French Institute of Public Opinion reported that most French people believe money to be about the most important thing in life. Those, however, who believe that love is more important than money also reported themselves to be happier people than those who put money first.

FILMS.—*Public Opinion* (Encyclopædia Britannica Films Inc.). (R. W.D.)

Public Roads Administration: *see* FEDERAL WORKS AGENCY; ROADS AND HIGHWAYS.

Public Utilities. The dominating influence during 1946 in all sectors of the public utility field in the U.S. was the readjustment of relations between management and labour which came with the transition from war to peace economy. Not all strikes and threats of strikes with their unsettling effects upon employment, income and public services were intraindustry disputes. The worst, notably the steel and coal strikes, came from the outside; the latter particularly, in its spring and fall phases, threatened to restore and to some extent actually restored once more a few of the aspects of service curtailment so characteristic of wartime. A 27-day strike in the Pittsburgh, Pa., area of strategically placed employees of the Duquesne Light Co., ultimately effected curtailment of all the public services of the region. Similar, if less advanced, local stoppages in New York, Virginia, California and in practically all the states showed how the strike problem in essential industries was and remained the nation's paramount problem. Many believed, therefore, that the War Labor board was scrapped too soon.

Another problem arising out of wartime, which had some influence upon public utility affairs, was that of the War Assets administration on how best to dispose of the "Big Inch" and "Little Inch" pipe lines. These facilities, in part, were leased temporarily to the Tennessee Gas and Transmission Co. to carry natural gas to Indiana, Ohio and Pennsylvania, areas greatly in need of a supplementary supply. The availability of this alternative was having some influence upon negotiations in the soft-coal controversy. While 16 bids were received, one from a mutual co-operative association, to carry either oil or gas, the problem remained unsettled at the close of the year.

Related to the above was the general problem of energy supply for manufacturing and domestic and commercial use in the United States. One phase of this was involved in the natural gas investigation carried out during 1946 by the Federal Power commission in natural gas producing and consuming areas. It was estimated that a surplus would be available for about 30 yr. The hearings were closed and a report was to be transmitted to congress disclosing the full nature of the problem of the natural gas industry and its proper regulation in the public interest. Meanwhile the Federal Power commission authorized the extension of the pipe-line transmission network in all directions. The most important of these was the authorization in June of 1,202 mi. of main pipe line from Dumas, Tex., into the Los Angeles, Calif., area at a cost of about \$70,000,000. World War II had accelerated the gradual depletion of California gas supplies so that this region, which knew nothing of coal and whose oil supplies were likewise diminishing, had to look elsewhere for energy supply if it would maintain its record of employment and population growth.

Another phase of the energy-supply problem was treated in the reports made by the bureau of reclamation of the department of the interior. Such a report covering the development of water resources of the Colorado River basin was submitted on June 6, 1946. This report showed that 134 potential projects or units of projects could be developed for irrigation, power production, flood and silt control and other beneficial uses in the basin states. Estimated current construction costs for upper basin projects would equal \$1,471,227,200 and for lower basin projects \$1,989,270,000, or \$3,460,497,200 as a total. Potential hydroelectric power developments for the upper basin states were estimated at 1,713,000 kw. of installed capacity representing an annual firm kw.-hr. output of 9,241,000,000. The lower basin states would show respectively

1,945,400 kw. and 10,205,000,000 kw.-hr. Irrigation development of new lands or supplemental irrigation for old lands would affect in the upper basin 1,734,980 ac. and in the lower basin 921,250 ac. Unfortunately there was not enough water available to fructify all these projects and, therefore, a selection and apportionment had to be made, which was the main reason for making the report. Since the Mexican treaty required the delivery of 1,500,000 ac.-ft. at the border, only 16,220,000 ac.-ft. were available for uses in the United States out of the total average estimated supply of 17,720,000. Since current uses depleted the virgin supply by 7,120,000 ac.-ft., only an average of 9,100,000 ac.-ft. were available to meet expanding uses. Since all existing and potential projects would require 20,200,000 ac.-ft. there was an estimated deficiency of water resources of about 25%.

The Colorado River basin report was a part of a general plan to cover all of the area within the reclamation bureau's jurisdiction. The so-called "Sloan" report covered the Missouri River Valley authority. This report was combined with the so-called "Pick" report of the corps of engineers, U.S. army, in outlining a \$2,000,000,000-plan for 100 dams with 20 associated power plants and transmission lines and 150 irrigation projects to develop the Missouri river watershed for flood control, navigation, irrigation, power and other beneficial uses. Similar reports were prepared for the Central valley of California and the Columbia river watershed.

In November the directors of the Omaha Public Power district signed a contract to purchase the properties of the Nebraska Power Co. This gave them the unique distinction of purchasing the only segment of the electric-power industry in and around Omaha, Neb., still remaining in private hands in that state. After disposing of certain Iowa properties, the net cost to the district was expected to be about \$37,750,000.

The year's end also saw the complete decontrol of utility rates by the Office of Price Administration which had never been more than on an intervener basis. Price stabilization during World War II was the work of regulatory authorities. Available indexes showed that, all told, electric, gas and telephone rates continued to decline. From all indications, however, the level of rates in urban transit was beginning to rise, just as railroad rates had to be increased because of the major importance of the labour cost factor. A similar rise impended in the tele-communications field.

In Jan. 1946 the U.S. supreme court rendered an opinion which might have an important effect in destroying the tax-exemption privileges enjoyed by publicly-owned utility enterprises. After 1933 the state of New York, through an agency known as the Saratoga Springs authority, had been developing a health resort which, incidental to these activities, was bottling and selling mineral water throughout the United States at substantial profits. When the internal revenue department attempted to collect a 2-cents-a-gallon tax levied on all bottled waters according to the Revenue act of 1932, the state contended that these operations constituted a governmental function and hence were immune from federal taxation. In the trial of the suit to collect the tax the federal district and circuit courts had upheld the power to tax because the sale of bottled water by an instrumentality of the state was not the performance of a governmental function. On appeal by the state to the supreme court, the constitutional power to levy this excise tax was upheld. If the principle of this decision should be extended to other forms of revenue-producing enterprises, particularly to power utilities operated by municipal, state and federal agencies, an end might be made of the discrimination in tax policy between publicly and privately owned utilities, which had been a heavily laboured point in the argu-

ments of the opponents of public enterprise. (See also TENNESSEE VALLEY AUTHORITY.) (M. G. G.)

Great Britain.—The gas and electricity industries were severely handicapped in 1946. Shortages of coal and transport and the problems of renewing outworn equipment made it hard to meet the increasing public demand; in the winter periodic cuts were made in supplies to both homes and factories as well as occasional lowerings of pressure and power to domestic consumers. In February Emanuel Shinwell, minister of fuel and power, received a report from the electricity commissioners on standardization of voltages and agreed that the standard voltage should be 240. Both the gas and electricity industries were opposed to nationalization, and in June the electricity industry issued a five-point program as an alternative to the government's plans; the points were: (1) electricity supplies to be available for 90% of premises in the companies' areas; (2) prices to be the lowest possible consistent with costs of coal, wages and materials; (3) forms of tariff to be standardized; (4) standardization of voltages to be completed; (5) direct current for domestic supplies to be abolished.

In September Thomas Johnston, chairman of the North of Scotland Hydro-Electric board, gave details of the £4,800,000 project to use natural resources in Inverness-shire, the catchment area being 124 sq.mi. and the estimated yearly output about 250,000,000 units. This would not only provide fuel for new industries but would also bring electricity to domestic users in hitherto inaccessible areas. National weekly average production of gas for Sept. 1946 was 39,100,000 therms as against 29,000,000 weekly average for the year 1938, and the monthly average of electricity for the first 9 mo. of 1946 was 3,244,000,000 kw. as against 2,031,000,000 monthly average for the year 1938.

The Water act which came into force on Oct. 1, 1945, gave the minister of health specific statutory responsibility for promoting and conserving the proper use of water, and on June 6, 1946, Aneurin Bevan announced the formation of a central advisory committee for this purpose. Improved supplies to a number of midland and northern cities resulted from the opening of the Ladybower reservoir, Derbyshire, in 1945.

Europe.—Domestic supplies of gas and electricity in France improved considerably. Both industries were put under state control, and under the government's economic proposals it was intended to step up total production of electricity from its annual level of 23,000,000,000 kw. to about 37,000,000,000. An important new project was the Donzère-Mondragon barrage on the Rhône river expected to produce 500,000,000 kw. yearly. Prices of gas and electricity for lighting in Aug. 1946 were 5.24 francs per cu.m. and 5 francs per kw. as against 1.54 francs and 1.82 francs for the same month of 1939.

Improvement also took place in the majority of other liberated countries; production in Belgium touched 517,000,000 kw. in Sept. 1946, as against a monthly average of 377,000,000 in 1945; Czechoslovakia produced 413,000,000 kw. in July 1946 against a monthly average of 166,000,000 for 1945; and production in the Netherlands was 203,000,000 kw. for July 1946 as against 122,000,000 (monthly average) for 1945. (See also ATOMIC ENERGY; DAMS; ELECTRICAL INDUSTRIES; LAW; RURAL ELECTRIFICATION.) (J. LN.)

Publishing (Book): see BOOK PUBLISHING.

Puerto Rico. A United States insular dependency in the West Indies; area 3,423 sq.mi.; pop., 1946 est. 2,100,000 (1940 census: 1,869,255). Whites comprised 76.2%, Negroes, 23.8%. The chief cities (with 1945 est. populations) are San Juan, the capital (208,055); Ponce (114,007); Mayagüez (84,766); Caguas (59,136); Arecibo (76,678); Río Piedras (87,851). Languages: Spanish and English; religion: predominantly Roman Catholic.

History.—The appointment of Jesús T. Piñero by President Harry S. Truman in 1946 marked the first time in the 400-year history of the island under either Spain or the United States that a Puerto Rican had been governor. Prior to his appointment as governor, Piñero was resident commissioner to Washington, an office to which he was elected by the people of Puerto Rico in 1944.

Various proposals for a change in Puerto Rico's political status, long unsatisfactory to Puerto Ricans, were made during the 79th congress. President Truman recommended in a special message to the congress Oct. 16, 1945, the enactment of legislation which would authorize a plebiscite to indicate preference as to statehood, complete independence or a dominion form of government. The president reiterated his recommendation in his message to the congress on the state of the union in Jan. 1946. Bills were introduced, but the congress adjourned without having taken any action thereon.

During 1946 the island was relatively prosperous. The resumption of normal shipping after World War II, the beginning of postwar construction and the soldier's unemployment bonus were the principal sustaining factors. However, the coal and

shipping strikes had nearly disastrous effects during the latter part of 1946 and serious suffering was narrowly averted. Shortages of supplies and materials in the United States hampered progress on the industrialization program and delayed construction of important projects.

Rapid price rises that occurred following the abandonment of wartime controls caused great concern, particularly so because sugar, the island's principal export, remained under price control.

The number of different persons employed on emergency projects during the year totalled 47,254. The daily average employed was 13,166. As in prior years the construction and improvement of highways, roads and streets ranked first among the activities of the program.

Education.—A total of 360,635, or 54.36% of the population between the ages of 6 and 18, was enrolled in public and private day schools. The grand enrolment in public schools and private day, vocational, evening and adult schools was 380,469, which represented an increase of 6.91% in excess of that of 1945. In the public day schools, the enrolment was 349,959, an increase of 19,089 or 5.77% in excess of that of 1945. The total number of teachers, principals and assistant superintendents in the public schools was 8,881, of whom 44.42% were normal school or college graduates. Expenditures for public educational purposes totalled \$19,909,657 and for private schools \$908,767.

Finance.—Bank deposits in June 1946 were \$298,100,000; debts were \$212,700,000 and loans \$70,700,000.

Revenues for the fiscal year ended June 30, 1946, totalled \$132,185,700, of which \$82,249,600 was received in the general fund and \$49,936,100 in special funds. The greatest single source of revenue was the tax on rum exported to the United States, which produced \$35,407,700. Disbursements during the fiscal year 1946 were \$177,231,000 leaving a balance in the treasury of \$129,500,100. The bonded debt of the insular government on June 30, 1945, was \$13,064,000; the municipal debt on that date amounted to \$15,756,747.

Funds were appropriated for the budget for the fiscal year 1947 as follows: Operating expenses \$48,585,842; public debt \$39,525; War Emergency program \$3,600,000; public service enterprises \$8,427,918; capital improvements \$15,323,575; a total of \$78,326,413.

Trade.—In 1945 Puerto Rico imported goods from the United States valued at \$160,969,421, an increase of \$40,470,215 over the value of similar imports during the calendar year 1944. Exports to the United States from the island during 1945 amounted to \$144,675,224 as compared with \$123,747,071 during 1944.

Agriculture.—On April 24, 1945, the legislature created the Agricultural Development company, with authority and funds to develop to the utmost the commercial possibilities of the island's agriculture. Various other federal and insular government agencies were at work on the problem of making the best use of the land. Three research centres—the Agricultural Experiment station of the University of Puerto Rico, the Federal Agricultural Experiment station and the Institute of Tropical Agriculture—were carrying on research to develop better plant strains and improve production techniques. In March 1946, the legislature passed the Soil Conservation Districts act, providing for the creation of soil conservation districts to work for the protection of land against soil wastage and erosion.

Through June 1946, the Land authority had acquired nearly 62,000 acres of land. There were 16,851 parcels distributed to *agregados*. There were 18 proportional profit farms in operation that showed a net profit of \$400,000 for the year. In 1946 the Land authority acquired the Cambalache sugar mill, which was operated on a proportional profit basis, showing a profit of more than \$175,000 for the year.

The 1946 sugar production was 909,074 short tons, or 55,457 less than the 1945 production. Tobacco, which in 1945 was overproduced, was decreased in acreage. In 1946 Puerto Rico's 23,745 tobacco growers voted to establish a quota on production. To overcome the threat of hurricanes, which in 1928 and 1932 practically demolished the coffee plantations, the insular government in 1945 set up a plan of insurance, for both crops and plantations. In 1946, the Coffee Industry Relief commission was created to study and put into effect a general plan for the rehabilitation of the coffee industry. Sales of forest products in the fiscal year 1946 amounted to \$14,483, the demand being chiefly for stakes and posts, fuel and charcoal wood and saw timber.

Manufacturing.—The Puerto Rico Industrial Development company was created by the insular government in 1942 to establish and operate industries on behalf of the government and to help finance and assist private industry. In 1946 three factories were in operation under this company's direction—glass-container and cement plants, which used native sand, clay and limestone, and a paper plant which manufactured paperboard from waste paper. Under construction were a clay-products plant and a shoe and leather factory.

Rum production for the calendar year 1945 amounted to 7,568,831 proof gal., of which 2,909,143 gal. valued at \$10,164,574 were shipped to the United States. Needlework shipments to the United States during 1945 were valued at \$23,307,793. The island produced 140,763,000 cigars during 1945. (E. G. A.)

Pugilism: see BOXING.

Pulitzer Prize: see PRIZES OF 1946.

Pulp Industry: see PAPER AND PULP INDUSTRY.

Pulpstones: see ABRASIVES.

Pumice: see ABRASIVES.

Purdue University. Indiana's link in the great chain of land-grant colleges and universities was established formally May 6, 1889, when the Indiana general assembly accepted \$200,000 in cash and 150 acres of land from John Purdue and other citizens of Lafayette, Ind. Prior to World War II, Purdue had the largest enrolment in engineering of any university in the U.S. and during the war was devoted largely to the training of men for the armed services, civilian enrolment dropping to less than 1,500 students at one time, from a high of 7,121. With the end of the fighting, enrolment began to mount and at the Sept. 1946 semester was up to more than 13,000 including about 7,500 returning veterans. The 1947 fall semester enrolment was to be held to 14,000. Housing facilities for almost twice the prewar enrolment had to be provided and class room and laboratory facilities were greatly expanded as in all institutions of learning.

Dr. Frederick L. Hovde, who headed the rocket bomb development program in the United States during World War II, became president of the university Jan. 4, 1946. The university's department of aeronautical engineering was organized as a separate school in the engineering group and offered a new degree in air transportation. The university granted degrees in agricultural engineering, and also in naval science as a result of establishment of a naval R.O.T.C. on the campus. Schools of the university in 1946 were: agriculture, science, home economics, pharmacy and the following in engineering: civil and engineering mechanics, electrical, aeronautical, mechanical, chemical and metallurgical. Degrees also were offered in education and applied psychology, in trade and industrial education, in physical education and engineering law. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

Pyrite. The production of pyrite in the United States decreased from 883,154 short tons in 1944 to 809,308 tons in 1945 and the sulphur content decreased from 372,700 tons to 331,800 tons. Imports increased from 202,455 tons to 208,888 tons, mostly from Canada, but with the greatest amount from Spain that had been received after 1941. Imports declined after 1939, and Spain, the source of 92% of the 1937 imports, contributed only 8% in 1944, rising to 26% in 1945.

All told, world output declined about 40% from prewar years, to 6,600,000 tons, as compared with 11,000,000, and 9,900,000 in 1942 and 1943 respectively. Few figures were received for 1945 outside of the United States; Canada declined from 250,069 tons in 1944 to 227,732 tons in 1945, and France from 189,437 tons to 161,625 tons, but Portugal increased from 145,384 tons to 188,459 tons. (See also SULPHUR.) (G. A. Ro.)

Qavam-es-Saltāneh, Ahmad: see GHAVAM-ES-SALTĀNEH, AHMAD.

Quakers: see FRIENDS, RELIGIOUS SOCIETY OF.

Quebec. The province of Quebec, Canada, occupies the lower basin of the St. Lawrence, north of New York and New England to Hudson bay and strait. Area 594,534 sq.mi.; pop. (1945 off. est.) 3,580,000. The cities (1941 census) are: Montreal (903,007), the largest city in Canada; Quebec (150,757), the provincial capital; Trois Rivières (42,007); Sherbrooke (35,956); Hull (32,947). The French language predominates, 80.9% of the people being of French origin. The government is affiliated with the Roman Catholic Church, as are 86.9% of the people. The government differs from those of most Canadian provinces in having a legislative council (senate).

The legislative assembly has 91 members. The lieutenant governor in 1946 was Sir Eugene Fiset; the premier, Maurice Duplessis. The budget in 1945 balanced with a surplus of \$96,455,703, with a provincial debt of \$328,362,569.

History.—In the national (Canadian) parliament the great majority of the members from Quebec continued in 1946 to be Liberals, under the leadership of Adelard Godbout and Louis St. Laurent. The provincial government, on the other hand, remained under the opposition *L'Union Nationale*, led by Duplessis; and the Liberals lost three by-elections at Pontiac, Compton and Bagot, although winning at Richelieu-Verchères as the year ended. Communist influence appeared in the "squat-ter" movement for the seizing of dwelling places by ex-soldiers in the autumn, while Fred Rose, the Communist member of parliament from Montreal, received a penitentiary sentence for atom-bomb espionage. The dominion's plans for consolidating its sources of revenue were frustrated by the Duplessis government, which insisted on retaining its inheritance-tax prerogatives. The joint Canadian-American Defense commission met at Quebec in January, and the provisional International Civil Aviation organization met at Montreal in May. The provincial government with church impulsion pressed its activities in settling young couples on wild lands in the north.

Education.—Continued growth in 1946 brought the number of schools to 10,078 with 32,580 teachers and 724,397 pupils. In 1942 there were 7 normal schools with 3,549 pupils and 31 academies with 11,798 pupils. The two Catholic universities (Laval university at Quebec and l'Université de Montréal at Montreal) had 21,882 pupils, while the two Protestant universities (McGill university at Montreal and the University of Bishop's college at Lennoxville) had 5,285 pupils.

Agriculture.—The value of agricultural production in 1944 was \$371,275,000. In 1945 the acreage cultivated was 6,758,000, and the value of field crops \$153,765,000, with hay leading at \$85,488,000, followed by oats \$24,241,000 and potatoes \$21,367,000. Livestock in 1945 was valued at \$204,407,000; the butter output was \$28,217,256 and cheese \$12,739,277. Buckwheat, maple syrup and tobacco continued to be characteristic Quebec products.

Minerals, Hydroelectric Plants.—The total mineral production in 1945 was \$88,751,614, the two leading products being gold \$25,572,701 and asbestos \$21,405,391. Hydroelectric plants had an installed capacity of 5,848,572 h.p. and sold current worth \$87,264,990.

Forests, Fisheries and Furs.—The 1944 production of lumber was 653,989,310 cu.ft. valued at \$114,918,046, wood-pulp 2,767,081 tons valued at \$105,042,991 and paper 2,152,956 tons valued at \$134,617,241. Three-fourths of the paper goes to the United States, and in 1946 this trade was active at high prices. Fishery products had a value of \$5,361,872 in 1945, and the development of fishermen's co-operatives in Gaspé was important in 1946. The fur take in 1945 was worth \$5,059,995.

Manufacturing.—The gross value of manufactures in 1944 was \$2,929,685,183, the number of employees 424,115 and the wages \$668,156,053. The latest figures for groups of industries (1942), leaving aside farm and forest industries already treated, were: textiles \$431,293,769, iron and its products \$446,133,739, nonferrous metal products \$336,491,281, chemicals and allied products \$219,104,671 and nonmetallic mineral products \$87,298,386. The Arvida aluminum plant on the Saguenay river is said to be the largest in the world and produced most of the 460,000 tons of aluminum made in Canada in 1944. A Quebec provincial law was passed in 1946 looking to the development of the vast iron ore deposits in Ungava territory, now part of Quebec. The creation of new industries in the province was active in 1946, no less than 97 plants having been set up in Montreal and its large industrial suburb Verdun. The tourist traffic rates as an industry in Quebec, and 1946 was its largest season.

(W. Fr.)

Queensland. A state of the Australian commonwealth lying in the northeast and occupying 670,500 sq.mi.; pop. (est. June 30, 1945) 1,078,622. Chief cities (pop. Dec. 31, 1943): Brisbane, cap., 370,500; (Dec. 31, 1940) Rockhampton (35,500); Townsville (31,450). Governor: Lieut. Gen. Sir John Laverack.

History.—In March 1946 the premier, F. A. Cooper, resigned on the grounds of age and was succeeded by Edward Hanlon, the deputy premier and treasurer. In September it was announced that Lieut. Gen. Laverack had been appointed governor-designate to succeed Sir Leslie Wilson. He was the first Queenslander to hold this post.

Severe drought conditions were experienced over the whole state which caused the complete failure of the winter-sown grain and considerable diminution in the sugar crop. Good rains fell late in September and many fruit and dairying areas were

expected to recover.

Education.—In 1941: schools 1,898; scholars 178,893.

Finance.—Revenue (1944-45) £A26,446,875; expenditure (1944-45) £A25,877,812. Debts outstanding (June 30, 1945) £A131,433,125. (£A1=\$3.2 U.S.)

Communication.—Roads (1940) 125,095 mi.; railways (June 30, 1945) 6,497 mi. Motor vehicles licensed (Dec. 31, 1945): cars 70,000; commercial vehicles 57,605; cycles 7,452. Wireless receiving set licences (Dec. 1945) 185,948.

Agriculture, Manufacturing, Mineral Production.—Production (in short tons) 1943-44: maize 135,360; sugar cane 700,000; wheat (1945-46) 240,000; gold (1939) 145,667 fine oz.; silver (1942) 3,100,000 oz.; coal (1942) 1,913,000. Industry, manufacturing (1944-45): factories 2,783; employees 64,135; gross value of output £A92,718,750; unemployment (trade union returns) (Feb. 1946) 0.8%. (W. D. MA.)

Quicksilver: see MERCURY.

Quo Tai-Chi (1888-), Chinese government official and diplomatist, was born in Kwang-tsi, Hupeh province. He won a scholarship offered by the Chinese imperial government to study in the United States and attended the University of Pennsylvania (1908-11), graduating with a B.S. degree. Returning to China in 1912, he joined Sun Yat-sen's movement, becoming secretary to Dr. Sun. In 1919, he was a technical delegate to the Paris peace conference. In May 1932, he went to London as Chinese minister to Great Britain. He represented his country at the Disarmament conference and the World Economic and Monetary conference in 1933 and at the assembly of the League of Nations (1932-33). In 1934, he became Chinese representative on the League council and the following year, his status in London was raised to that of ambassador. He left London in 1941 to return to Chungking as foreign minister in Chiang Kai-shek's government. In Feb. 1946, Quo was named China's permanent delegate on the U.N. Security council. During the Iranian dispute, he voted with the majority on the security council who rejected the soviet request to remove the controversy from the agenda. His appointment to the Atomic Energy commission was disclosed May 3. On June 29, Dr. Quo voiced his disapproval of what he called irresponsible use of the veto and predicted it would be abandoned.

Racing and Races: see AIR RACES; AUTOMOBILE RACING; DOG RACING; HORSE RACING; MOTOR-BOAT RACING; PIGEON RACING; TRACK AND FIELD SPORTS; YACHTING.

Radar: see ASTRONOMY; ELECTRONICS.

Radio. **Growth and Developments.**—Throughout the world approximately 4,865 long-, medium- and short-wave broadcasting stations, including relays or boosters, were in operation on a more or less regular basis in 1946, according to a midyear compilation prepared by the Foreign Broadcast Intelligence service (FBIS) of the U.S. war department.

Approximately one-third of these stations were located in the United States. Counting short-wave stations, the U.S. total exceeded 1,600. Totals for other nations, on the basis of the FBIS list, included 310 in Russia; 249 in Mexico; 173 in Japan, Korea and Formosa; 162 in Australia; 159 in Canada; 128 in Brazil; 119 in Chile; 114 in Colombia; 103 in Cuba; 90 in Great Britain; 75 in Spain; 72 in Argentina; 61 in France; 46 in Germany; 39 in Italy; 30 in the Union of South Africa and 21 in Norway. It should be remembered that these totals represented all types of broadcasting stations, including relays (but not frequency modulation [FM] and television).

U.S. Stations.—The year brought to the United States the

greatest increase in radio stations in history. The number of amplitude modulation (AM) stations, operating or authorized, passed the 1,500 mark late in the year for a gain of 50% over the 1,004 reported as of Jan. 1, 1946. In addition, there were about 132 short-wave stations, including relays. (For FM and television totals, see *Frequency Modulation and Television*, below.)

This unprecedented upsurge in the number of AM stations resulted from the fact that licensing virtually ceased during World War II, and from a desire on the part of many FM station applicants to set up AM operations to help pay the cost of FM in its not too profitable infancy.

Listening.—Radio receiving sets in use throughout the world numbered at least 125,000,000 in 1946. Almost half of these were in the United States: about 60,000,000 compared with 56,000,000 in 1945. The following summary of receiver totals was provided by Caldwell-Clements, Inc. and *Tele-Tech* magazine:

U.S. homes with radios	35,000,000
Secondary sets in these homes	15,000,000
Sets in business places, etc.	4,000,000
Automobile radios	6,000,000
Total sets in United States	60,000,000
Total sets in rest of world	65,000,000
Total sets in world	125,000,000

The ten leading nations in point of receiving sets in use in 1946 were as follows, according to Caldwell-Clements, Inc.:

United States	60,000,000
Great Britain, Northern Ireland	10,673,000
Russia	10,551,361*
France	5,576,000
Germany	5,500,000†
Japan	4,500,000‡
Sweden	1,858,614
Canada	1,754,351
Italy	1,500,000
Australia	1,479,802 (1945)

*Includes 6,110,000 loudspeakers connected to relay exchanges.
†14,000,000 in 1944; in all battlefield countries, effect of war on receiver totals should be considered.
‡7,000,000 in 1943.

Frequency Modulation.—For the first time, FM broadcasting in 1946 began to realize, so far as number of stations was concerned, the promise that was held out for it during the war and prewar years. Approximately 500 stations were authorized outright or conditionally during 1946, and about 100 were in operation as the year ended. Counting a handful of prewar grants and those authorized conditionally during the last two months of 1945 after normal licensing was resumed by the Federal Communications commission (FCC), almost 700 stations were on the air, under construction or conditionally authorized as of Dec. 31, 1946. A year before, some 60 had been authorized to operate and 250 others authorized on a conditional basis. Between 500,000 and 750,000 FM sets were in use throughout the United States in 1946.

Television.—The long-awaited boom in television stations developed in 1946. From 9 licensed or authorized in 1945, the number exceeded 50 at the end of Dec. 1946. The number in operation remained unchanged—six—but a majority of the grantee companies indicated in a poll conducted by *Broadcasting Magazine* that they would be on the air by summer or fall of 1947, and some planned to start during the early months of the year. In addition, there were 67 experimental television stations operating or authorized to operate at year's end.

With the year's advances in television authorizations, however, came a cooling of enthusiasm among many other applicants. Approximately 75 applications, or about half of those filed with the FCC, were withdrawn in a surge of apparent disinterest generally attributed to (1) the continuing debate over the relative merits of low-band black and white television as against the proposed high-band colour transmissions, and (2) the cost of television generally, which was estimated to

range between \$350,000 and \$750,000 for station construction alone.

The unsettled attitude regarding the form television would take in the immediate future was expected to be allayed as the result of a hearing started by the FCC in Dec. and continued into the early months of 1947. The hearing was to decide the fate of a petition filed by the Columbia Broadcasting system (CBS), developer of a sequential (mechanical scanning) colour television system, asking that the 480-920 megacycle (mc.) band of ultra-high-frequencies, currently set aside for experimental television be reallocated for commercial colour operations. This band, under the CBS proposal, would supplement rather than supplant the existing "split" band ranging between 44 and 216 mc. and used for commercial black and white television.

Facsimile.—Although technically still an "experimental" operation, this method of record transmission by radio, similar to radiophoto or wirephoto, made substantial strides in 1946. Transmission speeds reached 28 and later 45 sq.in. per minute, with laboratory speeds up to 88 sq.in. per minute reported late in the year.

Facsimile authorities generally agreed, however, that more experimentation was needed to determine the exact types of service that the public would find most desirable.

Stratovision.—Tests of this new system of air-borne relays for television, FM and other broadcast services were continued by Westinghouse Electric and Manufacturing corporation, which developed it, and Glenn L. Martin company, which assisted in the development. Utilizing transmitter-bearing planes flying anchored courses at 30,000 ft. and interlacing transmissions from plane to plane, stratovision was able, according to Westinghouse officials, to provide coverage of a 211-mi. area with one-fiftieth of the amount of power which a 50-kw. transmitter on the ground needed to cover a 100-mi. radius.

Commercial Broadcasting.—Countries in which radio stations sold time for advertising in 1946 numbered about 40, representing no material change from 1945.

U.S. Radio Bill.—The annual bill for radio in the United States, which remained by far the dominant example of "free" commercial radio, was estimated in 1946 by Caldwell-Clements, Inc., publishers, and their *Tele-Tech* magazine, to be as follows:

Sales of time by broadcasters, 1946.	\$325,000,000
Talent costs	55,000,000
Electricity, batteries, etc., to operate 60,000,000 receivers.	200,000,000
14,000,000 home receivers, at retail value	700,000,000
65,000,000 replacement tubes	82,000,000
Radio parts, supplies, etc.	80,000,000
Phonograph records, 300,000,000	230,000,000
Radio set repairs, servicing	60,000,000
Total.	\$1,732,000,000

Revenues and Expenses.—Figures on U.S. radio's financial operations in 1945¹, released by the FCC in Nov. 1946 (since the information is compiled annually from reports filed with the FCC by stations and networks, 1946 data would not be available until late 1947), showed radio revenues at their highest peak in history: \$299,338,133 compared with \$275,298,611 in 1944.² But expenses climbed at an even faster rate, reaching \$215,753,845 as compared with \$185,025,760 the previous year. As a result, total broadcast income (revenues less expenses, before payment of federal income taxes) dropped from \$90,272,851 in 1944 to \$83,584,288. It was the first slump in broadcast income from the start of the wartime boom, and the third in ten years.

¹All figures refer to amplitude modulation (AM) operations and do not include frequency modulation (FM) and television, which generally did not yet enjoy profitable returns and, especially in the case of television, created costs which made the income seem infinitesimal by comparison.

²Broadcast revenues represent income after deductions of commissions paid to agencies, representatives, brokers, etc.

Of the 1945 totals, covering the operations of 4 nation-wide and 6 regional networks and a total of 901 standard or AM stations, the 4 national networks and their 10 key stations reported broadcast revenues aggregating \$85,151,875, a gain of 7.75% over the 1944 figure of \$79,030,449; broadcast expenses totalling \$67,001,351, or 14.05% more than the \$58,746,703 reported the previous year and broadcast income (before taxes) of \$18,150,524, a 10.52% decline from the 1944 total of \$20,283,746.

Receipts From the Sale of Time.—U.S. radio's chief support, the sale of radio time, representing 90 to 95% of all broadcast revenues, rose in 1945 to the unprecedented figure of \$310,484,046 (before payment of commissions to agencies, etc., which broadcasters counted as an expense of sale). This was a gain of more than 7% over the 1944 total of \$287,642,747. The 1945 figure was composed of \$133,973,536 in network time sales, \$76,696,468 in nonnetwork time sales to national and regional (spot) advertisers and sponsors and \$99,814,042 in nonnetwork sales to local advertisers.

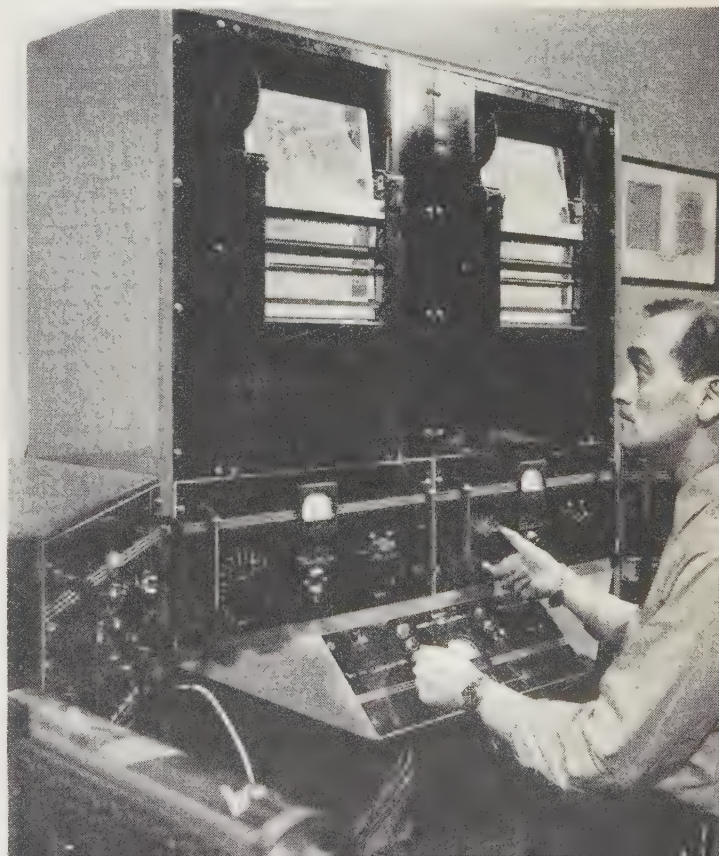
Industry Balance Sheet.—The 1945 revenues, expenses and income of 10 network and 901 AM stations are summarized in Table I, taken from FCC records.

Table I.—Revenues and Expenses of Radio Industry, 1945

Time sales:		
Network	\$133,973,536	
Nonnetwork.	176,510,510	
Total.		\$310,484,046
Deduct: Commissions to agencies, etc.		43,923,466
Net time sales		\$266,560,580
Incidental revenues:		
Sale of talent; fees, etc.	\$16,686,213	
Other	16,091,340	
Total.		\$32,777,553
Total broadcast revenues		299,338,133
Total broadcast expenses		215,753,845
Broadcast income (before federal income taxes)		\$83,584,288

Average Station's Finances.—Financial data for the average U.S. station in 1945, with comparable figures for 1944, were

TRANSMITTER for the reproduction of printed or pictorial matter by radio, a technique called Facsimile. This machine broadcasts printed matter over frequency modulation and a receiving set picks it up and prints it on a roll of specially treated paper at a constant speed. This equipment under the trade name "Faximile," was first demonstrated publicly on April 17, 1946



reported by FCC as indicated in Table II. Operations of the ten key stations of nation-wide networks were excluded in preparing the totals from which the averages were taken, because the networks' reports did not make adequate segregation between network and station operations.

Table II.—Average Station's Finances, 1945

Item	1945	1944	% Increase (Decrease in parenthesis)
Number of stations	891	865	
Total time sales less payments to networks and stations	\$244,897	\$232,326	5.41
Net revenues from time sales*	220,425	209,270	5.33
Total broadcast revenues	238,321	224,541	6.14
Total broadcast expenses	164,766	144,275	14.20
Broadcast income†	73,555	80,266	(8.36)

*Total time sales after deduction of commissions paid to agencies, representatives, etc.
†Revenues less expenses, before federal income taxes.

Broadcast Expenses.—Among 856 reporting stations which had time sales amounting to \$25,000 or more during 1945, the principal items of expense reached the following totals: program department, \$52,528,797; general and administrative, \$48,478,068; technical department, \$22,683,819; sales department, \$22,532,936. Including \$582,694 in expenses reported by 35 stations with time sales of less than \$25,000 each, 1945 expenses for 891 stations (excluding the networks and 10 key stations) aggregated \$146,806,314.

Losses.—Out of 901 reporting operators 50 experienced overall financial losses in 1945. Their combined loss was \$643,006, an average of \$12,860 per losing station. These figures compare with 41 losing stations out of a total of 875 in 1944, when the aggregate loss was \$154,310 and the average per losing station was \$3,764.

Tangible Broadcast Property.—The U.S. radio industry's investment in stations and associated broadcasting equipment in 1945 was reported by the FCC as shown in Table III.

Table III.—Tangible Broadcast Property in the United States, 1945

Item	All Commercial Stations and Networks			Total
	891 stations*	4 national networks and their 10 key stations	6 regional networks†	
Cost to licensee	\$72,281,223	\$15,699,154	\$121,563	\$88,101,940
Depreciation under present licensee	37,734,895	8,715,964	56,062	46,506,921
Depreciated cost	34,546,328	6,983,190	65,501	41,595,019

*Licencee of one station reported no owned broadcast property.
†Includes tangible broadcast property of only three regional networks.

Manufacturing and Selling.—In spite of labour strife, shortages of parts and equipment and other postwar reconversion problems which carried over into 1946, U.S. production of radio receivers was estimated in the industry as approaching 15,000,000 units, a gain of about 9% over the previous record of 13,642,983 receivers produced in 1941.

Retail value of the 1946 output was estimated in the industry as about \$750,000,000, or an average of \$50 per receiver. Reflecting the greater demand and the increased costs of production, the \$50 average in 1946 was almost \$15 higher than the 1941 figure of slightly more than \$35 per set.

Industry Finances.—Basic financial operations data for the radio-electronic industry in the United States in 1946 are shown in Table IV, prepared and copyrighted by Caldwell-Clements, Inc. and *Tele-Tech* magazine:

Table IV.—U.S. Radio-Electronic Industry
Year ended Dec. 31, 1946 (000's omitted)

	Total Investment	Annual Gross Revenue	Number of Employees	Annual Pay Roll
Radio manufacturers (1,100) . . .	\$ 60,000	\$350,000	80	\$ 90,000
Radio distributors, dealers, etc. . .	300,000	700,000	125	200,000
Broadcasting stations (1,100), including talent costs	100,000	380,000	20*	55,000
Commercial communications stations	60,000	.....	15	8,500
Listeners' sets in use (60,000,000) .	3,000,000	.....	...	375,000†

*Regular staff, not including part-time employees, artists, etc., who number at least 25,000 more.

†Annual operating expense for listeners' sets, tube replacements, electricity, servicing, etc.

Receiver Tube Production.—Production of radio receiver tubes from Jan. to Oct. 1946 totalled 159,120,562, compared with 114,238,098 in 1942, the highest previous figure. (Both totals include tubes installed in new receiving sets.) Retail value of 1946 production was estimated at \$186,150,000 by Caldwell-Clements, Inc., as against \$94,000,000 for 87,700,000 sold in 1942. Manufacturers predicted that tubes would be in ample supply again, after the war-born shortage, before the end of the first quarter of 1947.

Programming.—*Network Commercial Programs.*—The 15 most popular network programs as of Dec. 30, 1946, compared with those of Dec. 30, 1945, were reported as follows by C. E. Hooper, Inc., creator of the Hooperatings-Radio Audience Measurements:

1946	1945
1. Jack Benny*	1. Bob Hope
2. Fibber McGee & Molly	2. Fibber McGee & Molly
3. Bob Hope†	3. Charlie McCarthy Show
4. Charlie McCarthy Show†	4. Radio Theatre
5. Fred Allen	5. Jack Benny*
6. Radio Theatre	6. Red Skelton‡
7. Amos 'n' Andy	7. Mr. District Attorney
8. Walter Winchell*	8. Fred Allen
9. Red Skelton‡	9. Walter Winchell*
10. Screen Guild Players	10. Take It or Leave It
11. Bandwagon	11. Abbott & Costello§
12. Mr. District Attorney	12. Screen Guild Players§
13. Take It or Leave It	13. Music Hall
14. Great Gildersleeve	14. Great Gildersleeve
15. Fanny Brice	15. Eddie Cantor

*Includes second broadcast on Pacific coast.

†Bob Hope and Charlie McCarthy were tied in 1946 report.

‡Computed Hooperating.

§Abbott and Costello and Screen Guild Players were tied in 1945 report.

The top ten daytime leaders reported by Hooper as of Dec. 15, 1946, with the leaders of a year before, were as follows:

1946	1945
1. When a Girl Marries	1. When a Girl Marries
2. Young Widder Brown	2. Portia Faces Life
3. Our Gal, Sunday	3. Ma Perkins (CBS)
4. Portia Faces Life	4. Breakfast in Hollywood (11:15)‡
5. Kate Smith Speaks	5. Romance of Helen Trent‡
6. Ma Perkins (CBS)*	6. Pepper Young's Family§
7. Breakfast in Hollywood (11:15)*	7. Young Widder Brown§
8. Auni Jenny	8. Breakfast in Hollywood (11:00)§
9. Right to Happiness†	9. Our Gal, Sunday
10. Romance of Helen Trent†	10. Stella Dallas||
	11. Big Sister||

*Ma Perkins and Breakfast in Hollywood (11:15) tied.

†Right to Happiness and Romance of Helen Trent tied.

‡Breakfast in Hollywood (11:15) and Romance of Helen Trent tied.

§Pepper Young's Family, Young Widder Brown, and Breakfast in Hollywood (11:00) tied.

||Stella Dallas and Big Sister tied.

Programming Trends.—Sharp changes in radio station program policies were evident in 1946 as stations and advertisers completed their reconversion from wartime to peacetime programming. A survey of station management conducted late in 1946 for *Broadcasting Magazine* by Audience Surveys Inc., independent research organization, showed that 76% of the nation's stations increased their program expenditures during the year; 76% increased their local news volume; 72% produced more "public interest" programs; 70% began to apply stricter standards controlling the length or content of commercial announcements (to a great extent a natural reaction from the wartime practice of carrying numerous and often lengthy war service messages for various government agencies); and that 68% broadcast more local live-talent programs during the year. The average expenditure for programs among stations which increased their program budgets was found to be 24% more than the 1945 program expenditure.

A major innovation in network programming was Bing Crosby's introduction of a transcribed, rather than "live," series of programs on the American Broadcasting company. Watched closely in the industry, the experiment if successful was expected to start a trend which might attract many other top-flight entertainers. The opening broadcast of the series, in early Oct., won a listener rating of 23 from C. E. Hooper, Inc. A month later the rating skidded to 12.2, but moved up to 15.8 in mid-Nov.

Special Events.—A full schedule of special events broadcasts was maintained during the year, including eyewitness descriptions of the atom bomb tests in the Pacific, features as well as straight news and commentaries from the United Nations meetings and detailed coverage of the off-year elections which returned the Republican party to control of house and senate. President Truman, like President Roosevelt before him, turned frequently to the microphones to reach the public. C. E. Hooper, Inc. reported that he was heard by 25,217,000 persons in a May 24 speech on the railroad strike and by 23,166,000 in an address on his veto of the first Office of Price Administration bill in July.

FM and Television.—Despite the scant number of FM and television receivers in the hands of the public, much progress was made in the programming techniques of these two media in 1946.

In the case of FM stations operated in conjunction with standard (AM) stations—and almost 75% of all FM authorizations were held by persons who were also in the AM field—the programming was largely a duplication of AM broadcasts, within limitations imposed by the American Federation of Musicians' virtual ban on such duplication of music played by A.F.M. members. Independent FM stations generally followed AM programming lines, with additional emphasis on music, which best displays the clarity and high-fidelity characteristics of FM broadcasting.

Benefited tremendously by the development of the highly sensitive Image Orthicon camera tube and the completion of the American Telephone and Telegraph company's coaxial cable linking New York and Washington via Philadelphia, both of which were completed in 1945, television programming was expanded and intensified during 1946. Many sports events were telecast, including the championship boxing match between Joe Louis and Billy Conn, baseball games and both collegiate and professional football games.

Network Programs by Types.—The general composition of commercial evening programs broadcast on the major AM networks during the fall season—October, November and December—is shown in Table V prepared by C. E. Hooper, Inc.:

Table V.—General Composition of Network Commercial Evening Programs
October through December, 1946 and 1945

Type of Program	1946 % of time on air	1945 % of time on air
Dramatic	37.8	31.5
Variety	24.1	21.8
News and commentators	11.4	12.7
Popular music	10.8	14.1
Quiz	6.4	7.4
Concert music	3.2	5.8
Miscellaneous	6.3	6.7

Trade Organizations.—The year 1946 saw renewed activity in the trade organization field, with the National Association of Broadcasters (N.A.B.) still the dominant trade organization representing all segments of the broadcasting industry—AM, FM, television (TV) and facsimile—on over-all problems.

At its first postwar convention in Chicago, Ill., Oct. 20-24, the N.A.B. reported a record attendance of more than 2,000. It was the first convention in five years in which exhibits by manufacturers and independent stations were displayed.

The FM Broadcasters, Inc., (F.M.B.I.) which had voted in 1945 to merge with the N.A.B. on a year's trial basis, formally dissolved on Oct. 21, having accomplished its primary purpose—aiding the FCC in the allocation of FM service in the radio spectrum.

Following dissolution of F.M.B.I. some 40 former members organized the FM association (F.M.A.) to conduct a nationwide promotion campaign in behalf of FM broadcasting. On Jan. 10, 1947, the F.M.A. was formally launched in Washing-

ton, D.C., with some 200 charter members.

The F.M.A. received the official blessing of the FCC when all commissioners attended a luncheon Jan. 10 and Chairman Charles R. Denny pledged the support of FCC to the new organization.

Television Broadcasters association, representing the majority of the television industry, still was an independent organization, although overtures had been made by the N.A.B. looking toward a merger.

At a meeting in Mexico City, Sept. 28-30, the Inter-American Broadcasting association was formed by several South, Central and North American countries. Its primary aim was to preserve a free radio in the Latin-American nations. Although the N.A.B. sent two unofficial observers, as the year closed the U.S. organization had not participated actively. The N.A.B. board, however, was expected to authorize full membership in the Inter-American Broadcasting association early in 1947.

Still functioning alongside the N.A.B. but as an independent entity was Broadcast Music, Inc. (B.M.I.), of which N.A.B. President Justin Miller was president.

Broadcast Measurement Bureau (B.M.B.), organized by broadcasters, advertisers and advertising agencies to establish radio's own audience measuring stick, issued results of its first survey in 1946. B.M.B. was criticized in some quarters, applauded in others. As the year ended, however, the B.M.B. appeared to be strongly entrenched.

Networks.—Two networks ceased operations during 1946—both bankrupt. Associated Broadcasting system, which began operations on a nation-wide scale Sept. 16, 1945 was formally declared bankrupt in early Sept. 1946 by the U.S. district court at Grand Rapids, Mich. In April the A.B.S. closed its New York office and from then on it was a losing battle. The North Central Broadcasting system, a regional network headed by John W. Boler, was declared bankrupt in the courts in Nov. 1946. There were reports throughout the year of possible new networks but as 1946 closed no definite steps had been taken in that direction.

Employment.—Radio's pay roll for 1945 totalled \$116,267,274, according to figures released in Dec. 1946 by the FCC. With the war over and scores of service men and women returning to their former jobs, coupled with new radio stations, employment increased from 34,690 in Jan. 1945 to 37,757 in Dec. the FCC reported.

The FCC failed to report the usual average weekly wage for 1946, making available only statistics covering the monthly pay roll.

Total employment figures for 1945, covering 4 nation-wide networks—American Broadcasting company, Columbia Broadcasting system, Mutual Broadcasting system and National Broadcasting company—6 regional networks and 901 standard radio stations both inside and out the continental limits of the United States, are shown in Table VI.

Table VI.—Employment Statistics in Radio Industry, 1945

Month	Number Employed	Compensation
Jan.	34,690	\$ 8,511,883
Feb.	35,081	8,635,509
March	35,456	9,185,069
April	35,528	8,790,964
May	35,729	9,520,195
June	35,934	9,400,300
July	35,643	9,172,795
Aug.	36,095	9,874,001
Sept.	36,263	9,811,335
Oct.	36,988	9,993,956
Nov.	37,542	10,439,288
Dec.	37,757	12,931,979
Total		\$116,267,274

A breakdown of employment figures showed that 891 stations increased personnel from 26,841 in Jan. 1945 to 29,293 in December, with compensation rising from \$6,015,709 in Jan-

uary to \$9,888,321 in December. A total pay roll of \$82,617,228 was reported by the 891 stations.

Compensation paid by the 4 major networks and 10 key stations (owned by the networks) totalled \$32,740,768 in 1945, with employees increasing from 7,627 in Jan. to 8,136 in December. The 6 regional networks were reported by the FCC as follows: total employee compensation \$909,278; January, 222 employees received \$93,624; in December 328 employees were paid \$78,102.

Labour Unions.—Of foremost importance in the field of labour relations was passage by the congress of the Lea act, a law designed to make unlawful certain practices of the American Federation of Musicians. It became law on April 16, 1946, with the president's signature. On May 28 James Caesar Petrillo, president of the A.F.M. and president of the Chicago Federation of Musicians, called a strike against WAAF, Chicago, Ill., operated by the *Drover's Journal*.

He was promptly charged with violation of the Lea act in a criminal bill of information. Petrillo admitted he had violated the act by calling a strike because the station refused his demands to employ three additional music librarians (members of the A.F.M.). He contended the law was unconstitutional.

Judge Walter J. La Buy, in a lengthy opinion Dec. 2, sustained a motion of Petrillo to dismiss and held that the act violated the 1st, 5th and 13th amendments to the constitution. As the year closed an appeal was pending before the supreme court.

Petrillo still retained his ban against union musicians playing for television. As a result television stations were using recordings to accompany vocalists.

In early Oct. 1946 the American Federation of Labor issued a charter to the Radio Directors Guild, whose members had withdrawn (with approval) from the American Federation of Radio Artists (A.F.R.A.). Chapters in New York, Chicago, Hollywood, San Francisco and Washington comprised the charter group of R.D.G., which embraced radio program producers and directors.

After threats of a nation-wide strike by A.F.R.A. had been heard in late 1946, negotiations were well under way between the union and major networks as the year closed.

Agreements had been reached to give actors, singers and announcers on commercial programs a general 20% increase, with a 20% raise in pay for actors and singers on sustaining shows. Sound effects technicians were given a 25% increase in New York and Chicago and a 30% boost on the west coast.

World Conferences.—One plenipotentiary hemispheric conference and two sessions preliminary to the next World Telecommunications conference, scheduled to begin July 1, 1947, were held in 1946.

On Feb. 4 delegates of all nations signatory to the North American Regional Broadcasting agreement (Havana, 1938) except Haiti met in Washington, D.C., in what was called by the United States as an "informal engineering conference" to extend the North American Regional Broadcasting agreement (N.A.R.B.A.) pending peacetime study of its revision.

Cuba came prepared for a plenipotentiary conference, however, and insisted that a new treaty be drafted. Cuban delegates demanded use of some 20 channels below 1,000 kilocycles (kc.). With other nations (the United States, Canada, Mexico, the Bahamas, the Dominican Republic and Newfoundland) standing pat, the Cuban delegation served notice that it would return home and on March 29, when the N.A.R.B.A. expired, Cuba would use any and all frequencies it saw fit.

At the 11th hour a compromise was reached whereby Cuba was given use of the frequency 640 kc. (then used by the Bahamas). In return Cuba relinquished 1540 kc. to the United

States and the United States subsequently gave it to the Bahamas in exchange for 640 kc.

In addition to the 640 kc. channel, Cuba was given authority by the other nations to operate Class II unlimited stations on the following Class I-A channels: 670 kc., 830 kc., 850 kc., 890 kc.—all assigned to the United States; 690 kc., 740 kc., 860 kc.—assigned to Canada; 730 kc., 800 kc., assigned to Mexico. In addition Cuba was given privileges of operating regional stations up to 25 kw. on 8 regional channels.

On Feb. 25 the following nations signed an interim agreement (*modus vivendi*) extending N.A.R.B.A. to March 29, 1949, and agreeing to begin plans immediately for the Third North American Regional Broadcasting conference to be held in Canada, beginning in late 1947 or early 1948: Canada, Cuba, Dominican Republic, Bahamas Islands, Newfoundland, Mexico, United States. The *modus vivendi* was reserved for the signature of Haiti when relations again were restored with that nation, inasmuch as Haiti was one of the original signers of N.A.R.B.A.

Created at the Washington conference was an Inter-American Engineering committee which was to function in event one country reported radio interference from another. The committee was expected to keep interference to a minimum between broadcasting stations of the inter-American nations.

On Sept. 28 representatives of China, the United States, Union of Socialist Soviet Republics, United Kingdom and France met in Moscow to lay plans for the next World Telecommunications conference. The United States earlier had invited nations signatory to the Cairo treaty (1938) to convene in the United States in the spring of 1947. Britain held out for Europe—preferably Geneva or Paris—as the seat of the next conference. The other nations joined the United States.

As the year closed the U.S. state department announced the conference would be held in Atlantic City, N. J. The Five-

RADIO TOWER on Catalina Island which was to be used in connection with the new micro-wave radio telephone being installed in 1946 between the island and Los Angeles, Calif.



Power conference agreed to open a world session on broadcasting on May 15, 1947, to be followed by a world conference on international broadcasting. The plenipotentiary conference was scheduled to start July 1.

A proposal by the United States to establish an international board for the registration of frequencies was unanimously adopted. A second suggestion by U.S. delegates—that the International Telecommunications union be reorganized and enter into co-operative relationship with the United Nations—also was approved unanimously. The five nations agreed that the seat of the I.T.U. should be the seat of the United Nations.

Following the Five-Power conference in Moscow, a conference on high-frequency broadcasting was held in Paris, Oct. 28–31, resulting in unanimous recommendation that a world-wide high-frequency organization be set up in conjunction with the next World Telecommunications conference.

In that connection, the Advisory committee on United Nations Telecommunications in late 1946 recommended that the United Nations establish its own world-wide radio network, using high-frequency, medium- and long-wave radio stations and working in close co-operation with established networks.

U.S. Foreign Broadcasts.—Still one of the knottiest problems confronting the administration was the continuation of international short-wave broadcasting to all parts of the world. In Dec. the state department announced acquisition of three powerful transmitters at Munich, Germany, which would be used as relays for "Voice of America" broadcasts originating in the United States and designed for world consumption. The department also disclosed that broadcasts in the Russian language would begin in late Jan. or early Feb. 1947.

In a year-end announcement the state department said it was operating short-wave transmitters in the United States, Algiers, Manila, Munich and Honolulu, sending out programs in 17 languages to Europe, 3 languages to Latin America and 8 languages and dialects for the far east.

To Europe the United States was beaming 199 hr., 30 min. of programs weekly; to Latin America 126 hr., 30 min.; to the far east 68 hr., 15 min. per week. During 1946 the state department reported receiving more than 50,000 letters from listeners all over the world as a result of the "Voice of America" broadcasts. Of these 65% came from Europe, 25% from Latin America and 10% from the far east.

(J. N. B.; R. W. CR.; S. TF.)

Radio Scientific Developments.—*Transmitters.*—Radio transmitters of greatly diversified types were in use in many fields including frequency modulation, carrier telephony, pulse communication, television and navigation. Applications for broadcast transmitting licences and increases in power submitted to the Federal Communications commission reached an all-time high. Many new 50, 100 and 200 kw. transmitters were in use with powers up to 500 kw. indicated for the near future. Toward the end of the year more than 900 frequency modulation broadcasting applications were pending before the FCC for powers up to 50 kw. Great strides were made in the application of single side band point-to-point transmitters. The efficiency of this system in power, circuit stability and spectrum conservation resulted in its general adoption throughout the world. Frequency shift keying equipment for communications at high frequency including frequency shift exciters for use with existing telegraph transmitters was made available. These systems were a direct outgrowth of, and offered the advantages realized by FM systems generally.

The Western Union Telegraph company placed in operation during 1946 a four-jump radio relay system, operating at about 4,000 mc./s. between Philadelphia, Pa., and New York, N.Y., for multiplexed carrier telegraph signals. Similar installations



TRUCK DRIVER demonstrating his two-way radio in Chicago in June 1946, with which he could receive last minute dispatching orders, or call in for advice or help

were begun on a closed circuit running from New York to Washington, D.C., to Pittsburgh, Pa., and return to New York.

During 1946 a system of ultra-high-frequency broadcasting was proposed wherein eight simultaneous programs would be transmitted using a time division multiplexing of pulses by pulse-position modulation. This system incorporated a new beam switching tube, the "Cyclophon" (See *Tubes*).

Two-way telephone service was made publicly available between fixed points and automotive vehicles. Using facilities of the Bell Telephone and associated companies the service was available to all service outlets.

Antennas.—The standardization of frequency assignments for FM broadcasting in the 88 to 108 mc. range led to the development of many new types of broadcast antennas as well as improvements in older types. These developments included the slotted tubular antenna known as the "pylon," a "clover leaf" antenna comprising a unit cluster of four curved elements, the units being stacked by mounting on a vertical coaxial feed line, and an improved "turnstile" having many advantages over the early postwar designs.

Considerable advance was achieved in theoretical antenna subjects relating principally to aircraft antenna design and the problem of precipitation static. An electronic instrument was developed for calculating and cathode-ray plotting the radiation pattern of directional systems using as many as six radiators, whereby the pattern may be observed while making changes in current ratio, phase angle, azimuth position and distance from a reference point.

Receivers.—On Jan. 24, 1946, engineers of the signal corps engineering laboratories succeeded in receiving radar echoes from the moon using a receiver of unusual interest. A low-noise grounded grid radio frequency amplifier providing a 30 decibel gain was used with a quadruple conversion superheterodyne, converting a carrier of 111.5 mc. down to 180 cycles. The final intermediate frequency (i.f.) amplifier had a 5 cycle pass-band.

The development of wide-band receivers for radar counter-measures during the war brought forth new approaches in the design of i.f. amplifiers including the stagger-tuned amplifier.

A new type of frequency modulation detector was described as having the property of insensitivity to amplitude modulated disturbances, thereby eliminating the limiter preceding the detector. The system incorporated a single tube locked-in oscillator and discriminator circuit. Further developments were made

in the ratio detector which has the same property of insensitivity to amplitude modulation.

Some of the new components which came into prominence were silicon and germanium crystal detectors, polystyrene dielectric capacitors, new types of insulating materials, dual frequency-intermediate-frequency transformers and very compact self-healing metalized paper condensers.

Bikini Atom Bomb Tests.—The atom bomb tests at Bikini in July 1946 brought together the greatest concentration of radio and electronic equipment ever assembled at one time and place. During and following the explosions a large number of measuring instruments in the target area provided information which was transmitted to radio receivers located at safe distance points. More than 70 planes including pilotless radio-controlled drone planes flew over the area of each explosion recording data and directing operations, the drone planes flying through the radioactive cloud immediately after formation, taking samples of the cloud and air. Following the explosions radio-controlled pilotless boats cruised among the target ships sampling the water for test purposes. Television was predominant in its use to obtain immediate news of the explosions, receivers being located on aeroplanes as well as on the ships carrying officials and observers. Certain of the receivers were equipped with motion picture cameras to record the television transmissions. Coverage of these tests would have been impossible without the special electronic equipment designed and operated for remote control and recording of radioactive phenomena.

Tubes.—*The Cyclophon.*—A new beam tube for electronic switching applications was announced. This tube incorporated an electron gun to produce an electron beam which was electromagnetically or electrostatically deflected over a circular pattern on an apertured plate having a number of uniformly spaced slots. The number of slots corresponded to the number of circuits to be switched and was backed up by secondary electron-emitting dynodes, to which the external circuits to be switched were connected. The tube was designed for application in time-division multiplexing circuits and in a newly proposed broadcasting system. (See *Transmitters.*)

The Phasitron.—This tube was developed for producing a frequency modulated signal, requiring for its operation a crystal controlled three phase energy source at a submultiple of the desired carrier frequency and a source of modulating energy. Focusing electrodes produce a disk of electrons at right angles to the axis of the tube. Another set of electrodes, energized by the three phase source, deflects the electrons radiating from the centre of the disk so as to produce rotating radial undulations in the disk surface. The intercept of the disk on an imaginary cylinder whose axis is common to the disk axis is a sine wave of a frequency equal to that of the three phase deflecting source. The disk of electrons terminates on two concentric cylinders of which the innermost has a series of rectangular holes so arranged that if the rotation of the disk were arrested at the correct position nearly all the electrons pass through the holes to the second cylinder. A half wave displacement of the disk results in all the electrons being caught by the first cylinder. Consequently, there is an alternate collection of electrons by the two cylinders which excites a tuned circuit connecting the two cylinders. Phase modulation of the energy in the tuned circuit connecting the collector plates is accomplished by means of a coil external to the tube with its axis coincident with that of the tube. When energizing this coil from a modulating source, its flux causes electrons starting at the centre of the disk to be deflected from their normal radial path and produces the effect of accelerating or decelerating the sine wave pattern on the collecting cylinders depending

upon the polarity of the flux.

Travelling Wave Tube.—This type of tube obtains its transfer of energy from a moving electron stream to a travelling radio frequency wave by applying the wave to a helix of iron wire surrounding the electron stream. Because of the reduction in wave velocity caused by the radio frequency fields proceeding along the turns of the helix, the electron velocity can be adjusted to exceed slightly the effective wave propagation velocity down the helix and thereby transfer electron energy to the wave. Useful amplification of 100 to 200 with a bandwidth of approximately 800 mc. was claimed for tubes of this type.

Television and Image Tubes.—The image orthicon developed during the war was improved and incorporated in television camera equipment (see TELEVISION). A number of high-power, high-frequency transmitting tubes including beam tetrodes, double beam tetrodes and grounded-grid triodes were introduced. Tubes producing $\frac{1}{2}$ to 10 kw. output for the 100 mc. band and for operation at 500 mc. and at even higher frequencies with a few hundred watts became available.

Infra-red image tubes developed for the wartime use of the "Snooper scope" and "Sniperscope" were publicly disclosed. These tubes, some less than two in. in diameter, incorporated an infra-red sensitive photoelectric surface, an electron optical focusing system and a fluorescent screen on which the image was viewed through a telescope ocular or eye piece. (See also ADVERTISING; FEDERAL COMMUNICATIONS COMMISSION.)

(B. E. SD.)

Great Britain.—The "listener research" section of the British Broadcasting corporation in 1946 noted a reorientation of the listening habits of the population after World War II. A "light program" was substituted for the general forces program; the proportion of listeners to this was about 50% of the total listening population as against 40% or less during the war. The news bulletins, which claimed the largest following (50% of listeners tuned in to the 9 p.m. bulletin), had lost their special interest. The "third program," started in the autumn of 1946 to give listeners a variety of serious music and talks without the handicap of working to a time schedule, proved a success, and several new musical items were presented. Reception differed throughout the country and did not come up to expectations in the London area. The wave length of the transmissions was 203 metres.

From information published in Sept. the total number of receiving licences issued in Great Britain at that time was 10,673,000; the figure included 1,750 television licences, for which an additional yearly charge of £1 was to be made at the end of the year.

The Radio Industry.—The production of radio receivers for the home market reached a new high level in Oct. at 110,000 sets. Difficulties in labour and material supplies had, however, caused the projected program of receiver production to lag behind, and shortage of components was responsible for a low output in television receivers, which for the 4 months preceding Oct. totalled only 2,620. A feature of the 1946 receivers was the introduction of coloured plastic cabinets for the personal and miniature sets. At the "Britain Can Make It" exhibition held early in the year a personal receiver was shown similar in appearance to a handbag, with the strap over the shoulder concealing the aerial. A new form of receiver had the chassis mounted behind a baffle board instead of in the usual cabinet, and it was claimed that this gave superior reproduction without the "boom" associated with a wooden box structure. A number of new designs of phonograph pickup was produced, operating on the moving coil principle with high frequency range; one manufacturer produced a specially designed phonograph at £200

to give the best possible reproduction of records.

Technical Progress.—An experimental wire relay service using carrier frequency was installed in Rugby in Nov. 1946 by the Multi-Broadcast Engineering company in collaboration with the British Thomson-Houston company. Each subscriber to the system was equipped with a three-tube receiver and loudspeaker fitted with a six-way switch for selecting any one of six programs.

A new standard of frequency using an oscillator controlled by a quartz crystal was developed by post office engineers and used at the royal observatory for time checking. The absolute value of frequency is known to ± 1 part in 100,000,000. In speaking of the measurement of time the astronomer royal stated that the new "quartz clock" had shown an increase in the time of rotation of the earth by three milliseconds per day as from Sept. 1945, and that this figure would be checked by observations on the moon during the next few years in Great Britain and the United States.

An original study on the theory of communication by Dr. D. Gabor ("Theory of Communication," *Journal of the Institution of Electrical Engineers*, 93, part iii, 429; 1946) suggested that information conveyed by a given frequency band might be analyzed into elementary "quanta" of information, each quantum conveying one numerical datum. Experimental information showed that in the band between 60 and 1,000 cycles per second the human ear could discriminate every second datum of information, and this efficiency of 50% was independent of the duration of the signals in a remarkably wide interval. At frequencies of more than 1,000 cycles per second the efficiency of discrimination fell off sharply, showing that sound reproduction which was far from faithful might yet be perceived as perfect by the ear. This suggested that condensed methods of transmission and reproduction of sounds with improved wave-band economy were possible in theory.

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Radio Detection: see ELECTRONICS.

Radiology: see X-RAY AND RADIOLOGY.

Radium. While small amounts of radium are associated with the vanadium and uranium ores of the western United States, recovery of the radium received little attention during the years of World War II. The last output officially reported was 2.6 grams in 1942. Imports of radium salts into the United States were as follows:

	Grams	Value		Grams	Value
1937	15.29	\$ 377,659	1942	23.043	\$ 377,326
1938	38.75	787,025	1943	90.755	1,366,538
1939	78.631	1,953,820	1944	101.290	1,374,933
1940	30.311	748,097	1945	67.342	991,979
1941	4.412	110,202			

Demands for war uses, especially for industrial radiography and in luminous paints, overshadowed the normal medical uses during the past few years. (G. A. Ro.)

Raeder, Erich (1876–), German naval officer, was born in Wandsbek, Germany. He entered the German navy in 1894, was promoted to the rank of commander in 1911 and was chief of staff to Adm. Franz von Hipper in 1912. Raeder served in World War I, escaping from the German flagship "Lutzw" before it was sunk in the battle of Jutland in 1916.

In 1922, Raeder was promoted to the rank of rear admiral and was elevated to admiral at the head of the naval command in 1928. He supported the nazis, was rewarded in 1935 by Adolf Hitler with the post of commander in chief of the German navy and he was given the rank of grand admiral in 1939.

During the peace years, he ordered construction of new ves-

sels in secret violation of the Versailles treaty. He fathered the plan for the Norwegian invasion in 1940, and while he also advocated occupation of all Greece, he vehemently opposed Hitler's plans to invade the soviet union.

After the start of World War II, Raeder's U-boats sank unarmed neutral merchantmen and refused to rescue survivors. He retired from the navy at his own request, Jan. 30, 1943, and was succeeded by Admiral Karl Doenitz. Taken prisoner by the Allies in May 1945, Raeder was indicted Aug. 29, 1945, on charges of war crimes and held for trial. Found guilty of having committed crimes against the peace, war crimes and conspiracy to commit these crimes, he was sentenced to life imprisonment, Oct. 1, 1946, by the international military tribunal sitting at Nuernberg.

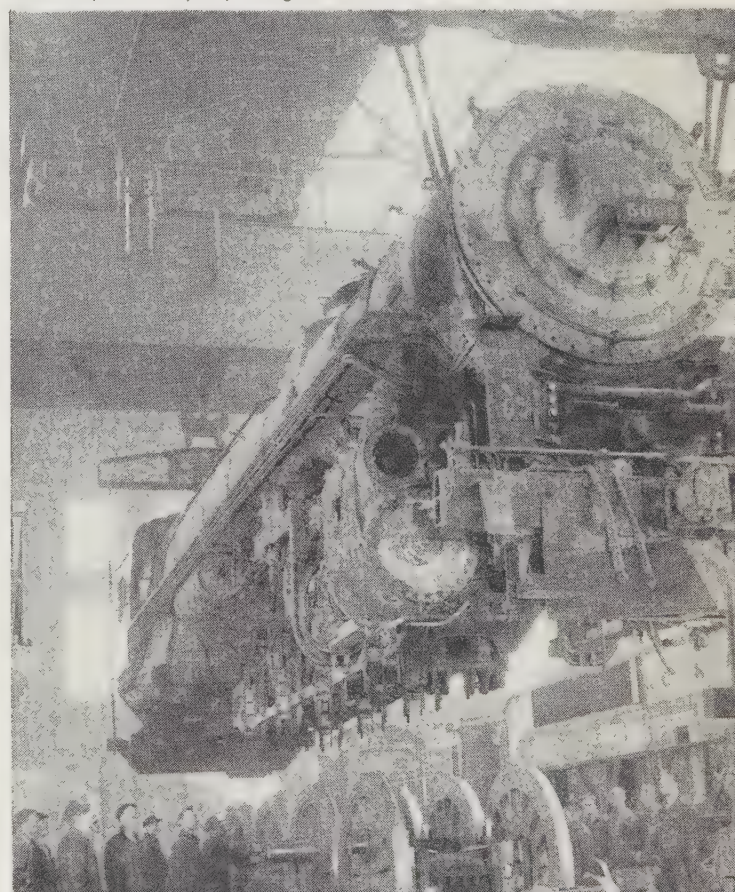
Railroad Accidents: see DISASTERS.

Railroad Retirement Act: see SOCIAL SECURITY.

Railroads. The outlook for railroads in the U.S. at the beginning of 1946 was promising. Their cash position was unusually strong. Their fixed charges had been reduced. An orderly transition from wartime to peacetime economy appeared to be well under way. In view of the substantial increases in wage rates during World War II no serious difficulty with labour was anticipated. There were favourable prospects of a volume of traffic and net earnings sufficient with cash left over from the war years to finance the needed additions and betterments in plant and equipment. An extensive program for improving the railroad position in competition with other forms of transportation had been begun. Unfortunately, however, the hopeful promises were not realized. The railroad record of 1946 was one of frustration and disappointment.

The volume of rail-borne traffic in 1946 did not fall far below expectations notwithstanding the many serious interruptions to industrial production by nation-wide and large-scale strikes.

RECONDITIONED LOCOMOTIVE being lowered onto its drivers at the Rock Island shops at Silvis, Ill., during 1946



Railroad net earnings, however, were critically low because of further advances in wage rates and prices of fuel and other materials, and the rates which the railroads were permitted to charge for their services were practically the same as in 1940. The financial position of the railroads was so critical during the first half of the year when the railroads collectively were not earning their fixed charges, that an appeal was made to the Interstate Commerce commission to authorize a general increase of 25% in freight rates, with certain exceptions in which the rate of increase would be smaller. For freight traffic as a whole the proposed increases averaged between 19% and 20%.

The need for additional revenues was clearly shown at the hearings and the commission quickly recognized that need in part by granting an interim increase of about 6.5%, effective July 1. The proceedings were continued so that the commission might give more deliberate and comprehensive consideration to further increases. On Dec. 5 the long awaited final decision was announced. It authorized increases which, including the interim increases of July 1, advanced freight rates as a whole about 17.6%, to yield about \$1,000,000,000 additional revenues per year. The second increase, however, was made effective on Jan. 1, 1947, and did not affect the revenues of 1946. The interim increases applying from July 1 added about \$170,000,000 to 1946 revenue. The financial results during the second half of the year were much better than in the first half.

The complete returns for November and December were not available at the close of the year. It is possible, however, to show the actual results during the first ten months of 1946 in comparison with those results during the same ten months of earlier years. The figures are quoted from the Jan. 5, 1947, issue of *Railway Age* and were taken from reports of the Interstate Commerce commission. Class I railroads comprised about 95% of total railroad mileage.

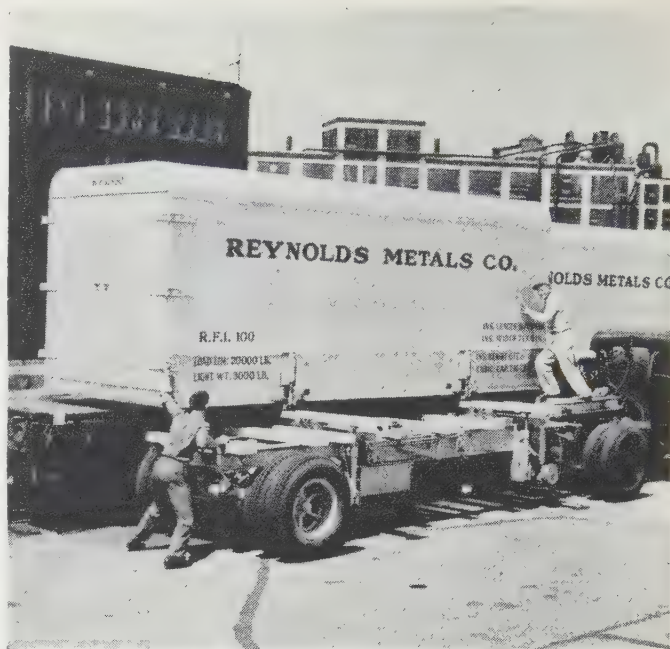
Condensed Income Account, Class I Railroads
(In millions of dollars)

Item	1946	1945	1944	1942
Freight revenue	\$4,770	\$5,665	\$5,857	\$4,878
Passenger revenue	1,081	1,410	1,504	801
Other operating revenues	481	549	538	394
Total operating revenues	6,332	7,624	7,899	6,073
Maintenance of way expenses	965	1,112	1,049	652
Maintenance of equipment expenses	1,221	1,535	1,320	995
Transportation expenses	2,649	2,500	2,455	1,829
Other operating expenses	437	391	378	287
Total operating expenses	5,272	5,538	5,202	3,763
Taxes	483	1,106	1,587	1,000
Net income after charges	155	473	560	711

It will be noted that the net income of the first ten months of 1946 was approximately one-third of that of the same period of 1945, one-fourth of 1944 and one-fifth of 1942. Were it not for tax refunds included in 1946 net income the showing for the year would have been much worse. During the first nine months of 1946 the "carry-back" credits amounted to \$72,000,000.

On Jan. 1, 1946, there were 72 railroads in receivership or trusteeship. Their combined road mileage was 39,714. The extent of bankrupt railroad mileage was reduced during the year by the reorganization of two important railroads and two small properties, bringing the total mileage on Jan. 1, 1947, down to 31,149, about 13% of the total road mileage. The peak in mileage of bankrupt railroads was 77,013 in 1939.

The improvement in the financial structure of railroads continued in 1946. That improvement, notable since the depression, took form in a decrease in the proportion which the fixed interest-bearing debt bore to the total capitalization, in the refunding of maturing bonds by issues smaller in amount and with lower interest rates and by the purchase by the railroads of their bonds in the hands of the public. On the part of railroads emerging from reorganization a large portion of the fixed interest bonds was converted into income bonds with interest payments contin-



NEW "PACKAGE" railroad freight container inaugurated in early part of 1946. Freight is packed in these aluminum "boxes" which can be shifted from flat car to truck and back again without unloading

gent on earnings, and some of the fixed interest bonds as well as the greater part of other forms of debt were exchanged for new capital stock. The fixed interest charges of all Class I railroads in 1937 were \$441,000,000. By 1945 they had been reduced to \$382,000,000. In 1946 there was a further reduction to \$350,000,000.

The volume of freight traffic is reflected in the number of loaded cars originated and moved and the number of revenue tons moved one mile. In 1946 the number of loaded cars was 41,200,000, 1.5% less than in 1945 and 5.1% less than in 1944. The number of revenue ton-miles of 1946 was approximately 583,000,000,000, 14.4% less than in 1945 and 20.9% less than in 1944. The relatively smaller loss in loaded cars than in ton-miles was due to the smaller amount of military long-haul freight.

In passenger service the decrease in 1946 was greater than in freight service. The 1946 passenger-miles were 65,000,000,000. In 1945 and 1944 they were 92,000,000,000 and 96,000,000,000 respectively. By far the greater part of the decrease was the result of the absence of troop movements on a large scale and relatively little furlough travel in 1946. It was also the result, but in smaller part, of the resumption of automobile driving and the intensified competition of buses and air lines. It is interesting to note, however, that in 1946 the rail passenger-miles were greater than in any previous peacetime year—four times greater than in 1933 and three times greater than in 1939.

In an effort to improve their competitive position with respect to other forms of transportation the railroads made notable improvements during the year, especially in passenger train cars, of which more than 1,300 were placed in service in 1946. These new cars were lighter in weight, had better riding qualities, had better lights, were kept cleaner, had better designed seats, more lounge space and were made more pleasing to the eye in interior decoration and outside design and finish. Several new streamline trains were added, bringing the total of such trains to 73.

In addition to the improvements in passenger carrying cars the railroads generally did much in speeding up the movement of passenger trains. The schedules of 130 through trains were reduced one hour or more from initial station to destination and on some of the longer runs the shortening in running time was

several hours. Through sleeping car service from New York and Washington to the southwest and the Pacific coast was inaugurated, and the necessity of changing cars in St. Louis and Chicago could be avoided.

Less spectacular but of equal importance (because about three-fourths of railroad operating revenues comes from the freight service) were the improvements in the movement of merchandise in expedited and more frequent service. The 1946 record, however, was marred by freight car shortages and the car situation at the end of the year was a cause for concern. During World War II the railroads had done their best to acquire additional freight cars, but priorities for the necessary materials could not be obtained. Nor was it possible to obtain all of the materials needed for that purpose in 1946. The new cars delivered by the builders in that year, 37,219, were about one-third of the needs. At the end of the year 63,616 freight cars were on order.

There was no shortage in locomotives in 1946. A substantial number of the older types of steam locomotive were held in reserve. The development in the substitution of diesel-electric for steam locomotives was continued and on a larger scale. Of the total 919 locomotives ordered in 1946 only 55 were for steam locomotives, 856 were diesels and 8 were all-electric.

In the field of labour relations the outstanding event of 1946 was the nation-wide strike of locomotive engineers and trainmen. The coast-to-coast stoppage on rail transportation was almost instantly and completely effective. The strike grew out of demands for higher wages and changes in working rules which had been presented to and refused by management late in 1945. The five operating brotherhoods (engineers, firemen, conductors, trainmen and yard switchmen) had demanded an increase of \$2.50 per day and many rule changes which would increase compensation or the number of employees. The nonoperating unions (15 in all, embracing the several shop crafts, trackmen, station-

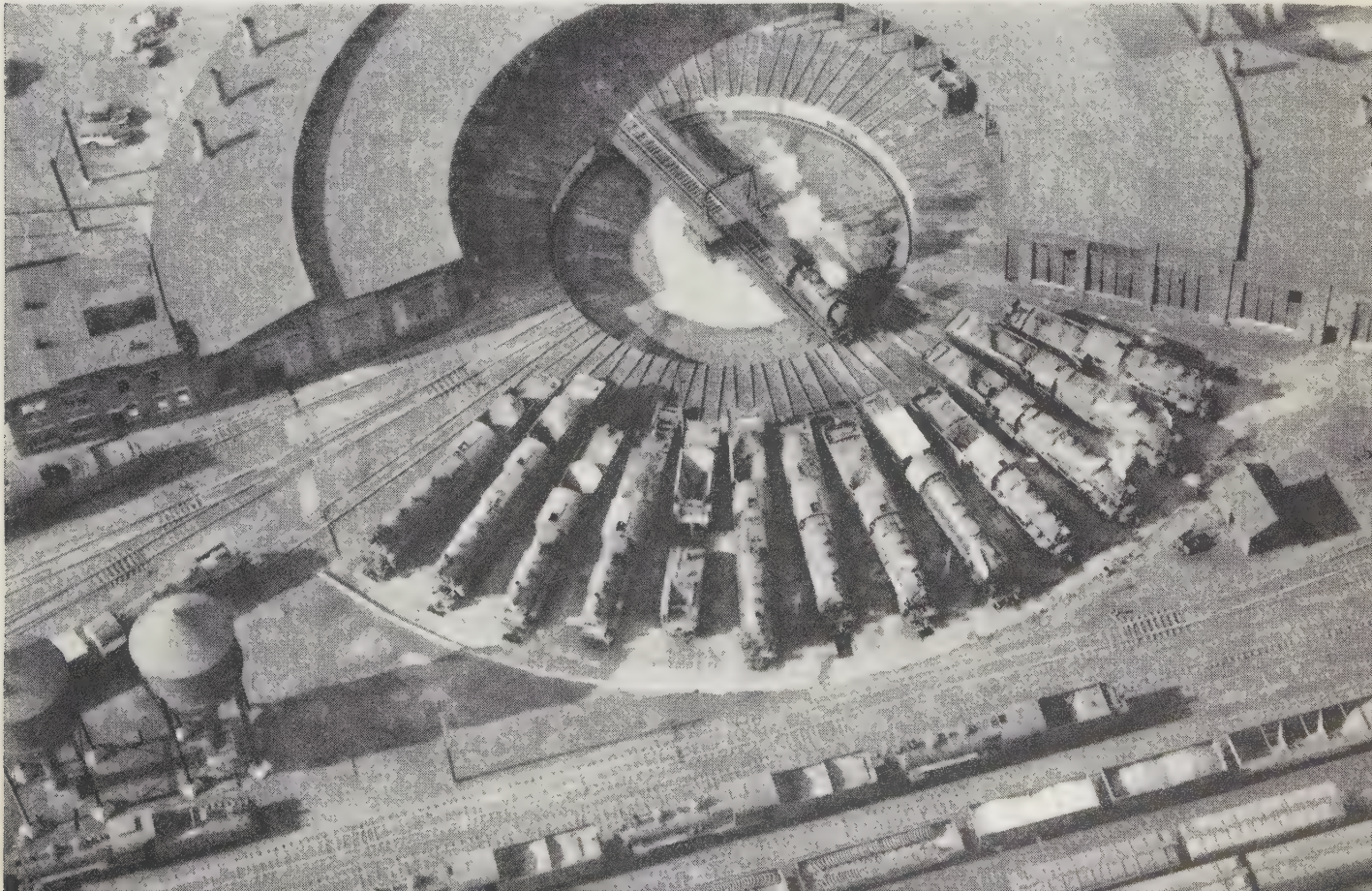
men, clerks and others) wanted an increase of 30 cents per hour. Direct negotiations between the two groups and a committee of railroad executives broke down and federal mediation was ineffective. In Jan. 1946, the nonoperating group and three of the five operating brotherhoods agreed to arbitration. The engineers and trainmen would not be party to arbitration nor would they join with the other 18 unions in accepting the arbitration award. That award gave the employees a wage advance of 16 cents per hour and favourable changes in certain rules. The rejection of the award by the engineers and trainmen was accompanied by notice that a strike would be called.

President Harry S. Truman then took a hand in the controversy and on March 8 appointed an emergency fact-finding board which on April 18 recommended for the engineers and trainmen the same rate of wage increase and rule changes that had been awarded to the 18 unions by the arbitration board. These recommendations of the fact-finding board were rejected by the engineers and trainmen and the strike, after one postponement of a few days, went into effect at 4 P.M. on May 23.

A day or two previously President Truman had suggested a compromise under which the wage boost of 16 cents to the 18 unions would be increased to 18.5 cents to all of the unions, the extra 2.5 cents to be in lieu of rule changes and the whole subject of rule changes to be deferred one year. The compromise was accepted by the 18 unions and by management but the engineers and trainmen would not yield. On the day preceding the strike the President, acting under his emergency powers, took over the railroads for government operation and turned them over to the Office of Defense Transportation, but that action did not deter the two militant brotherhoods from striking. The other unions did not join in the strike, but inasmuch as trains could not be operated without engineers and trainmen the tie-up was complete.

In a radio broadcast to the nation on the day following the strike President Truman severely criticized the heads of the two

AIR VIEW of locomotives left idle at the Pennsylvania railroad roundhouse at Kearney, N.J., when their crews went on strike in May 1946



brotherhoods and stated that he would at once recommend to congress that steps be taken to draft the strikers and place railroad operation under the army. On the next day he personally appeared before a joint session of congress and made those recommendations with others which would drastically curtail the power of union leaders to strike against the public interest. The result of the President's action and pressure from other labour leaders was the quick capitulation of the engineers and trainmen. They agreed to accept the President's compromise proposal, the strike was called off at once and the railroads were released by the government. There were no further labour troubles of any magnitude on railroads in 1946.

The total number of railroad employees in Aug. 1946, was 1,370,953, a decrease of 77,509 from Aug. 1945. The decrease was due mainly to the smaller volume of traffic which required fewer trains, but there was some curtailment in maintenance because of smaller earnings. The total compensation paid to employees in Aug. 1946, was \$367,000,000, an increase of \$33,000,000 in excess of the same month in 1945. The number of employees in 1946 was 5% less, but their compensation was 10% more. The 1946 wage increases added \$680,000,000 per year to the railroad payroll and in addition the railroads had to pay \$41,000,000 per year more in pay-roll taxes. The average yearly compensation per employee in 1946 was about \$3,090. The comparable figure in 1945 was \$2,721. In 1939 it was \$1,887. The average hourly wage for straight time (without overtime) in 1946 was about \$1.12. In 1945 it was 93.3 cents and in 1939 it was 74 cents.

The only new legislation affecting railroads enacted in 1946 was the Railroad Social Insurance bill, generally known as the Crosser bill. It was signed by the president on July 31, to become effective on Jan. 1, 1947. It created a new system of annuities for survivors of railroad employees, enlarged the scope of unemployment benefits to include absences because of sickness and generally placed railroad employees in a more favourable position than employees of other industries subject to the Social Security act. The pay-roll tax to be borne by the railroads was increased from 6½% to 8¼% (including the 3% unemployment tax) on Jan. 1, 1947. It was to be further increased to 9% on Jan. 1, 1949, and to 9¼% on Jan. 1, 1952. The higher tax rate on Jan. 1, 1947, increased the railroad tax bill at the rate of \$90,000,000 per year. The employees pay no part of the unemployment tax of 3%, but the higher taxes for social security apply to employees in the same degree as to railroads. The employees' contributions were increased from 3½% to 5¼% on Jan. 1, 1947, to 6% in 1949 and to 6¼% in 1952.

The Bulwinkle bill, which would have cleared doubt as to the legality of railroad rate associations and the conference method of establishing competitive rates, was passed by the house, was reported on favourably to the senate by its committee but did not come up for consideration by the senate before adjournment. The bill was strongly supported by the Interstate Commerce commission and by national associations of shippers but was opposed by the department of justice.

The Reed bill, which would have amended the existing law governing the reorganization of railroads in bankruptcy in order to give more considerate treatment to the holders of railroad capital stock found by the Interstate Commerce commission to be of no value, was passed by both the house and the senate but was vetoed by the president after congress had adjourned. The President approved the general aims of the bill, but he stated that certain defects would prevent the accomplishment of the avowed purpose.

The antitrust suit instituted by the department of justice in Aug. 1944, against the Association of American Railroads, the Western Association of Railway Executives and certain individ-

uals, was still pending when the year ended. The suit was aimed particularly at outlawing the conference method of rate-making, a practice approved and encouraged by the ICC.

The action of a special federal court in Philadelphia in Dec. 1945, approving the acceptance by the Pullman company of an offer by a group of railroads to purchase the cars and facilities of the Pullman company, was appealed to the supreme court by the department of justice on the ground that consummation of the purchase by the group of railroads would create a monopoly of another kind to take the place of the monopoly which the court had ordered dissolved when it required that Pullman, Inc., must dispose of one of its two subsidiaries: (1) Pullman company which owned and operated Pullman cars under contracts with railroads or (2) Pullman-Standard, a car-building company. The appeal did not come up for argument in 1946. (See also BUSINESS REVIEW; DISASTERS; INTERSTATE COMMERCE COMMISSION; NATIONAL MEDIATION BOARD; UNITED STATES.) (W. J. C.)

Great Britain.—Passenger fares and freight rates were increased in July 1946 to levels averaging respectively 33% and 25% above those of 1939, with certain exceptions in season and workmen's tickets, etc.; in spite of higher charges, however, the total traffic receipts continued to fall. Three events of vital significance to the British railways occurred in 1946: firstly, a decision was made to convert more than 1,000 steam locomotives to burn oil fuel instead of coal, a policy undertaken at the express wish of the government and following upon the experimental conversion of some locomotives by the Great Western railway some months earlier; this change in policy provided striking evidence of the shortage of locomotive coal. How universal the problem was in 1946 is shown by the adoption of a similar policy by the Victorian railways in Australia, where brown coal was also being used. Eire proposed to adopt the alternative of Diesel traction. Secondly, the London Passenger Transport board adopted a "closed shop" trade-union policy, which might have far-reaching consequences in the future of British railways. Thirdly, in July, the British main line railways and the Road Haulage association submitted to the minister of transport a memorandum putting forward their agreed views on the co-ordination of road and rail freight transport. As an example of co-operative effort between two transport services highly competitive in the past the memorandum was a notable achievement, and the satisfactory result of years of difficult negotiation. Although priority would long have to be allocated to the repair of war damage and to overcoming deferred maintenance, for which trust funds covering 1939-1945 and totalling (including the L.P.T.B.) £148,000,000 were available, certain technical developments were made such as the experimental prefabricated station building on the London, Midland and Scottish railway, the new design of 4-6-2 "Pacific" class locomotives on the London and North Eastern railway and the opening of a residential school for clerical staff by the same railway. The Southern railway's "Golden Arrow" Pullman service from London (Victoria) *via* Calais to Paris was restored on April 15. Further wide suburban electric stock, seating six on a side, came into service on the S.R. The G.W.R. extended its zonal scheme of rail and highway co-ordinated services from Birmingham to many other areas, a facility in which it could claim pioneering achievement; this company also reinstalled slip coaches. Certain travelling post-office sorting services were restored.

Europe.—The revival of the activities of the International Union of Railways with headquarters at Paris in 1945-46 proved of great benefit in arranging for the resuscitation of international traffic in western Europe.

French National railways (S.N.C.F.) achieved an enviable record in reconstruction, and plans included the relocation of facilities at the railway centres of Orléans and Tours, the electrification of the Paris-Lyon main line, the linking up of the *métro* and main-line railways on the outskirts of Paris and the mechanization of one or more of the large Paris freight stations. The arrival of "Liberation" type 2-8-2 locomotives from the U.S. in addition to equipment production in French shops eased the motive power position, although wagons were scarce and the locomotive coal position remained crucial. In France, as in Belgium, railway charges were increased more than once. Belgian National railways (S.N.C.B.) earned fame by restoring in April the first European postwar services at 65 m.p.h. between Brussels and Antwerp (electric). Steady progress was being made by the Swiss federal railways in the doubling of the Gotthard route along Lake Lucerne, but it was far from complete in 1946. The same system installed new lightweight passenger cars of remarkable design and a large number of passenger stations were being improved; further electrification was carried out. In Germany the railway system remained divided into four sections in accord with the four occupied zones; practically all lines were expected to be open by the end of 1946 but the number of temporary bridges, as across the Rhine, slowed up circulation of movement and provided many traffic bottlenecks. Little official information was available concerning railways in the soviet zone and in the U.S.S.R. itself. The Netherlands railways launched a large-scale plan of main line electrification and rehabilitation, but war damage was not yet repaired, although the completion of large new bridges, as at Zwolle, helped to restore the country's rail traffic arteries. In Sweden electrification was extended on both the Swedish state and the company lines, so that the conversion of the Bergslagen railway's Ludvika-Daglosen section permitted electrical working throughout from Gotenborg to Gavle as from Feb. 1946.

Asia.—Political changes in India had not by the end of 1946 affected

the organization of the Indian Railway board or the individual systems which, except for those of certain states, were all government-owned and operated in that year. Many new locomotives arrived from the U.S. and Canada and further units were on order. Deferred maintenance would require some years to overcome. The appointment of a completely Indian executive staff continued rapidly. Standard gauge steam locomotives released from war service on the Iranian railways were dispatched to standard gauge lines farther west by an ingenious method of loading on metre gauge wagons to reach Baghdad.

South Africa.—Heavy traffic continued on the South African railways in 1946, and the arrival of new locomotives long on order, including 50 Garratt 4-8-2 + 2-8-4 type, proved timely. Extensive improvements were begun in Johannesburg and at Germiston, where 700 trains were handled daily, and at other places, like De Aar, passenger services were approaching prewar speed and frequency. Suburban services in the Cape Town area had been carrying more than 75,000,000 passengers a year and were to be reorganized and improved as soon as new equipment could be obtained. South African railways continued to operate the union's civil air services, a policy similar in many respects to that of Canada, but in contrast to that of Britain, where the Railway Air services, operated for many years jointly by the British railways, became part of the government-owned British European airways during 1946. A government inquiry as to the desirability of the state's taking over the Rhodesian railways issued its report in 1946 and advised against any immediate nationalization policy.

Canada.—Both the Canadian National and the Canadian Pacific railways were able to install new passenger-car equipment of a striking character, embodying lightweight metals, with greatly increased seating comfort and scientifically designed illumination. Modernization of diners and sleepers was an important aim of Canadian railway endeavour in 1946. Wartime restrictions on reduced fares ended in March. Both railways continued their interests in the affiliated air lines, and the reopening of holiday hotels indicated a return to normality.

Mexico.—Besides the progressive dieselization of the Mexican National railways, largely because of the effective assistance resulting from the visit of the U.S. Railway mission some years previously, other new equipment and motive power were received in 1946. A carrier current telephone system was installed between San Luis Potosi and Mexico City.

South America.—Further progress was made in the electrification of the Brazilian Sorocabana railway main line from Santos, where new construction was also in hand. The opening of the Brazil-Argentina railway bridge at Uruguayana in 1946 forged an important rail link between the two countries. Another railway bridge linking Brazil with Uruguay at Jaguarão was also completed, and a third bridge near Corumbá was under construction between Brazil and Bolivia.

Australia and New Zealand.—Negotiations were continued between the commonwealth and the state governments concerning the financing of the gauge standardization program, and certain adjustments made to the proposals in regard to northern Queensland. The new bridge over the Hawkesbury river in New South Wales was opened in July 1946. The completion of the Kaikoura-Oaro section of the East Coast Main line (South island), New Zealand, at the close of 1945 brought a section, isolated after 1875, into the main system and was thus an important landmark in New Zealand railway history. The five-day 40-hour week came into force on the New Zealand railways in 1946. (C. E. R. S.)

Raimu (1883-1946), French actor, was born at Toulon on April 17; his real name was Jules Muraire. He began his career as an actor at Toulon with a walking-on part, became prompter in a Marseilles theatre and at one point in his early days joined a troupe of U.S. acrobats; later, his début in café concerts in Paris brought him his first fame. The reputation he made at the "Cigale" and the "Folies-Bergères" carried him into the film-world, where he first took part in Sacha Guitry's *Le Blanc et le Noir*. His greatest successes were in *Fanny* and *Marius*, both made in 1931; he was diligent in character study, and it was said that he studied the role of Marius for more than a year before attempting to play it. At the time of his later success in *La Femme du Boulanger* and *Carnet de Bal* he was already an established favourite. In the last years of his life he returned to the stage and became a member of the Comédie Française, acting in *Le Malade Imaginaire* and *Le Bourgeois Gentilhomme*. He died in Paris on Sept. 20 of a heart attack.

Rainfall: see METEOROLOGY.

Raisins: see FRUIT.

Rapid Transit: see ELECTRIC TRANSPORTATION.

Rates of Exchange: see EXCHANGE CONTROL AND EXCHANGE RATES.

Rationing: see PRICE ADMINISTRATION, OFFICE OF.

Rayon and Other Synthetic Fibres. Previous all-time high records for United States rayon and rayon products production

were broken in 1946. Rayon yarns exceeded the previous record, in 1945, by 7½%. Rayon fabrics increased about 11% in excess of 1945. Only in rayon hosiery was there a decrease, a result of the return to use of nylon in the first year of operations after release of nylon from war use. More gain was shown by filament yarn than rayon staple. Filament yarn, which makes the finer types of fabrics more similar to silk, was 8½% more than 1945 and double that of 1939. Rayon staple, used for the spun rayon fabrics more closely resembling wool, fine cotton and linen weaves, increased 5% more than in 1945. Production of all other synthetic yarns, including nylon, vinyon protein and glass fibres, was estimated to reach between 35,000,000 and 40,000,000 lb.

Table I.—United States Rayon Production in Millions of Pounds

	1941	1942	1943	1944	1945	1946
Rayon filament yarn	451	479	501	555	624	678
Rayon staple fibre	122	153	162	169	168	176

World Rayon Production.—World production of rayon was estimated at 1,800,000,000 lb., an increase of 18% over 1945 but 37% below the record of 1941. This difference was due largely to the depressed levels of production still existing in the former large producing countries of Germany and Japan. Sharp recoveries were shown, however, by Belgium, Czechoslovakia, France, Great Britain, Italy and the Netherlands. New producing units in South American countries combined with production in North America gave the western hemisphere more than 50% of the world's rayon output, of which the United States was responsible for 47%.

Fields of consumption during 1946 showed a sharp change, reflecting the return to peacetime channels with the exception of the tire cord users who continued their wartime interest in the synthetic yarns. The tabulation of United States distribution of filament rayon yarn by trades would show how the full-fashioned hosiery makers who turned to rayon when silk and nylon were taken over for war uses dropped their interest in 1946 to the extent of reducing their consumption to about one-fourth of their 1945 poundage. Seamless hosiery, which used rayon prior to the war, showed a gain in pounds consumed by one-third. A new and growing field of consumption was the warp knit fabric industry which took 35,000,000 lb. in 1945, compared with 20,000,000 in 1941. This fabric, known to the consuming public as rayon jersey, rapidly became a factor in the making of dresses, underwear and sportsclothes. Improved machinery produced better wearing fabrics and high styling in colours and print designs brought increasing consumer acceptance. Makers of the more established woven fabrics were installing knitting equipment for the newer types of fabrics that were proving competitive with the products of the loom. Tire manufacturers used 214,000,000 lb. of rayon yarn, compared with 187,000,000 in 1945 and 55,000,000 in 1943. The export market, which war shortages developed, started its expected downward move in 1946 with a decrease to 12,500,000 lb. from the previous year's all-time high of 20,000,000 lb.

Prices of rayon yarn were increased in the last two months of 1946 to 59¢ a pound in November and 62¢ in December for the viscose 150 filament. The price of 55¢ had been in effect after Oct. 1941. Rayon staple fibre rose to 28¢ for the viscose type compared with 25¢ in effect after Aug. 1944. As to rayon fabric prices, they, like rayon yarn prices, followed a more stabilized line than other textiles.

The chief consumers of rayon yarn, the fabric weavers, again broke their production records. Total yardage produced of all types was estimated to be 1,800,000,000 of which 60% was in the all-filament cloths, such as taffetas, crepes, lining fabrics, satins, etc., 10% in the all-spun rayon fabrics, 10% in the combination filament and spun rayon fabrics and 20% in other rayon mixtures. The all-filament group as shown in Table II showed the largest increases in excess of 1945 production as they were the most desired fabrics for general clothing purposes.



RAW RAYON being passed through taundering operation before being processed with melamine resin, during 1946. The processing was said to make the fabric muss resistant, washable, shrink-proof and of increased wearing quality

Table II.—Production of Rayon Broad Woven Fabrics
(Except Tire Fabrics)

	All-filament	All-spun rayon	Comb. filament and spun rayon	All other rayon mixtures
1944	1,100.4	151.6	154.2	162.1
1945	1,018.2	162.1	159.8	178.2
1946*	1,158.4	195.8	178.2	250.8

*Nine months actual, three months estimated.

Added to rayon fabrics in 1946 were a growing group of nylon fabrics, particularly nylon cloth for sails, first introduced just before the war, and nylon satin for underwear. Nylon marquisettes were also featured first in 1946 for window curtains. Generally, however, production throughout the year was concentrated on standard types in urgent demand for men's and boys' wear linings, for women's low and medium priced dresses, blouses and underwear. Government controls on distribution of these fabrics continued throughout the year, and it was not until November that Office of Price Administration controls on prices of rayon grey goods (unfinished) were revoked. Table III demonstrates the growing weekly average production of rayon, nylon and related fabrics:

Table III.—Weekly Average Production of Rayon, Nylon, Silk and Related Fabrics*

	(Millions of linear yards)	Production
1939 weekly average		27.1
1943 weekly average		31.9
1944 weekly average		32.5
1945 weekly average		31.3
1946 weekly average (first ten months)		34.7
% change 1946		
Weekly average from		
1939 weekly average		+28.0
1943 weekly average		+ 8.8
1944 weekly average		+ 6.8
1945 weekly average		+10.9

*The bulk of the production covered by these statistics consists of rayon broad woven goods. During later months of 1946 rayons were 95.8% of the total.

In the hosiery field, the production of rayon hosiery dropped to 14,513,150 doz. pairs in the first eleven months of 1946, compared with the 35,000,000 in 1945. Nylon hosiery production for the first eleven months of 1946 was 25,280,589 doz. pairs.

Wage and employment trends among rayon and silk mills of the United States were reported during the year for the period 1939 through May 1946. They showed an increase in hourly earnings from \$4.29 to \$8.49 with an increase in hours worked from 36.5 to 41.3 weekly, reflecting the overtime necessary to meet the 22% increase in production during the same period, complicated by the reduction in the number employed which dropped from 110,800 in 1939 to 90,400 in 1946.

The second largest 1946 rayon producer, Great Britain, increased its exports during the year. During the first nine months, 84,000,000 sq.yd. of fabric were sent to foreign markets, compared with 72,732,000 in the same period of 1945. Even so, the Cotton and Rayon Merchants association of Great Britain, in December, asked for not only a legally permissible (under the United States Reciprocal Trade Agreements act) 50% reduction in duties on rayon fabrics entering the United States but an additional 50% on the grounds that they wanted to share the popular and low priced rayon fabric field and could not do so without this aid. At the same time, British consumers were still struggling with rationed clothing. British yarn exports during 1946, during the first nine months

were 135,500,000 lb. of which 81,600,000 were filament and 5,390,000 staple fibre. The combined British production of rayon and nylon averaged nearly 15,000,000 lb. monthly in 1946. At the end of June, there were 24,600 persons employed in the industry of Great Britain.

British and Swiss machinery manufacturers reported in 1946 that contracts had been given by a manufacturing unit in India for installation of rayon spinning machinery that would have the capacity of 10,000 lb. daily of continuous filament rayon.

The Japanese rayon plants were the subject of a survey by a special group of U.S. textile men appointed by the state and war departments who reported in May 1946, that the current production capacity was 354,000,000 lb., 39% below the all-time high level of Japanese rayon production set in 1938. Bomb damage to Japanese rayon plants was nominal compared with cotton mill damage, but scrapping of rayon producing equipment for war metals was responsible for the lowered capacities. During the first three months of 1946, however, only 4½% of even the lowered capacity was being used. Shortage of raw materials was the principal handicap.

Brazil's rayon yarn production, totalling 20,000,000 lb. in 1945, was expected to reach 40,000,000 lb. in 1946, and production of viscose filament yarn in Chile increased during the third quarter of 1946, showing an average monthly production of about 250,000 lb. The yarns were of the coarser variety. Anything finer than 100 denier was imported.

Australia began to knit nylon hosiery in the last quarter of 1946. The nylon yarn was shipped from Great Britain in September and represented about 60% of the British export allocations of this yarn.

In Poland, at Zydowin, near Szczecin, a rayon plant destroyed by the war was being reconstructed in 1946 and was expected to be completed at the end of the year. In July 1946, Poland produced 415,580 kg. (approximately 850,000 lbs.) of stable fibre.

BIBLIOGRAPHY.—*Foreign Commerce Weekly*; International Statistical Bureau, Inc.; Textile Economics Bureau; Bureau of the Census; National Federation of Textiles, Inc.; *Textile Recorder*, (Manchester).

(I. L. BL.)

Receipts, Government: see BUDGET, NATIONAL.

Reciprocal Trade Agreements: see INTERNATIONAL TRADE.

Reclamation: see CANALS AND INLAND WATERWAYS; FLOODS AND FLOOD CONTROL; FORESTS; IRRIGATION; SOIL EROSION AND SOIL CONSERVATION.

Reconstruction Finance Corporation was created by the act approved by the U.S. congress on Jan. 22, 1932, and began operations as a lending agency on Feb. 2, 1932. On June 30, 1946, loans and other authorizations of RFC amounted to \$41,230,936,765.84, of which \$1,943,162,824.17 was outstanding.

During 1946, RFC, in addition to performing its functions as a lending agency, engaged in the liquidation of its war activities as rapidly as that was practicable, at the same time continuing, under directives from the Office of War Mobilization and Reconversion and the Civilian Production administration, those wartime activities which could not immediately be terminated

Reconstruction Finance Corporation—Summary of Loan & Purchase Activities Feb. 2, 1932, Through June 30, 1946

	Authorizations	Disbursements	Repayments and Other Reductions
For benefit of agriculture	\$2,603,733,430.83	\$1,452,180,464.11	\$1,452,000,775.45
To open banks to meet demands of depositors	1,334,880,161.08	1,138,251,619.27	1,127,825,604.83
For distribution to depositors in closed banks	1,422,805,381.24	1,060,157,541.49	1,057,674,109.66
For bank capital (including Export-Import bank \$176,500,000 and Federal Home Loan banks \$124,741,000)	1,647,452,669.00	1,471,806,311.56	1,146,679,208.33
For self-liquidating projects, (including PWA securities)	1,300,038,798.95	1,082,195,899.18	984,807,409.68
To business enterprises	1,280,911,156.56	503,492,002.49	357,148,567.61
For loans to national defense	23,148,871,984.06	21,652,639,660.67	21,220,369,140.47*
For loan to Great Britain and Northern Ireland	425,000,000.00	390,000,000.00	156,595,975.76
For purchase of stock—national defense	126,000,000.00	27,000,001.00	21,000,000.00
To drainage, levee and irrigation districts	149,709,448.64	101,108,002.18	80,831,043.99
To railroads (including PWA railroad securities)	1,705,439,535.54	1,052,068,714.70	874,913,140.32
For loans to and capital of mortgage loan companies (including \$25,000,000 capital of The RFC Mortgage company and \$11,000,000 capital of Federal National Mortgage association)	912,342,930.95	782,278,484.26	731,469,433.36
For loans to and capital of insurance companies	151,589,750.19	137,843,209.81	106,079,865.03
To building and loan associations (including receivers)	179,989,559.59	140,158,067.90	140,158,067.90
To public school authorities	25,689,050.00	23,257,175.00	23,257,175.00
For catastrophe rehabilitation loans	17,826,818.36	13,523,726.07	12,437,447.89
To state funds for insurance of deposit of public moneys	13,087,715.88	13,064,631.18	13,064,631.18
For mining, milling and smelting businesses	20,296,100.00	9,173,409.40	4,318,181.45
For loan to Export-Import bank	25,000,000.00	25,000,000.00	25,000,000.00
For other purposes	669,057.07	614,813.85	614,813.85
Total by directors of the RFC	\$36,491,333,548.97	\$31,075,813,734.12	\$29,536,244,591.76
Allocations and loans to other governmental agencies and for relief by direction of congress	4,739,603,216.87	3,900,715,936.51	3,497,122,254.70†
GRAND TOTAL	\$41,230,936,765.84	\$34,976,529,670.63	\$33,033,366,846.46

*Includes \$7,650,698,299.91 representing credits arising from the merger of RFC war affiliates with RFC under public law 109—79th congress.

†Includes \$2,785,458,704.21 of the corporation's notes cancelled pursuant to act of congress approved Feb. 24, 1938.

without harmful effect on production and employment. These included the procurement of strategic metals, principally tin and tin ores and concentrates, copper, lead and antimony.

Some defense supplies programs were terminated on recommendation of sponsoring agencies. Several were continued through June 30, 1946, notably the payment of subsidies on flour and meat, which totalled \$774,158,449 for the fiscal year ended June 30, 1946. In addition, the public purchase was continued of commodities in critical supply. The more significant expenditures for commodities during the fiscal year 1946 included goatskins, \$5,271,059; quinine and cinchona products, \$3,341,188; hard fibres, \$28,044,951 and molasses, \$27,461,161.

The defense plants program was marked by orderly liquidation of existing plants; and involved contract termination, close-down, plant protection and maintenance, the designation of surplus plants and equipment as being available for disposal, and continued operation of certain plants under lease agreement. Of a total of 2,486 plants and facilities approved during World War II and the national defense period, representing an aggregate authorization of \$8,972,000,000, it was expected that an average of 46 plants, representing an investment of \$241,960,000, would be maintained during the fiscal year 1947.

RFC continued to perform functions of Rubber Reserve company, with purchases of natural rubber during the fiscal year ending June 30, 1947, expected to be approximately 495,000 tons. An estimated 732,000 tons of synthetic rubber required during the fiscal year ending June 30, 1947, would represent the output of 37 plants which cost approximately \$506,000,000. Six plants costing \$142,000,000 were to be maintained in stand-by condition and eight plants costing approximately \$16,000,000 were expected to be declared surplus for disposal by War Assets administration.

The RFC Mortgage company, during the year ended June 30, 1946, authorized loans and purchased mortgages aggregating \$5,710,538.06. During this period repayments and sales aggregated \$42,325,508.88. From its inception, in 1935, to June 30, 1946, the company made loans and purchased mortgages aggregating 66,203 in number and \$349,941,716.31 in amount. Of these 64,077 aggregating \$334,939,205.85 had been repaid or sold, leaving 2,126 aggregating \$15,002,510.46 on hand. The company makes loans secured by mortgages on income-producing urban real estate, for construction of properties for which a sound economic need has been demonstrated and for refinancing obligations of distressed borrowers, where private financing

can not be obtained. It also purchases certain classes of FHA insured mortgages, and has established a market for veterans' home loans that have been guaranteed or insured by the Veterans' administration. This latter program was undertaken at the request of many private lending institutions engaged in making home loans to war veterans. These indicated that there was insufficient market for such loans among private financial institutions and stated that a dependable market for the loans was needed in order to aid veterans in obtaining loans for the construction or purchase of homes. These loans were to be purchased only

from the lending institutions that originally make the loans.

The Federal National Mortgage association, a subsidiary of RFC, which was continuing its program of standing ready to purchase FHA insured home mortgages from the original lending institutions, when private financial institutions do not provide an ample market, was not called upon to purchase any substantial volume of mortgages in the year ended June 30, 1946. Through that date, it had purchased 66,957 mortgages aggregating \$271,554,633.16 of which 64,711 in number and \$265,183,062.83 in amount had been repaid or sold, leaving 2,246 mortgages aggregating \$6,371,570.33 on hand.

A major activity of RFC during 1946 was the promotion of trade with occupied and liberated countries. The basic policy in conducting such commercial transactions, which were handled by U.S. Commercial company, a subsidiary, was to foster re-establishment of private trade as soon as possible. Under agreements negotiated with the war department, merchandise from both Germany and Japan was imported. Total value of such imports for the fiscal year 1946 was estimated at approximately \$58,100,000, and for the fiscal year 1947 was expected to approximate \$504,000,000, including cost of handling and freight.

As of June 30, 1946, excluding claims for damages to property in the Philippines, 2,138 claims in the amount of \$4,806,471.56 had been received by War Damage corporation, another subsidiary, for the loss of or damage to property as a result of enemy attack. As of June 30, 1946, \$443,482.03 had been paid in settlement of 916 claims. Other claims were in process of settlement. WDC assumed the largest insurance risk ever undertaken in U.S. history and probably the largest in the history of the world. Premium earnings, before payment of participants, amounted to \$221,000,000. More than 8,700,000 policies and renewal certificates were issued.

An important objective of RFC in 1946 was to utilize its powers and facilities to assist in the U.S. effort to develop a sound and enduring postwar economy. RFC's participation was in the form of issuing an adequate supply of credit to banking and business enterprises to meet their sound credit needs, with emphasis being placed in particular upon the needs of small business enterprises. A study initiated by RFC indicated that adequate facilities to finance longer-term credit and capital needs of small enterprises on terms, conditions and maturities comparable with the more favourable conditions enjoyed by big business were essential to postwar prosperity.

This led to development of the Blanket Participation Agreement program under which RFC agrees to guarantee not exceeding 75% of any business loan, not in excess of \$100,000, made to an eligible business borrower by a participating bank. Subject to provisions of the agreement, RFC agrees to take over part of the loan, if the bank desires, upon ten days' notice. As of June 30, 1946, 3,732 banks had signed the agreement and 4,599 applicants received loans aggregating \$257,795,788.82. RFC's participation in these loans aggregated \$187,682,990.76. Banks' participations were \$70,112,798.06. In addition, RFC took over authorizations in the amount of \$119,027,483 as a result of the transfer to it of certain functions of Smaller War Plants corporation, as of Jan. 28, 1946.

The foregoing transfer of certain Smaller War Plants corporation functions to RFC also resulted in giving RFC authority to buy surplus government-owned property for resale to small business under section 18(e) of the Surplus Property act, as amended. As of Oct. 31, 1946, 14,916 applications involving surplus property with an aggregate value of \$42,705,327, had been consummated. As of that date, 8,752 additional applications were in various stages of consummation.

At the close of business March 23, 1946, RFC's function as a disposal agency for approximately 90% of all surplus property was terminated. RFC had functioned as a disposal agency for capital and producers' goods from May 1, 1944, and, in addition, as a disposal agency for consumer goods from Nov. 5, 1945. During that period, surplus aircraft, and capital and producers' goods costing \$12,912,000,000 were turned over to the corporation for disposal, of which, property costing \$1,887,000,000 was either sold or leased through March 23, 1946. Property costing \$1,328,000,000 was sold for \$576,000,000, a return of 43.4 cents on the dollar. The return from surplus industrial plants and real estate was 59.6%, and from aircraft, most of which was nonsalable, 16.6%.

RFC functions under the direction of a bipartisan board of directors whose members are appointed by the president subject to confirmation of the senate. The board in 1946 consisted of: Charles B. Henderson, chairman; Henry A. Mulligan, Harvey J. Gunderson, Henry T. Bodman and George E. Allen.

Loan agencies are maintained by the corporation in Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Charlotte, N.C.; Chicago, Ill.; Cleveland, O.; Dallas, Tex.; Denver, Colo.; Detroit, Mich.; Helena, Mont.; Houston, Tex.; Jacksonville, Fla.; Kansas City, Mo.; Little Rock, Ark.; Los Angeles, Calif.; Louisville, Ky.; Minneapolis, Minn.; Nashville, Tenn.; New Orleans, La.; New York, N.Y.; Oklahoma City, Okla.; Omaha, Neb.; Philadelphia, Pa.; Portland, Ore.; Richmond, Va.; St. Louis, Mo.; Salt Lake City, Utah; San Antonio, Tex.; San Francisco, Calif.; Seattle, Wash.; and Spokane, Wash. (C. B. H.)

Reconstruction Planning. The long procedure of establishing the United Nations began under unfavourable auspices at the Jan. 1946 meeting of the General assembly in London. Despite this handicap, the members of the Security council and the Economic and Social council were elected and the Military Staff committee was formed. An Atomic Energy commission, consisting of 11 members of the Security council and Canada, was constituted and started work on plans for the control and peacetime development of atomic energy. The newly-formed Economic and Social council negotiated agreements to bring the International Labour organization, the Food and Agriculture organization and the U.N. Educational, Scientific and Cultural organization into relationship with the United Nations. It also considered reports of subcommittees on human rights, economic, social and employment conditions, and transport and communications.

At the end of the year, the General assembly, reconvening in New York, gained headway in establishing the prestige and workability of the United Nations as a functioning organization. At these meetings the U.N. proved a valuable agency for exposing basic differences of opinion out of which any world order must be constructed. The General assembly chose New York as permanent U.N. headquarters and adopted a program for general disarmament which would provide a basis of agreement for the work of the Security council in carrying disarmament forward. The U.N. Trusteeship council was also formed to supervise the administration of colonial areas.

Basic to all reconstruction planning were the problems and possibilities brought about by atomic power. U.S. policy for atomic control was promulgated in the Baruch report. It proposed a treaty to create an international Atomic Development authority to supervise all phases of the development and use of atomic energy, with full power to punish violators of the proposed agreement. Soviet Russia in a counterproposal refused to relinquish her Security council veto power to such a commission but later abandoned much of her original plan. In December the 12-nation Atomic Energy commission approved the principle of the U.S. plan, with Russia and Poland not voting.

The United States meanwhile passed the Atomic Energy act of 1946, shifting domestic supervision of atomic energy materials, plants and development from military to civilian control under the United States Atomic Energy commission. Scientific progress was made during the year leading toward beneficial uses for atomic power and two tests of the effects of atomic bombs resulted in additional technical knowledge of their destructive force.

The central problem of concluding peace treaties with the axis powers held a large place in the headlines of world affairs. A 21-nation Peace conference in Paris attempted during July through October to iron out national differences and agree on treaties with the German satellites—Finland, Rumania, Bulgaria, Hungary and Italy. The conference finally approved draft treaties for consideration by the Big Four foreign ministers who met later in New York and reached agreement on all five settlements. They resolved more than 40 deadlocked issues, approving a plan for administering Trieste as a free port under Security council control and subscribing to the principle of equal trading rights along the Danube for all nations. The way was cleared for discussion of the all-important German and Austrian peace treaties.

Meanwhile Europe's economic problems continued to be staggering. In July the United States urged the necessity of centralized control for the four zones of occupation in Germany. Failing agreement with Russia and France, England and the United States went ahead late in the year with plans to merge their two zones of occupation into an economic unit.

Problems of minority groups and displaced persons reached an acute stage in 1946. A special United Nations Committee on Refugees and Displaced Persons met in London during April-June to work out plans to meet the needs of Europe's thousands of refugees. The United Nations Relief and Rehabilitation administration's final report in November recommended continued U.N. action to supply emergency food and social services. The Food and Agriculture organization, convening in Copenhagen in September, also considered emergency problems and proposed a World Food board to deal with long-range planning for food production and distribution. The United States, however, favoured a nation-to-nation approach in supplying food needs and this general plan was adopted by the U.N. General assembly. In December, the U.N. approved the constitution of the International Refugee organization, proposing a temporary organization for repatriation and resettlement, which would also assume

U.N.R.R.A.'s administrative functions concerning refugees.

Trade revival was a central theme in the planning of most governments and many private organizations. In preparation for the long-deferred International Trade conference, an 18-nation preliminary meeting was held in October in London. The United States state department released detailed proposals for expansion of world trade and employment and a suggested charter for an International Trade organization. Among the numerous trade agreements of 1946 was a civil transport pact for the European continent, signed by 11 nations in September.

The United States, after a year of labour unrest and political changes, took a long step toward restoring internal peacetime economic conditions. The president in proclaiming the official "cessation of hostilities of World War II," rescinded part of the extraordinary powers of the government and put an end to many wartime controls. The Employment act of 1946 was passed earlier in the year to promote maximum production, employment and purchasing power. It created a Council of Economic Advisers to aid the president in preparing an annual economic report.

National recovery programs were instituted in most European countries and in the western hemisphere and the year witnessed a trend toward eventual independence of Asiatic peoples.

In Japan, under Allied control, political, educational and economic changes were made. A new constitution, adopted in August, proclaimed the sovereignty of the Japanese people. The Philippines became a republic on July 4, 1946. A treaty with the United States provided financial and military assistance to the new republic in its reconstruction and development program. Later in the year, India's first all-Indian executive council was formed pending the adoption of a new constitution. A similar plan of independence was offered to Burma by Great Britain. The Netherlands proclaimed the new provisional state of East Indonesia. Efforts to end the civil war in China proved futile although the Chinese national assembly adopted a democratic constitution as a step toward national unity. Violence also continued in French Indo-China despite an offer of partial self-government under the proposed French union. (See also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; UNITED NATIONS.)

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Reconversion: see BUSINESS REVIEW; CIVILIAN PRODUCTION ADMINISTRATION; LAW; WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Red Cross. **United States.**—In 1946 the American Red Cross marshalled all its forces throughout the world to deal with the difficult problems the peace had brought.

Its broadest responsibility lay to the veterans, the hospitalized soldiers and the new forces of occupation. The Red Cross program of services to the armed forces, made up of four operating divisions—military and naval welfare service, home service, camp and hospital council service and services to veterans—carried out this responsibility.

Red Cross service was made available to occupation troops and able-bodied soldiers in the United States and overseas by more than 10,000 Red Cross workers. Under a new agreement, effective July 1, 1946, the army operated all overseas clubs and supplied and dispensed refreshments served therein but Red

Cross trained personnel managed, supervised and conducted an expanded recreational program. Appropriations by Red Cross for such overseas recreational programs during the fiscal year ending June 30, 1946, amounted to \$16,272,000.

Approximately 1,700,000 veterans were given assistance by the Red Cross at the time of their discharge. Red Cross field directors served during 1946 in 62 Veterans' Administration regional offices, with a total of more than 750 Red Cross workers engaged in Veterans' Administration programs. The Red Cross received an average of 30,000 powers of attorney a month during 1946 from veterans and assisted them in filing applications for benefits and assembling supporting evidence for claims.

To the sick and wounded coming home by train, plane or boat, to released prisoners of war and civilian internees, to the wives and mothers and children of soldiers and veterans in need of help the Red Cross turned.

Operating through its 3,755 chapters and more than 5,300 branches throughout the United States, volunteers in Red Cross Community Services to Camps and Hospitals conducted varied programs for servicemen and veterans. Members of Red Cross Volunteer Special Services gave 120,000,000 hours of work. Red Cross hospital social workers prepared disabled men for their return to civilian life. Professional staffs and thousands of volunteers brought recreation, entertainment and comfort to the wounded and the sick in hospitals far away from their own families. On June 30, 1946, some 2,900 trained Red Cross workers were serving in military and naval hospitals in the United States and overseas doing recreation, medical and psychiatric case work.

Supplementing the aid provided by national governments and international agencies such as U.N.R.R.A., which bore the brunt of the vast emergency relief programs carried on throughout Europe and the far east, the Red Cross assisted the military in Germany, Japan and Korea in arranging for the evacuation of displaced persons and in providing them with food, clothing and medical care. American Red Cross relief programs were carried out in Great Britain, Italy, France, Luxembourg and Belgium, in the Netherlands, Norway, Yugoslavia, Greece, China and the U.S.S.R. as well as Austria, Czechoslovakia, Poland and Finland. In its overseas Civilian Relief program the American National Red Cross made available approximately \$50,000,000 worth of chapter-produced clothing, medical and hospital supplies, supplementary food and milk, and automotive equipment from July 1, 1945, to June 30, 1946. More than 75,000,000 people in 49 countries benefited from the American Red Cross civilian relief program from Sept. 1, 1939, to June 30, 1946, during which period more than \$178,000,000 worth of supplies was made available to them by and through the American National Red Cross.

During 1946, the American Red Cross also assisted in the reorganization of the Philippine Red Cross and the reconstitution of prewar Red Cross societies in such countries as France, Belgium and the Netherlands.

With the close of World War II, special attention was given to the strengthening of the American Red Cross Disaster Preparedness and Relief program as well as other peacetime services such as nursing, nutrition, first aid, water safety, accident prevention and civilian blood donor programs. During the year 1945-46, the Red Cross gave assistance in 271 disasters in 45 states, Hawaii and Alaska, aiding more than 142,000 persons. Of this number, 130 disasters occurred during the first six months of 1946. Total Red Cross funds spent in disaster relief operation in the United States and its insular possessions aggregated \$1,604,985 during the year.

Red Cross first aid, water safety and accident prevention service had 10,000 mobile first aid units and 2,000 highway first

aid stations in operation. More than 337,000 Americans received first aid certificates during the fiscal year and 400,000 completed Red Cross water safety training courses.

The new civilian blood donor service which came into being at the war's end started off with a surplus of 1,250,000 packages of dried blood plasma declared surplus by the army and navy. During the year 1946, this plasma was distributed through state and territorial health departments to hospitals throughout the United States, Hawaii, Alaska and the Philippine Islands. Available quantities of immune serum globulin for the prevention and modification of measles were also distributed.

The American Junior Red Cross, with a membership of nearly 20,000,000, contributed about \$1,850,000 worth of educational, health and recreational supplies to children overseas. Its members contributed \$624,275.92 to the National Children's fund to finance programs of special assistance to children in war-devastated countries.

In 1946, adult membership of the American Red Cross numbered 36,000,000. President, *ex-officio* of the American Red Cross is Harry S. Truman, president of the United States. National Chairman of the organization is Basil O'Connor.

(H. BM.)

The World.—During 1946 the Red Cross societies of the world and their international organizations moved rapidly toward the reshaping of their peacetime programs. At Oxford, England, in July the League of Red Cross societies, the federation of the 63 national societies of the world, held its largest meeting from its formation in 1919. The 200 delegates from 55 national societies spent two weeks discussing plans for making the services of Red Cross societies more effective in meeting needs in the postwar world. Particular emphasis was given to a restatement of the principles of Red Cross societies, the expansion of health programs, particularly in preventive measures, the development of child welfare programs and the extension of Junior Red Cross activities. Under the leadership of Basil O'Connor, chairman of the American Red Cross and chairman of the league, steps were initiated aimed at the elimination of the atomic bomb as a weapon of war. Plans to meet more adequately the needs of civilians in war-devastated countries were also discussed. A Junior Red Cross conference of the European societies was held in Stockholm in September under the sponsorship of the Swedish Red Cross.

The International Red Cross committee under the presidency of Professor Max Huber brought together at Geneva, Switzerland, in August representatives of national Red Cross societies, principally to discuss possible changes in the Geneva Red Cross convention and the Geneva Prisoners of War convention and to consider suggestions for new international agreements designed to protect the civilian population under modern conditions of warfare. During the year the International committee reduced the membership of its delegations abroad but continued to maintain delegates in those areas where axis prisoners of war were confined, with the exception of the soviet union where neutral representatives were not permitted to inspect prison camps.

The Joint Relief commission of the International Red Cross, formed during World War II by the International committee and the League of Red Cross societies to facilitate relief measures particularly on behalf of civilian populations in axis-occupied European countries, ceased its operations late in 1946.

The national Red Cross societies in many countries endeavored to expand their medical and health programs. The Chinese Red Cross increased the number of public clinics; the Belgian Red Cross initiated a nationwide blood donor program; the revitalized Austrian Red Cross expanded its ambulance service; in Yugoslavia, Poland and Greece, Red Cross facilities for fighting tuberculosis were extended; and the American Red Cross

made surplus blood plasma available to civilians throughout the United States. The societies able to do so continued to send relief supplies to countries suffering from war devastation.

In December the general assembly of the United Nations recognized the special status of Red Cross societies and called upon member governments to encourage their activities. (*See also PRISONERS OF WAR AND DISPLACED PERSONS.*) (P. E. R.)

Reece, Brazilla Carroll (1889—), U.S. politician and lawyer, was born Dec. 22 in Butler, Tenn. He attended Carson and Newman college (Tenn.), graduating with a B.A. degree in 1914 and later studied at New York university, receiving his M.A. degree in 1916. He joined the U.S. army in 1917 during World War I, winning a commission and rising to the rank of a battalion commander in the American Expeditionary Force.

After the war, he studied at London university (1918–19); on his return to the United States he became instructor of economics at New York university, but left after one term to return to Tennessee where he ran for the U.S. house of representatives on the Republican ticket. Reece was elected in 1920 and was re-elected until 1930. He ran again in 1934, defeated his Democratic opponent and served in the lower house until 1946.

On April 1, 1946, Reece was selected as chairman of the Republican National committee. His appointment was interpreted as a victory for the midwestern Republicans over the Stassen factions in the G.O.P.

Re-employment of War Veterans: *see* SELECTIVE SERVICE, U.S.

Reforestation: *see* FORESTS.

Reformed Church: *see* PRESBYTERIAN CHURCH.

Refugees. The repatriation of United Nations nationals from Germany and Austria which had proceeded at a surprising rate in 1945 slowed down substantially in 1946. Some 6,500,000 to 7,000,000 former slave labourers and inmates of concentration camps, drawn into Germany from the occupied countries of Europe during World War II to supply the ever increasing demands of the German war machine for manpower, had been returned to their home countries in 1945. This movement practically came to a standstill in the winter months of 1946 as the hard core of nonrepatriables totalling approximately 1,200,000 began to emerge. The dispersion of this hard core challenged the resourcefulness of the occupying authorities in Germany and Austria and the General assembly of the United Nations which gave serious attention to the problem at its meeting in London in Jan. and Feb. 1946.

This group of nonrepatriable refugees and displaced persons in central Europe consisted primarily of 700,000 Poles, some 250,000 Baltic refugees, approximately 100,000 Yugoslavs, 50,000 Ukrainians and some 100,000 Jewish refugees mostly of Polish nationality who had fled from Poland after the cessation of hostilities, because of the insecurity which they felt in that country and in the hope of reaching Palestine. The infiltration of Polish Jews into Austria, Germany and Italy continued during the spring and summer of 1946 as a result of pogroms in Poland and of the urge to reach the longed for national home of the Jews in Palestine. The movement included not only Jews who had survived the war in Poland but some of the 150,000 Polish Jews who had returned from the soviet union to Poland in 1946 under the Polish-soviet agreement for the exchange of populations which had been concluded at Moscow in 1945. By late summer of 1946 a total of 200,000 Polish Jews had reached central Europe where they were destined to await final decisions

by the British government with respect to their entry into Palestine.

The Anglo-American Commission for Palestine appointed by the British and United States governments in Dec. 1945 presented a series of recommendations with respect to Palestine in April 1946. Included in the recommendations was one that 100,000 Jews then in displaced persons centres in Germany and Austria be admitted to Palestine immediately. The British government took the view however that this particular recommendation could not be implemented without reference to action on the other recommendations of the commission bearing on the political and economic reorganization of Palestine.

The repatriation of Poles, Yugoslavs and Ukrainians among those remaining in central Europe was resumed in the spring and summer months of 1946, but with diminishing results. Those remaining expressed political objections to returning to their countries of origin in which new governments were in control. The view was advanced by some observers that economic reasons played a substantial role in the unwillingness of many to return. The life, shelter and food provided in the assembly centres undoubtedly proved more attractive to some of the displaced persons than the hardships which they would face on return to their home countries. Criticism of the failure of the representatives of the countries of origin to supply adequate and convincing information on the living and economic conditions in the home countries was frequently expressed by Allied authorities concerned with repatriation. By the end of 1946 approximately 1,000,000 refugees and displaced persons remained in Germany and Austria, the larger numbers housed in assembly centres under the administration of the United Nations Relief and Rehabilitation administration, while others endeavoured to eke out an existence in the German and Austrian communities.

In Italy the numbers of refugees and displaced persons were smaller, totalling approximately 150,000, most of whom were living in the Italian community. Some 25,000 Jewish refugees were cared for in U.N.R.R.A. camps. An additional 40,000 Yugoslavs, Poles, Ukrainians and displaced persons of other United Nations nationalities were cared for in camps maintained by the Allied military authorities.

During the year the Anders Polish army in the Mediterranean area was demobilized and its members transferred to England. There they were placed in training camps as civilians to undergo a period of preparation for resettlement in agriculture overseas. The British government announced that it would assume unilaterally the responsibility for the care and ultimate disposition of this group which, including wives and children, totalled 200,000 persons. Canada announced in the fall of the year that it would accept 4,000 Anders Poles as immigrants.

Some progress was made during the year in the return of displaced German nationals to their prewar homes in Germany. Exchanges on a head for head basis were completed between the four zones occupied by the soviet, United States, British and French military authorities. These arrangements fell far short of the mark however of returning all displaced Germans to their original homes.

The destruction of housing in the cities in Germany in the final days of the war forced urban dwellers to seek homes in rural districts. The internal dislocation of Germans was aggravated by the acceptance into Germany under the terms of the Potsdam agreement of 6,000,000 racial Germans formerly resident in Poland, Czechoslovakia and Hungary. This movement, carried out so soon after the end of hostilities, left much to be desired in the way of an orderly peacetime transfer of populations. The political and emotional pressures to expel Germans from Poland and Czechoslovakia particularly were so strong that the occupying military authorities in Germany were forced



ESTONIAN REFUGEES who arrived in Miami, Fla., Sept. 9, 1946, in this 40-ft. converted fishing schooner. They left their country to escape the Russians

to receive the expelled Germans in spite of the fact that the absorption of these numbers in the German economy in 1946 severely complicated the problem of restoring peace and order.

Other groups of racial Germans not covered by the Potsdam agreement such as those formerly resident in Yugoslavia were forced into Austria without the protection of international agreements. These, estimated as between 100,000 and 150,000, were neither recognized as Germans nor as Yugoslavs and were expected to endure a very precarious existence until their civil status was clarified. The overcrowding in Germany prevented their acceptance there and they constituted a continually excessive burden on the Austrian economy.

The claim of this group for admission to Germany was less substantial than that of the 200,000 Germans still resident in Denmark. These constituted the remnants of the westward movement of Germans in flight from the advance of the soviet armies in the spring of 1945. Denmark cared for them in camps from the end of hostilities in Germany, but had not at the end of 1946 been able to secure permission from the occupying authorities in Germany for their admission to Germany.

In the far east efforts were continued to complete the repatriation of Koreans from Japan. Some 2,000,000 labourers and their families had been taken to Japan during the war by the Japanese. Their repatriation began before the cessation of hostilities in 1945 and continued during 1946. Likewise the repatriation of 800,000 Japanese from Korea including some from the soviet zone of occupation was in process during 1946.

In China more than 35,000 overseas Chinese awaited repatriation from China to their prewar domiciles overseas in Burma, Singapore, the Philippines, the Netherlands East Indies, Siam and Indo-China. Some 100,000 Chinese returned to Hong Kong on foot and U.N.R.R.A. reported the repatriation of more than 5,000 to Burma and Singapore. There were no developments within China indicating the permanent or temporary character of the westward movement of 20,000,000 Chinese displaced internally during the war. No authoritative information became available as to the progress made during 1946 in the repatriation of the 2,000,000 Japanese civilians remaining in China at the end of the war.

The problem of refugees and displaced persons received the continuous attention of the United Nations during 1946. Following the meeting of the General assembly in London in January, the Economic and Social council appointed a special subcommittee to explore the problem in all of its aspects and to draft a constitution for a new international organization to assume responsibility for the problem. The Economic

and Social council considered the report of the subcommittee at its meeting in New York in June and set up another committee to recommend a budget and scales of contributions by governments to the International Refugee organization which had been proposed as a specialized agency to be brought into relationship with the United Nations. At the September meeting of the Economic and Social council the draft constitution, budget and scales of contributions of the International Refugee organization were accepted and recommended for the consideration of the General assembly at the second part of its first session meeting in New York in Dec. 1946.

The problem was thoroughly discussed at the General assembly and the proposal of the International Refugee organization adopted by a vote of 30-5. The negative votes were cast by the representatives of the U.S.S.R., Poland, Byelorussia, the Ukraine and Yugoslavia who held the view that all refugees and displaced persons should be repatriated to their countries of origin and all other forms of international assistance such as assistance in emigration withheld from them. The constitution was then opened for the signatures of governments and was to come into force as soon as 15 governments whose allotted contributions totalled 75% of the budget had signed the constitution. The budget for the first financial year was set down as \$160,000,000.

Earlier the council of the U.N.R.R.A. meeting at Geneva in Aug. 1946 had voted to bring its administration of displaced persons centres to an end by June 1947 before which time it was hoped that the new International Refugee organization would be in a position to take over such functions. Also the Intergovernmental Committee on Refugees at a meeting in July 1946 in London had greatly expanded its functions to include that of assistance in the emigration and resettlement of displaced persons. These activities were to be continued until the International Refugee organization came into being at which time the work of the Intergovernmental committee would be absorbed by the International Refugee organization. (See also CHILD WELFARE; JEWISH RELIGIOUS LIFE; PRISONERS OF WAR AND DISPLACED PERSONS.)

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Relay Racing: see TRACK AND FIELD SPORTS.

Relief. In the year 1946 there were no major extensions of the programs of former years for the relief of the necessities of life, and no economic recessions creating new groups of needy persons in the countries of the English-speaking world. The war armies had been demobilized and the extensive provisions made to effect an easy transfer to occupations of peace time proved substantially adequate. Apparently the problems of making such a transfer without economic disaster to a considerable portion of the men affected had been anticipated and to a large degree solved. The trends in each country during the year of war continued and determined the operations of provisions for social welfare, including relief.

New Zealand, which had pioneered in the establishment of an all inclusive Welfare act to include within its benefits all possible classes of need which shared the nature of social insurance and public assistance, changed the tax on wages from 5% to 7½%, abolished the semiannual registration fee and reduced the subsidy from the commonwealth from 5% to 2½%. The classification of beneficiaries was simplified, and benefits were adjusted more to the size of the family receiving them than to the nature of the event (old age, accident, employment, etc.) which made the family eligible. The Welfare act had become the political target of the conservative parties which claimed the charge on the state of such an act would bankrupt the nation. The change of incidence of the tax might have been a concession on the part of the Labour party in power, which was returned by a decreased majority in the elections of November.

In Australia the Welfare act, adopted as a war measure, was continued, and while less ambitious in its coverage than that of New Zealand, it embraced as separate categories, each financed by special provisions, a wide variety of situations such as widowhood, old age, sickness, maternity allowances and unemploy-

ment. One-sixth of the commonwealth revenue raised by taxation was earmarked for the welfare services.

In addition to its regular relief given by the Assistance board as extra allowance to any unemployed, old-age pensioner and civilian sufferer from the effects of the war, Great Britain strengthened its program of providing free meals and milk to school children, by including children in all schools supported by tax funds at an annual cost estimated at £60,000,000. In addition, the plan granting an allowance to families for children other than the first or only one was authorized by parliament in Feb. 1945, and became operative on Aug. 6, 1946. By its provisions any adult member of a family whose parents were citizens of Great Britain was eligible to make application, and the only test of eligibility was that there should be two or more children in the family under 16 living (and if of school age, attending school, college or university). For each except the first child, the family was entitled to receive five shillings a week. It was estimated that there would be about 2,000,000 families, having an average of four and a half eligible children coming under the provisions of the act, and costing the national treasury nearly £57,000,000 a year.

Canada's more complicated Family Allowance act was limited to families whose income is below \$3,000 a year. It completed its first full year in operation in 1946. In September, allowances were paid to families in behalf of more than three and a third million children and in an amount of more than \$20,000,000.

In the United States there was no development in the field of family allowances. The National School Lunch act of June 1946 authorized the department of agriculture to co-operate with the states in providing lunches for children. However, this was primarily a device to use agricultural products—such as the Stamp plan of the depression years—and was not geared in the first place to meet the needs of children. It introduced a much needed innovation in the determination of the federal portion of the grant, making it vary inversely with the wealth of a state and directly with the number of children between 7 and 14 years of age, in ratios so fixed that the total available from both federal and state per child would be substantially higher per child in a poor state than in a wealthy one. Also for the first time, those countries lying outside continental United States—Hawaii, Puerto Rico, Alaska and the Virgin Islands—were included.

The Social Security act received a few slight amendments which fell far short of what had been recommended. Maximum grant in old-age assistance from federal funds was raised to \$25 a month from \$20; grants in aid to dependent children were raised from \$9 to \$13.50 for the first child and from \$6 to \$9 a month for second and subsequent children, with a more liberal subsidy from federal funds in aid to dependent children. The amendments also extended the provisions of the Social Security act dealing with maternal and child health, aid to crippled children and child welfare to the Virgin Islands.

The Social Security board was changed to the Social Security administration of the Social Security agency. This abolished a board that had been in charge of the administration of the provisions of the Social Security act since its passage in 1935, placing it under a single administrator. In the reorganization, the functions of the children's bureau (except child labour) were merged with the Social Security administration, and the whole making one of the four functions of the Social Security agency. The other three were education, health and medical care, and special services such as vocational administration, community war services, etc.

In 12 months, from Sept. 1945 through Aug. 1946, payments to all recipients of public assistance in the United States increased from \$83,000,000 to \$97,000,000, by monthly incre-

ments of about 1% over each preceding month.

In Canada, the community chests raised \$6,086,045 against a quota of \$6,840,977, but which was about \$500,000 more than they secured in 1945.

In the United States, final reports were not in for the entire country, but for the 244 community chests reporting, \$75,672,824 was raised, which was within 98.4% of the goal set. (See also CHILD WELFARE; MUNICIPAL GOVERNMENT; RED CROSS; SOCIAL SECURITY.) (F. J. B.)

Relief and Rehabilitation Administration, United Nations: see UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.

Religion. A compilation from official sources of church membership figures for 1946 show that the 55 denominations with memberships of 50,000 and upward, increased by more than 1,000,000 members during the year. These denominations represent 98% of the total church membership of the nation. Total Roman Catholic accessions slightly exceeded Protestant. (No new Jewish figures were available.) Nine denominations reported gains of 25,000 and up; 7 denominations, on the contrary, reported losses.

Reporting for the previous fiscal year, the United Stewardship council announced expenditures by U.S. Protestant churches of more than \$614,000,000 for local church support and benevolences. This was an advance of 19% over the previous high figure and a 20% increase over the previous year.

Meeting toward the close of the year, the Association of Church Architects estimated that the demand for church buildings and repairs deferred by World War II had resulted in prospective building programs requiring \$650,000,000.

Several denominations reported the checking of the recent serious decline in Sunday school enrolment together with a very great development in supplemental measures of religious education, such as daily religious schools and weekday religious instruction on weekday school time. A recent report enumerates weekday classes in 2,000 communities, found in all but two of the states, with an enrolment of more than 1,500,000.

YOUTH FOR CHRIST rally at the Hollywood bowl, Hollywood, Calif., during the early part of 1946, which an estimated 18,000 young people attended



Virtually every major denomination initiated extensive programs of postwar advance, both financial and numerical. Stressing evangelism the Methodist Church set a goal of 1,000,000 new members for 1946 and fixed quotas for each of its conferences. By the middle of Oct., 910,000 new members had been reported, some sections considerably exceeding their quotas. Seven hundred and twenty-eight new congregations had been established. The Presbyterian (U.S.A.) church's three year "new life movement" is seeking 1,000,000 new members and the establishment of 300 new churches.

Great attention was being paid to the character of future foreign missionary work. In view of restrictions upon missionary propaganda by numerous nations the co-operating agencies have been especially urgent that the United Nations should adopt the charter of human rights, providing freedom of religious teaching. A new pattern of relationships between mission agencies and the national churches was started in Japan where returning missionaries are jointly commissioned by the co-operating bodies, become members of the national church and work entirely within its framework.

The affiliation during the year of the foreign mission relief agencies with numerous agencies for Europe in Church World Service resulted in the largest private agency distributing foreign relief. A fund of \$12,000,000 was being sought for relief expenses in 1947, to be spent about equally for suffering people and the reconstruction of Christian institutions in Europe and Asia.

The Federal Council of Churches' 1946 review of religion declared that an outstanding note of the theological thinking of the times is the increasingly clear-cut recognition of the secularization and essentially pagan character of modern civilization and the necessity of a sharp distinction between the church and the world. There has been increasing dissatisfaction with mere numbers and financial strength and new sharpness of self-criticism and a more general note of humility. The declarations of numerous church bodies registered this chastened and penitent mood. It has been especially influenced by the example of churches in conquered and war-ravaged countries, such as the Netherlands, France and Norway, where the church's institutional life was largely destroyed, but its spiritual vigour more than maintained.

The central body of U.S. Protestantism, as expressed in the Federal council, wished the church to play a positive and constructive part in the crisis of civilization. The churches put important weight behind the United Nations both in the development of its basic plan and in the making of its subsequent policy, particularly through the influence of John Foster Dulles, influential member of the U.S. delegation and chairman of the Federal council's Commission for a Just and Durable Peace. During the year the Federal council issued important reports on atomic energy and upon relations with Russia. In recognition of his long service as an international Christian figure, Dr. John R. Mott was awarded the Nobel prize for the advancement of peace.

Examination of the discussions and resolutions in the meetings of major Protestant bodies in the United States revealed a concern in all for essentially the same group of ethical issues. During the year 1946 numerous churches took strong stands against racial injustice and anti-semitism. They condemned peacetime conscription, and asked amnesty for conscientious objectors. The Federal Council of Churches conducted an important series of studies on the church and the economic order, participated in by competent economists as well as Christian leaders.

In several countries postwar readjustments of the church situation went forward rapidly during the year. An interim

Council of German Evangelical Churches, led by Pastor Martin Niemöller, attempted to establish a basis of national unity for all churches of the Reformation type. The success of this effort is not yet clear. In Japan, the Episcopal and certain minor churches withdrew from the enforced union which had been imposed upon Christianity by the totalitarian government. Numerous readjustments were necessitated among churches within the Russian sphere of political influence. The general conference of the Russian Orthodox Church in the United States, holding its first session for a decade, in Cleveland, O., voted to recognize the Patriarch of Moscow as "spiritual head," provided the full administrative autonomy of the U.S. church was recognized, together with its right to elect its own national head and other officers.

Formal meetings of leaders of the World Council of Churches were impossible during the war years, but in 1946 arrangements were made for the first full assembly of the Council to meet in 1947 in the Netherlands. At this time the permanent constitution was to be adopted. (See also CHRISTIAN UNITY; CHURCH MEMBERSHIP; also under separate denominations.)

(H. P. D.)

Religious Denominations: see CHURCH MEMBERSHIP.

Relocation, Japanese: see WAR RELOCATION AUTHORITY.

Reparations. Allied collection and distribution of reparations from the nations defeated in World War II made little progress in 1946.

The Berlin protocol, adopted on Aug. 2, 1945, by soviet Russia, the United Kingdom and the United States, provided that the U.S.S.R. would obtain its share of reparations from the zone of Germany it occupied, plus certain German external assets. In addition, the U.S.S.R. was to receive outright 10% of the industrial equipment removed from the western zones, occupied by the United States, Great Britain and France, and 15% of the industrial equipment removed from the western zones in exchange for an equivalent value in food, coal and other products to be supplied by soviet Russia. Poland's claims to reparations were to be met from soviet Russia's share. The claims of all other nations were to be satisfied by industrial installations removed from the three western zones.

Announcement of the percentage shares of the 18 nations who were to take their reparations from the western zones was made early in Jan. 1946. These percentages were calculated by the Inter-Allied Reparations agency, which was established at the Paris Conference on Reparations, Nov. 9 to Dec. 21, 1945. For the purpose of this division, German reparations were divided into two categories: A, to include all forms of German reparations except those included in Category B; and B, to include industrial and other capital equipment removed from Germany, plus merchant ships and inland water transport.

The percentages allotted were as follows:

	Category A	Category B
Albania . . . . .	.05	.35
United States	28.00	11.80
Australia . . . . .	.70	.95
Belgium	2.70	4.50
Canada	3.50	1.50
Denmark . . . . .	.25	.35
Egypt . . . . .	.05	.20
France	16.00	22.80
United Kingdom	28.00	27.80
Greece	2.70	4.35
India	2.00	2.90
Luxembourg . . . . .	.15	.40
Norway	1.30	1.90
New Zealand . . . . .	.40	.60
Netherlands	3.90	5.60
Czechoslovakia	3.00	4.30
Union of South Africa . . . . .	.70	.10
Yugoslavia	6.60	9.60
	100.00	100.00

The percentages were to be applied to excess German industrial plants and equipment, the amount and character to be

determined by the Allied Control council, consisting of representatives of the United States, Great Britain, the U.S.S.R. and France, which on March 28, 1946, announced the level of industry which Germany was to be permitted. It was estimated that the council's level of industry plan would reduce German industry as a whole to about 50% or 55% of its 1938 level.

The level of industry was fixed on the basis that Germany would be administered as an economic unit, as provided in the Berlin protocol. Such unity was not attained. Until Sept. 12, 1946, when the British and U.S. occupation authorities announced plans for merging their respective zones, each of the four zones was administered as an isolated unit.

The isolation became virtually complete in May 1946 when Lt. Gen. Lucius D. Clay, deputy military governor in the U.S. zone, stopped shipments of industrial plants and equipment to the U.S.S.R. on the ground that the U.S.S.R. was violating the Berlin protocol by blocking economic unification of the four zones. His ban was eased late in October when he authorized resumption of shipments of general purpose equipment to the soviet union and other Allies.

An index to the situation in the western zones was given by the Inter-Allied Reparations agency on Oct. 16, 1946, when it announced that it had asked the governments of the United States, Great Britain, France and the soviet union to refer the question of German reparations to the forthcoming meeting of the Council of Foreign Ministers with a plea for prompt action. The agency said that only 72 plants from the western zones had been reported as available to it for reparations and, of that small number, the agency said it had been able to undertake the distribution of only 37 plants since only that many detailed inventories and evaluations had been received by the Allied Control authority.

How much soviet Russia had taken from its zone, or given to Poland, was known only to the soviet authorities, who made no report to the other Allies of what they took. Their takings in Austria and Hungary, however, aroused both the United States and Britain to protest that they were taking assets to which they were not entitled under the Berlin protocol.

Moscow rejected the protests, holding that the Russians were entitled to take all German external assets found in the soviet-occupied zone in Austria. Gen. Mark W. Clark, commander of the U.S. occupation forces in Austria, stated in Washington that the Russians were taking almost everything out of their zone in Austria on the ground that it was a German asset and therefore properly seizable as reparations. The U.S. and British position was that only property in Austria owned by Germans before the annexation of Austria by Germany should be considered suitable for reparations, and only those things should be moved that would not affect the economy of the nations according to the Berlin protocol. The U.S.S.R., the United States and Great Britain agreed at Potsdam there would be no reparations from Austria.

Of the reparations assessed against Germany's satellites in World War II, soviet Russia was awarded the major portion. At the Paris peace conference of 21 nations in October, draft treaties were adopted calling for the following payments:

The treaties provided that Italy must pay its reparations bill over a seven-year period, with the option of withholding payments from current production during the first two years. The

Recipients	Paying Countries					Total
	Finland	Italy	Hungary	Rumania	Bulgaria	
	(in millions of dollars)					
U.S.S.R.	300	100	200	300	...	900
Yugoslavia . . . . .	...	100	60	...	62.5	222.5
Greece . . . . .	...	100	...	...	62.5	162.5
Czechoslovakia . . . . .	...	...	40	...	...	40
Ethiopia . . . . .	...	25	...	...	...	25
Total	300	325	300	300	125	1,350

other treaties provided that reparations be paid over an eight-year period, out of both current production and capital equipment. The treaties were to go into force upon approval by the Big Four Council of Foreign Ministers, which convened in New York city, Nov. 4.

Slow as the reparations program moved in Europe, the program laid out for Japan dragged just as much.

On Dec. 18, 1945, after a survey of Japanese assets by a mission of U.S. industrial and engineering experts, Ambassador Edwin W. Pauley, the U.S. representative on reparations, who headed the mission, submitted an interim report urging immediate removal of a substantial portion of Japanese industrial installations in various categories. The purpose of his recommendations was to disarm Japan industrially and aid in rebuilding countries Japan had injured.

The Pauley interim report recommended removals from army and navy arsenals, and from the following industries: aircraft, light metals, machine tools, sulphuric acid, shipbuilding, ball and roller bearings, iron and steel, thermal power, and soda ash, chlorine and caustic soda.

The recommendations were turned over to the Far Eastern commission (F.E.C.), comprising representatives of the 11 nations which had fought against Japan. The commission adopted policies as to reparations based on the Pauley report, concluding its deliberations on the report on June 12.

The following month Gen. Douglas MacArthur, supreme commander of Allied forces in the Pacific, ordered the Japanese government to set aside as potential reparations 505 of Japan's largest and most modern plants in eight basic industrial branches. Previously the supreme command had ordered earmarked as potential reparations government-owned arsenals, aircraft factories and scientific laboratories.

The list included 273 privately owned munitions plants, 90 machine tool factories, 22 iron and steel mills, 20 electric stations, 32 plants producing bearings, 25 shipyards, including five of Japan's largest naval bases, 19 plants producing soda ash, chlorine or caustic soda, and 24 plants producing sulphuric acid. The program was based on the Far Eastern commission's reparations goals, and, in accordance with recommendations made by Ambassador Pauley in his interim report on Japanese reparations, most of the burden was placed on the Zaibatsu, the large family holdings.

Supreme headquarters emphasized in announcing the order that no plants had actually been earmarked for removal by any specific power. The reason for this was that no agency had been established to receive and act upon such claims, although as early as April the United States government had submitted to the F.E.C. a plan for fixing inter-Allied responsibility in determining Japanese reparations. Its suggestion for an Inter-Allied Reparations commission for Japan was referred to the commission's committee on reparations.

An attempt was made in Aug. 1946 to hold a conference for the purpose of setting up an agency which would be authorized to allocate Japanese reparations among claimant countries, but was blocked by the soviet representative on the F.E.C. Soviet Russia took the position that what it had taken in Manchuria should be regarded as war booty, and not be included in reparations discussions.

Early in Nov. 1946 the United States announced that later in the month and early in December informal discussions would be held by members of the F.E.C. for the purpose of drawing up a directive to General MacArthur authorizing him to begin distribution of reparations. It was tacitly understood that soviet Russia would be invited to attend these consultations, but would not be permitted to block action by refusal to participate.

Meanwhile, four and a half months after submitting his interim report, Pauley left again for the far east, May 4, 1946, with instructions from the president and Secretary of State James F. Byrnes to study the resources of Manchuria and Korea with particular attention to Japanese assets located therein. These resources were considered basic to the formation of any long-range plan for the peaceful economy of east Asia, and for several months there had been widespread reports that soviet occupation forces were engaged in removals of industrial equipment from those areas.

Pauley and members of his mission were allowed by soviet authorities to pass six days in northern Korea, the soviet-occupied zone above the 38th parallel. They also visited Manchuria, other parts of China and Formosa.

On his return to the United States in July—after conferring at Paris with Secretary of State Byrnes concerning his findings in the orient—Pauley reported that, during soviet occupancy, there had been systematic removals of essential machinery and equipment from Manchurian industry, which was to have been a base on which Japanese reparations installations were to have been superimposed. He found that no substantial industrial removals had been made in northern Korea, but that the economy of that country was strangled by the barrier maintained by the soviet authorities at the 38th parallel. Under such circumstances, transfer of industrial equipment from Japan to Korea could not produce immediate maximum benefit to the Koreans. His findings and recommendations were incorporated in three detailed reports to the president of the United States: a final and comprehensive report on Japanese reparations, which developed his earlier interim report; a report on Japanese assets in soviet-occupied Korea; and a report on Japanese assets in Manchuria.

The comprehensive report on Japanese reparations recommended complete removal of all plants devoted to the making of arms, ammunition and implements of war (other than those subject to destruction or scrapping by the military) and all plants making synthetic rubber, aluminum and magnesium.

It recommended substantial removals of facilities in these categories: electric power, iron and steel, iron ore and ferro-alloy minerals, copper, machine tools, chemicals, heavy electrical machinery, industrial explosives, communications and communications equipment, railroad equipment and rolling stock, shipbuilding and merchant shipping.

The report proposed immunity from reparations for the following industries: handicrafts (including pearl culture), silk, leather, fisheries, light electrical appliances, cement (under limitations) and building materials, food processing, lumber and sawmill equipment, ceramics, coal, crude petroleum, crude rubber processing, mining of gold and silver, refining of zinc, lead, tin, sulphur and pyrite.

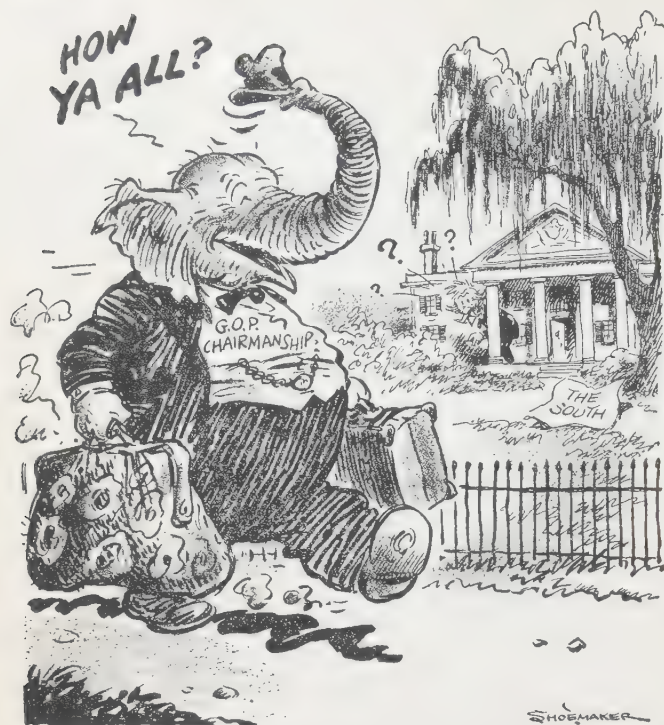
It laid especial emphasis to the fact that Japan's economy must be self-sustaining. It left for later determination the decisions as to woolen textile machinery, synthetic fibre, cotton, paper and pulp.

(E. W. Py.)

Representatives, House of: see CONGRESS, UNITED STATES; ELECTIONS.

Republican Party. The Republican party of the United States regained full control of congress in the 1946 off-year elections for the first time after 1928 in a sweeping triumph that precipitated immediate predictions of a presidential victory in 1948.

The G.O.P. increased its senate membership from 39 to 51, giving them a clear majority of six. They raised their representation in the house from 192 to 246 for a gain of 54 seats. The Democrats retained only 188 places, while the American



"EXCUSE MY SOUTHERN ACCENT" commented Shoemaker of the *Chicago Daily News* about B. C. Reece, the new Republican national chairman who comes from Tennessee

Labor party held one. The Republicans also boosted to 25 their quota of governors, which placed them in power in all except seven commonwealths outside the south and the border states. In the congressional contests they outvoted the Democrats by 3,000,000.

The Republicans' comeback had several significant aspects. Its nationwide scope was reflected in the fact that the Republicans recaptured senate seats in such key and scattered states as Massachusetts, New York, Pennsylvania, Delaware, Ohio, Missouri, Wisconsin, Minnesota, Montana, Utah and Washington. They scored heavily in industrial as well as in agricultural regions.

Even more satisfactory to the Republicans was their showing in the larger cities, which had gone Democratic ever since Franklin D. Roosevelt appeared on the national, political stage. The G.O.P. won or ran on fairly equal terms in such centres as Boston, New York, Philadelphia, Pittsburgh, Chicago and St. Louis. It had been Roosevelt's overwhelming majorities in these crowded areas which had enabled him to carry the electorally important states in which they are situated. After 1936 he usually lost the out-city vote.

The city results were also interpreted to mean that numerous powerful political groups had shifted, at least temporarily, from the Democratic to the Republican party, and their allegiance can be decisive in a nationwide struggle. Among the elements believed to have swapped the donkey for the elephant as a means of partisan transportation were racial, Negro, labour and liberal blocs.

Leaders of both parties agreed that the G.O.P. won because of (1) a series of strikes in key industries that were settled only by wage increases which boosted the already high cost of living; (2) OPA price ceilings and regulations that were supposed to have kept production of needed goods at a low level; and (3) the administration's alleged political friendliness toward "Commies" in the U.S. and abroad.

The sensational victories achieved by several key figures immediately placed them in the category of 1948 presidential possibilities. Among the men most frequently mentioned for the

1948 honour were Gov. Thomas E. Dewey of New York and Gov. Earl Warren of California, both of whom were re-elected by large majorities. Others were Gov. Edward Martin of Pennsylvania and former Gov. John W. Bricker of Ohio, who were elected to the U.S. senate. The upper chamber of congress also housed two prospects—Sen. Arthur H. Vandenberg of Michigan and Sen. Robert A. Taft of Ohio.

Assembling at Washington, D.C., immediately after the election, the Republican policymakers promised to co-operate with President Truman, provided he did not submit "too radical" a legislative program to the 80th congress. When domestic and foreign spokesmen voiced concern lest Republican control of congress might bring a radical change in U.S. foreign policy, Senator Vandenberg, a delegate to the United Nations, assured that body that the broad Roosevelt-Truman program would not be disturbed. "Our people," he said, in effect, "did not vote for a Democratic or a Republican foreign policy. They voted for an American foreign policy."

In preparing to assume control of congress, the G.O.P. leaders sketched the blueprints of their general domestic program. While admitting that unforeseen developments might necessitate minor modifications, they enunciated their basic philosophy on such controversial questions as labour strife, swollen federal finances and economy.

With respect to labour, a particularly distressing problem at the time of their discussions because of the bituminous coal strike of Nov. 1946, they promised legislation that would be "constructive but not punitive." The vague language of the pledge reflected a desire to prevent unpopular and disastrous work stoppages without antagonizing the great labour vote.

Hardly had the votes been cast before Harold L. Knutson of Minnesota, slated for chairmanship of the house ways and means committee under Republican rule, demanded a 20% reduction in personal income taxes. Other G.O.P. spokesmen, especially important senators scheduled to handle taxation and financial questions, noted that balancing the budget and cutting the public debt should take precedence over a possible tax reduction.

The third Republican pledge was governmental economy through thinning-out of personnel, savings in the army-navy budget and abandonment of foreign and domestic projects which they held to be superfluous. Representative John Taber of New York, incoming chairman of the house ways and means committee, declared that the annual federal budget could—and should—be sliced to \$30,000,000,000 from the 1947 fiscal year figure of \$41,000,000,000 and administration estimates of \$37,000,000,000 for 1948.

The victorious Republicans had also planned to exalt and encourage the system of private enterprise by removing almost all governmental controls over commodities, wages and prices. But President Truman spared them the effort. Apparently bowing to the Nov. 5 mandate, he had abolished almost every federal ceiling and priority before the Republican-managed congress assembled on Jan. 3, 1947. Indeed, G.O.P. strategists complained that he had "stolen our thunder." Despite some members' complaint that a few veterans were "hogging" the leadership posts, senate Republicans of the 80th congress put through their prearranged slate, to wit: president pro tem, Senator Arthur H. Vandenberg of Michigan; majority leader, Senator Wallace H. White, Jr., of Maine; chairman of the steering and policy committee, Senator Robert A. Taft of Ohio; chairman of the conference committee, Senator Eugene D. Millikin of Colorado. Former minority leader Representative Joseph W. Martin, Jr., of Massachusetts was elected speaker of the house by unanimous vote. Representative Charles A. Halleck of Indiana was selected as majority leader. (See also UNITED STATES.)

(R. Tu.)

Research Libraries, Association of: *see* SOCIETIES AND ASSOCIATIONS.

Resins: *see* PAINTS AND VARNISHES; PLASTICS INDUSTRY.

Retail Sales: *see* BUSINESS REVIEW.

Réunion: *see* FRENCH COLONIAL EMPIRE.

Reuther, Walter Philip (1907–), U.S. labour leader, was born Sept. 1 in Wheeling, W.Va., the son of a trade unionist. He studied at Wayne university, Detroit, Mich., for three years, and then toured France, Germany, Italy, the soviet union, China and Japan to study labour conditions. On his return home Reuther worked in small tool and die shops and joined the United Automobile Workers. He first gained prominence for his organization of the successful sit-down strikes in the Detroit automobile and related industries (1936–37). He then became director of the U.A.W.'s General Motors department (1939) and was named one of the union's two vice-presidents (1942). Reuther launched a campaign after Japan's surrender to obtain higher wage levels. He demanded (Sept. 14, 1945) a 30% raise for the U.A.W. in General Motors plants, contending that the corporation could grant this raise, even reduce motor car prices substantially and still make larger profits. Upon the corporation's rejection of these demands, about 180,000 U.A.W. union members in General Motors plants throughout the United States went on strike. The strike lasted 113 days and was finally settled March 13, 1946, with Reuther accepting for the union an 18½ cents-per-hour pay increase and adjustments in overtime and vacation pay. After the strike, Reuther was elected president of the U.A.W. (March 27) defeating his predecessor, R. J. Thomas, by a narrow margin; Thomas, however, was elected vice president and his followers captured two-thirds of the seats on the union's executive board.

On Dec. 12, Reuther declared that the U.A.W. would seek an hourly wage increase of 23½ cents in its 1947 contract negotiations. He said the wage demands would not require any increase in prices and would restore to U.A.W. workers what had been taken from them in rising living costs in 1946.

RFC: *see* RECONSTRUCTION FINANCE CORPORATION.

Rheumatism: *see* ARTHRITIS.

Rhineland: *see* SAAR.

Rhode Island. A north Atlantic state of the United States, in New England; one of the 13 original states; popularly known as "Little Rhody." Area, 1,214 sq.mi. (smallest of the United States), including 156 sq.mi. of water; pop. (1940) 713,346. The urban population was 653,383 (91.6%). On July 1, 1944, the bureau of the census estimated the civilian population of the state at 778,972. Capital, Providence (253,504). Other cities include Pawtucket (75,797); Woonsocket (49,303); Cranston (47,085); Newport (30,532); Warwick (28,757); Central Falls (25,248).

History.—At the regular 1946 session of the legislature, leading measures passed included the following: an act making appropriations for the support of the state for the fiscal year ending June 30, 1947, reaching total net state appropriations of \$23,221,805.68; acts authorizing the city of Providence to borrow \$3,000,000 to rebuild and modernize regional traffic arteries, \$1,000,000 to develop recreational facilities, \$2,500,000 to pay for homes for returning members of the armed forces, \$1,000,000 for the erection of a war memorial; act authorizing city of Providence to assess a charge for the use of its sewerage system to industrial and commercial plants; acts imposing additional taxes on the corporate excess of corporations, on gross earnings of electric corporations; an act imposing an ad-

ditional tax on pari-mutuel betting; an act changing the method of payment of members of the civil service commission from per diem pay to a fixed annual salary; an act providing continuing teaching service after three successive annual contracts; an act to create in the department of labour an industrial code commission which was to issue codes of safety and health rules for places of employment; an act to abolish wage differentials based on sex; an act providing for payment of bonuses of \$200 each to residents of the state who served in the armed forces of the United States and in the merchant marine during World War II; an act declaring the existence of an emergency and providing for stabilization of rents and for the regulation and restriction of evictions; creation of a commission to study government service and cost thereof at state and local levels; an act to empower and direct municipalities to enforce airport zoning regulations and to regulate the use of property in the vicinity of publicly-owned airports; an act creating a horse racing and athletics commission in the executive department; an act providing for rehabilitation and redevelopment of blighted areas in urban and suburban communities in the state; an act regulating motor vehicles carrying property for hire; and a resolution proposing an amendment to the state constitution for absentee voting.

The chief executive officers of the state elected in Nov. 1946 for 1947-48 were John O. Pastore, governor; John S. McLernan, lieutenant governor; Armand H. Cote, secretary of state; John H. Nolan, attorney general; Russell H. Handy, general treasurer. Edmund W. Flynn was chief justice of the supreme court.

Education.—During 1945-46 there were in the public elementary schools 56,685 pupils and 1,997 teachers; in junior high schools 18,043 pupils and 897 teachers; in senior high schools (three years) 14,824 pupils and 724 teachers; in senior high schools (four years and vocational) 4,794 pupils and 215 teachers. Pupils attending private schools were: elementary 24,258; junior high 4,946; senior high (three years) 1,034; senior high (four years) 5,280. Total number of teachers in private day schools was 1,354. The director of education in 1946 was James F. Rockett.

Social Insurance and Assistance, Public Welfare and Related Programs.—The total number of persons receiving public assistance in all categories (excluding incapacitated fathers) in Nov. 1946 was 21,671 or about 3% of the state's 1940 population. The total amounts paid out during the year Dec. 1, 1945–Nov. 30, 1946, were as follows: general public assistance \$1,197,922; soldiers' welfare \$118,461; old-age assistance \$3,227,246; aid to dependent children \$1,436,969; aid to the blind \$47,453. In unemployment compensation, the net amount of benefit payments during 1946 was \$10,852,176.97 to 49,403 different individuals. The amount paid into the fund during 1946 including interest was \$14,842,525.42. There were 734 inmates in correctional institutions on Nov. 30, 1946, and 4,924 patients in charitable institutions and institutions for defectives, the number in the latter being 3,841.

Communications.—The total mileage of highways on Dec. 31, 1945, (excluding city streets) was 2,671.65, of which the state highway system comprised 820.84 mi. At the close of the year 1945 railroads were operating 186 mi. of road, electric railways 28.23 mi. of road, motor buses 189.68 mi. of road and trackless trolleys 61.47 mi. of road. At the close of the year 1946 electric railways operated 23.32 mi. of road, motor buses 194.57 mi. of road and trackless trolleys 63.35 mi. of road. Water-borne commerce of the state for 1945 was 3,563,673 tons, of which 304,256 tons were foreign commerce (imports 298,364 tons; exports 5,892 tons) and 3,259,417 tons were coast-wise (receipts 3,031,079 tons; shipments 228,338 tons). Air-

ways totalled 120 mi.; there were one airport and three landing fields. In Dec. 1945 there were 164,707 telephones in service and in Dec. 1946, 190,130 in service.

Banking and Finance.—There were 32 banking institutions in 1946. Resources of 23 banks under state supervision totalled \$838,431,695.27, and of 9 banks under federal supervision \$276,198,662.94. Savings deposits (exclusive of club accounts) in savings banks and trust companies (the 23 state banks) amounted to \$520,937,193.93 on June 30, 1946. In addition, 6 loan and investment companies had resources of \$3,355,363.40; 8 building and loan associations \$68,412,632.60; 26 credit unions \$10,691,104.65.

At the close of the fiscal year, June 30, 1946, total state receipts were \$25,172,417.03; expenditures and encumbrances \$22,963,151.49; surplus from operation \$2,209,265.54. The state gross debt was \$24,417,000.00, net debt \$20,517,195.88.

Agriculture.—The total estimated value of agricultural production was \$18,866,000 in 1946 and actual value was \$19,925,000 in 1945. Total acreage of principal crops harvested was 51,000 in 1946. Cash estimated income from crops in 1946 was \$4,991,000, and actual income was \$5,499,000 in 1945; from livestock and livestock products \$11,775,000 in 1946 and \$12,194,000 in 1945; from government payments \$900,000 in 1946 and \$932,000 in 1945; total cash income \$17,666,000 in 1946 and \$18,625,000 in 1945.

Table I.—Leading Agricultural Products of Rhode Island, 1946 and 1945

Crop	1946	1945
Corn, grain and silage and forage (grain equivalent) bu.	312,000	320,000
Hay (tame), tons	53,000	55,000
Alfalfa, tons	2,000	2,000
Potatoes, bu.	1,742,000	1,332,000
Oats, bu.	32,000	31,000
Apples (commercial), bu.	162,000	85,000
Peaches, bu.	15,000	9,000
Pears, bu.	6,000	3,000
Grapes, tons	200	100

Table II.—Livestock and Livestock Products of Rhode Island, 1946 and 1945

Item	1946	1945
Cows and heifers, 2 years and over	22,000	23,000
All cattle and calves	29,000	30,000
Hens, 3 months and over	578,000	546,000
Sheep and lambs	2,000	2,000
Hogs	8,000	8,000
Milk produced, lb.	122,000,000	133,000,000
Eggs produced, doz.	6,300,000	6,400,000
Chickens raised, no.	830,000	925,000
Turkeys raised, no.	31,000	35,000

Manufacturing.—The total estimated value of manufactures was \$516,390,541 for 1939 and \$517,196,193 for 1937. (No census report after that for 1939.) Employment in 1939 totalled 106,269 wage earners and 12,005 salaried personnel. The number of establishments was 1,460. Wage earners received \$105,406,950 and salaried personnel \$27,940,576. (Figures for 1946 were not obtainable from the bureau of the census.)

Report of the state department of labour for Nov. 1946 showed 130,000 wage earners and weekly pay roll of \$5,240,112 for all manufacturing industries in Rhode Island.

Mineral Production.—The value of mineral production in Rhode Island is small, exceeding only that of Delaware and the District of Columbia. Value in 1944 was \$612,000, in 1943 \$808,000 and in 1942 \$836,040. The principal products are stone (\$213,351 in 1944, \$410,478 in 1943 and \$351,664 in 1942) and sand and gravel (\$287,112 in 1944, \$327,750 in 1943 and \$361,881 in 1942). Production of stone reached 19,790 tons in 1944, 171,230 tons in 1943 and 191,420 tons in 1942; sand and gravel 352,905 tons in 1944, 356,043 tons in 1943 and 572,437 tons in 1942. (Figures for 1945 and 1946 were not available.)

(M. C. ML.)

Rhodesia, Northern. A colony of the British crown in Africa. Area: 290,323 sq.mi. Pop. (est. 1942) 1,381,800 of whom 15,100 were European and 1,366,600 African. Chief towns: Lusaka (cap., Euro-

peans 1,350); Luanshya (Europeans 1,800; Africans 22,000); Ndola (1,000; 8,000); Mufulira (1,100, 12,500). Languages, English, Chiwemba, Chinyanja and tribal dialects. Religion: Christian, Hebrew and pagan. Governor: Sir Eubule John Wadlington.

History.—In the early part of the year there was a mass adult-literacy campaign, which was stated to have shown that the average time taken for an African to acquire literacy is three weeks. The British South Africa company, the former administrators of the territory, won an appeal to the privy council of the United Kingdom against a judgment of the Northern Rhodesia court of appeal in respect of income tax for the years 1938 to 1940. Parliament decided to allocate £3,000,000 from reserves to support grants from the Colonial Development and Welfare fund. Artisans employed by the three large mines on the copper belt went on strike for more pay on July 15. All daily-paid workers were discharged and the mines put on a care-and-maintenance basis. The artisans returned to work on Aug. 21, pending arbitration. A settlement was announced in October of an extra 5s. a shift increase, bringing the rates paid to surface and underground artisans respectively to 35s. and 38s. 6d. a shift.

Education.—Native government schools 44; mission schools 1,036; non-aided schools 1,160. Total number of pupils 165,000.

Finance.—Revenue £2,931,304; expenditure £2,866,816 (1945).

Trade.—Imports £6,699,588; exports £12,147,232 (1944). (See also RHODESIA, SOUTHERN.) (G. A. V.)

Rhodesia, Southern. A self-governing colony in Africa. of the British commonwealth, with imperial government supervision over native rights. Area: 150,333 sq.mi.; pop. (est. 1945) 1,576,310 (European, 81,470, Asiatic and coloured 6,830, and the rest African). Chief towns: Salisbury (61,760); Bulawayo (39,817); Umtali (7,771); Gwelo (7,726). Languages: English, Afrikaans, native tribal languages. Governor: Admiral Sir William Campbell Tait (died July 17, 1946); Major General Sir John Noble Kennedy (appointed Sept. 15, 1946); prime minister: Sir Godfrey Martin Huggins.

History.—A £3,000,000 victory loan floated early in 1946 was fully subscribed within four months, a fact that indicated the enormous surplus purchasing power within the colony; the cost of living index rose two points in the first four months from 128.3 to 130.7. The first government-financed secondary school for Africans was opened. Parliament voted £1,700,000 for discharge grants to ex-servicemen and women. The Liberal party, in opposition, were urging that the government should press for a free corridor westwards to the sea. The Railways Arbitration tribunal announced a 9%–12% increase in railway workers' wages. In the April general elections, the first after the end of World War II, the United party won 13 seats, the Liberals 12, the Rhodesian Labour party 3, and the Southern Rhodesian Labour party 2. Sir Harold Howitt's report on the Rhodesian railways was published and in it nationalization was not recommended. An inquiry was opened as a preliminary to improving the conditions of service of the British South Africa police. K. M. Goodenough was appointed high commissioner in London in place of S. M. Lanigan O'Keefe. The Air Training agreement with Great Britain was signed in September, and negotiations were opened with South Africa to find a basis for a trade agreement.

Education.—European primary schools 49; secondary 10; primary and secondary 5; total of enrolled pupils 11,809; private schools 13 (pupils 653); schools for coloured children 16 (2,001); for native children 1,691 (140,329). Expenditure £453,000. Grants in aid to native education £101,575.

Finance.—Revenue, £10,473,000; expenditure 1945–46, £11,

929,000. The revenue from customs and excise (1944) was £1,294,741; from income tax £5,952,178; from Native tax, £453,341. Mining revenue was £536,942 and the public debt stood at £22,747,582. Gold output was 592,729 oz. (£4,978,922).

Trade and Communications.—Imports, £11,966,632; exports, £14,283,142 (1944). Roads (motor services) 1,637 mi.; rail 1,361 mi. (See also RHODESIA, NORTHERN.) (G. A. V.)

Ribbentrop, Joachim von (1893–1946), German statesman, was born April 30, at Wesel on the Rhine. He served with the rank of lieutenant colonel and later in the war ministry during World War I, and after the war he became a champagne salesman. Ribbentrop joined the nazi party in 1932 and within a year became adviser to Adolf Hitler on foreign policy. In 1936 he was appointed reich ambassador to England. He was recalled to Berlin in early 1938, to assume the portfolio of foreign minister at a time when Hitler was preparing to embark on his plan for conquest. The new foreign minister was shortly dispatched to London to reassure the British government that Hitler's venture into Austria in March 1938 was a preventive measure to curb civil war. He was also instrumental in destroying Czechoslovak independence. Ribbentrop was one of the principal architects of the Soviet-German pact of August 1939 and the following year (1940), he brought Japan into the Rome-Berlin axis.

He sat in on the preparation for the invasions of Yugoslavia, Greece and the soviet union and ordered systematic deportation of Jews from axis-controlled countries. He was ousted from the foreign ministry, May 2, 1945, after Hitler was supposed to have died, and was captured in a Hamburg rooming house by British troops a month later. One of the principal nazi defendants at the Nuernberg war crimes trial, Ribbentrop maintained that Hitler had made all the important decisions, that he never doubted the fuehrer's motives and that he himself had "always stood for a policy of peace."

He was found guilty by the International Military tribunal Oct. 1, 1946, of crimes against the peace, war crimes and crimes against humanity and of conspiracy to commit the above crimes. The sentence, which decreed hanging, was carried out Oct. 16.

Rice. The record 1946 rice crop of the United States was estimated by the U.S. department of agriculture at 71,520,000 bu., which was 5% above the record crop of 68,150,000 bu. produced in 1945 compared with the average of 55,257,000 bu. 1935–44. The acreage was 1,567,000 ac. in 1946 compared with 1,494,000 ac. in 1945 and an average of 1,169,000 ac. 1935–44. The yield was lower in the south but enough higher in California to make a national average of 45.6 bu. per ac. compared with 45.6 in 1945 and an average of 47.6 bu. 1935–44. Some of the Arkansas crop was lost due to frost damage in Oct. Texas lost some of the crop due to heavy rains. California had an increased crop over a year earlier which was harvested early in fine condition. The California yield was 68 bu. per ac. compared with 60.5 bu. in 1945.

Rice consumption in 1946 from the 1945 production was estimated at 4.4 lb. per capita compared with 4.7 lb. in 1945 and a prewar average of 5.6 lb. 1935–39. This reduction in 1945 oc-

curred despite the largest domestic crop on record because of heavy exports for relief, to U.S. possessions, military needs and brewers' use.

Exports in 1945–46 were 359,000 tons out of the crop of 1,026,000 tons.

The price of rice to producers was steady through 1945 and to March 1946 at \$1.80 to \$1.90 per bu. compared with 75 cents in 1935–39. After an advance to \$1.86 in July, the big crop prospects depressed the market until Oct. when the price advanced to \$2.14 per bu. where it remained to the end of the year. The export demand was so strong that only slightly more rice was made available for domestic use. Rice continued under price control to the end of the year. Retail prices were advanced somewhat in the late fall.

The world's rice crop of 1945–46 was estimated at 6,300,000,000 bu. compared with 6,900,000,000 bu. the preceding year and a prewar average of 7,400,000,000 bu. The decline was due to the smaller crops harvested in Asia. The crop in China was about 18% below the prewar level due to floods and the generally disturbed conditions. The Japanese crop was the smallest in 40 years. India harvested a crop about 3% above the prewar average although the crop had been expanded 10% during World War II. The Philippine crop was about 70% of the former output.

In Burma, Siam and Indo-China the harvest was barely sufficient for domestic needs and left little for export. The best crops were reported in Egypt and Madagascar providing considerable for export. In South America the crop was increased in Brazil, Chile and Ecuador. The total for export, however, amounted to only about 4% of international trade. (J. C. Ms.)

Rintelen, Anton von (1876–1946), Austrian jurist and politician, was born on Nov. 15 in Graz. He became professor of civil procedure in the university there in 1911. Dr. Rintelen was named to the provisional local assembly in Styria in 1918, at which time he joined the Christian Socialist party. He twice held the governorship of Styria, 1919–26 and 1928–33, and was appointed minister of public instruction in the cabinet of Chancellor Engelbert Dollfuss. He resigned the latter position in early 1933 and several months later was designated minister to Rome. His province of Styria, where he was known as the "uncrowned king," became a centre of nazi activities in Austria and his backing by the pro-fascist Heimwehr and Austrian nazis gave strength to the rumour that he was being favoured by Hitler and Mussolini to succeed Dr. Dollfuss as head of a compromise government. When nazi rebels staged their coup d'état on July 25, 1934, seizing the chancellery and assassinating Dollfuss, Dr. Rintelen had been scheduled to appear and take over the reins of government. He failed to present himself, however, and when the rebels had surrendered, he was arrested for complicity. His exact role in the abortive *putsch* remained a mystery. Though he was sentenced to a life term in prison, he received amnesty in 1936. After the start of World War II, he openly joined the nazis and served as reich general commissioner for Lithuania from 1942 to 1944, when the country was retaken by the Red army. His name headed the soviet list of war criminals in Lithuania. Dr. Rintelen died in a village near Graz on Jan. 28, according to a Salzburg radio report.

Rio De Oro: see SPANISH COLONIAL EMPIRE.
Rio Muni: see SPANISH COLONIAL EMPIRE.

Rivers and Harbours. The corps of engineers, U.S. army, created by an act of congress approved March 16, 1802, was first called upon to func-

**U.S. Rice Production by States, 1946 and 1945
and 10-Year Average**
(In thousands of bushels)

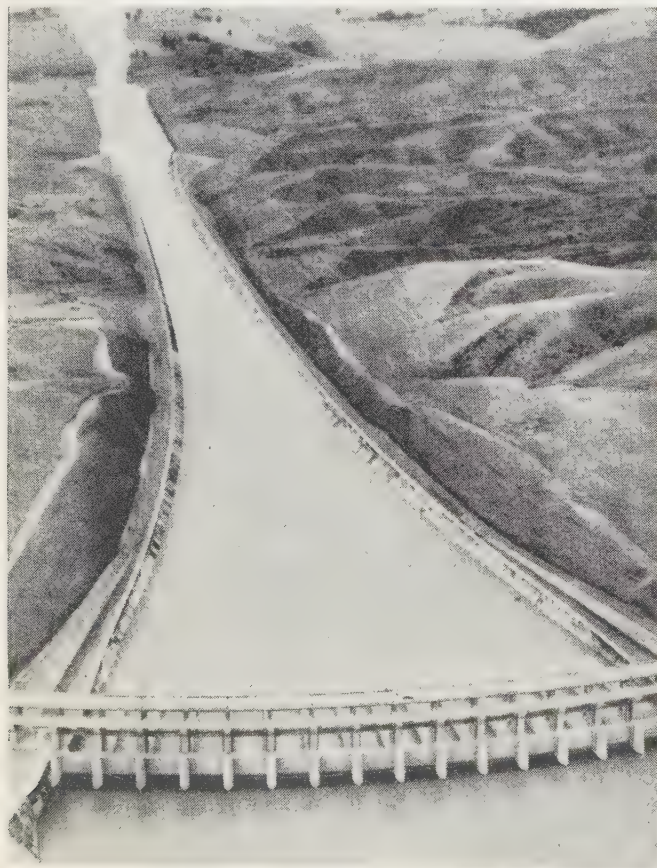
State	1946	1945	Average 1935–44
Louisiana	22,676	23,028	20,670
Texas	17,716	18,000	13,926
California	16,728	13,915	10,331
Arkansas	14,400	13,207	10,331

tion in the conservation and development of streams for navigation under authority of an act of congress approved April 30, 1824. From that time the corps of engineers has continuously carried out, in accordance with the authorizations of congress, various works on the navigable waters of the country and their tributaries. In addition to improving rivers and harbours for navigation, it has been called upon to plan and prosecute the development of streams in the interest of flood control, hydroelectric power, pollution control, conservation and related purposes. The corps' civil works in the field are effected through some 40 districts grouped into 12 divisions conforming roughly to watersheds. The territory in which these works are performed embraces Alaska, Hawaii, Puerto Rico and the Virgin Islands as well as the continental United States.

During the first part of the fiscal year ended June 30, 1946, the river and harbour program continued in conformity with the national policy limiting wartime construction to conserve manpower, equipment and materials. With the cessation of hostilities, however, work was commenced on a number of projects which had been deferred during the war. Improvement operations were carried out on 32 regular river and harbour projects of which one, Morro bay, Calif., was completed. Maintenance operations were performed on 224 projects including the numerous coastal and inland harbours, connecting channels on the Great Lakes, and the extensive Intracoastal Waterway and Mississippi river network, together with the operation and care of the canalized Ohio river system, Illinois waterway, and upper Mississippi river. The Federal expenditures for new work and maintenance operations on navigation projects and allied operations during the fiscal year ended June 30, 1946, were \$79,542,449.85.

The principal items of new work performed during the fiscal

SPILLWAY, mile long, concrete lined, which was put in operation in 1946 at Fort Peck dam in northeastern Montana for control of the Missouri river. The spillway is a safety feature for the dam, and is controlled by the 16 vertical lift gates in the foreground



year 1946, other than on canals and inland waterways, included enlargement of channel facilities of New York and New Jersey channels in Arthur Kill and from vicinity of Bayside-Gedney channel to Perth Amboy to provide for the larger tankers; and completion of dredging and rock removal in the main channel in Newark bay from Kill Van Kull to about 1,200 feet south of the Central Railroad of New Jersey bridge including the cut-offs at the entrance. The improvement of Port Aransas-Corpus Christi waterway was continued by dredging the Corpus Christi turning basin and the Industrial Canal and Avery Point turning basin, and dredging was in progress at the end of the year in the channel leading to Corpus Christi turning basin. Dredging of a seaplane base in San Diego harbour to the extent desired by the navy department and of a settling basin at the mouth of the Los Angeles river diversion channel at Los Angeles and Long Beach harbours, Calif., was completed. At Morro bay, Calif., the extension to the Morro Rock breakwater was completed and dredging was performed in the main channel and the channel into the lower bay.

At Fort Peck dam, Mont., on the Missouri river alterations to the penstock, installation of a wyebranch structure and shaft No. 1 transition section and installation of a 15,000-kilowatt generating unit were continued in addition to other miscellaneous features. Operation of the previously installed 35,000-kw. generating unit was continued during the major portion of the year, the total power production being 102,506,000 kw.hr. The reservoir was also operated in conjunction with maintenance dredging to maintain a channel suitable for navigation on the lower reach of the Missouri river. At the Bonneville dam, Oregon and Washington, one spare 60,000-kva transformer was installed and other equipment procured; 10 power generation units were operated, producing 3,939,841,000 kw.hr. during the calendar year 1946. (R. A. WR.)

Great Britain, the Commonwealth and Europe.—In Britain, bomb-damaged ports such as London and the Mersey were being rapidly restored in 1946. The port of Faslane on the Firth of Clyde, where some 3,000 ft. run of deep-water wharfage for wartime use was made in a sheltered arm of the sea hitherto unused, was being temporarily administered and worked for the ministry of transport by the Clyde navigation trustees. The reconstruction and widening of a long but narrow dry dock at Barry dock in the Bristol channel was about to be begun by the Great Western Railway company. The shortage of supplies of labour and materials due to the allocation of all available supplies to the needs of housing, delayed port development and new construction in England and Scotland.

The two giant dry docks built during World War II at Capetown and Sydney had been brought into use in 1945. Each had a clear entrance width of about 148 ft. with a depth of water over the sill of 40 ft. or more at mean low water of spring tides. The Captain Cook dry dock at Sydney had an available length of 1,140 ft. and the Sturrock dock at Capetown of 1,212 ft. These dimensions were exceeded by those of three dry docks which were built, or building, in Germany during the war at Wilhelmshaven and Hamburg; these, as well as the twin entrance locks to the new naval harbour at Wilhelmshaven, named by the nazis the "Raeder" locks, had entrances 195 ft. wide in the clear. A new dry dock 723 ft. long with an entrance 102 ft. wide was completed and brought into use at East London (South Africa) where also new quayage 1,333 ft. long with 30 ft. to 35 ft. depth at low water was completed during the year. The repair of war damage in the ports of Singapore and Hong Kong, as well as in other ports of the far east which suffered heavily in the Japanese war, made substantial progress.

In the Netherlands the sea-lock at the North sea entrance of the ship canal between IJmuiden and Amsterdam, damaged by

both allied and enemy action, was restored, and navigation to Amsterdam was opened during the summer. The harbour and port works at Rotterdam were also under repair.

In France, where damage on a vast scale was suffered by works at Le Havre, Dunkirk, Calais, Boulogne, Bordeaux, Cherbourg, Nantes, St. Nazaire and many other ports, much was done during the year to restore quays and dock equipment and to clear obstructions from the navigable channels. A new gate caisson for the 135-ft. wide entrance to the large dry dock at Le Havre was being built in England. The cost of reconstruction of war-damaged works in the French ports was estimated at 35,000,000,000 francs and the work would take ten years to complete.

The port of Ostende was under repair and was opened to traffic during the year.

The rebuilding of Gdynia, the new Baltic port made by the Poles after World War I which had suffered severe war damage, was begun in 1946 by the Danish firm of contractors responsible for much of the original port construction. (See also *AQUEDUCTS; CANALS AND INLAND WATERWAYS; DAMS; FLOODS AND FLOOD CONTROL.*) (N. G. G.)

Roads and Highways. In 1946 the roadbuilders of the nations that had been at war turned from military construction to face serious problems in providing urgently needed highways. The highways of Europe, Asia and much of North America were worn by from four to six years of war traffic. Destruction by demolition forces had been great in all combat areas. Rehabilitation of highways to their prewar condition constituted an enormous job, particularly in Europe, China, Japan and the Philippines.

At the same time there was a world-wide demand for modernization and extension of highway systems. The war had interrupted extensive highway programs in almost every country. During 1946 prewar plans were revived and enlarged. People of all nations desired peace and prosperity, and an adequate system of highway transportation was believed necessary for improvement of economic and social conditions.

United States.—At the beginning of 1946 funds and plans were ready for the largest highway program ever undertaken. First attention was to be given correction of serious deficiencies in main routes that had developed during the war years. The federal government had authorized \$500,000,000 for each of the first three postwar fiscal years to aid the states in improving urban and rural sections of the federal-aid system and a system of secondary or farm-to-market roads. The work actually begun fell far short of what was expected. Unsettled economic conditions, high prices, shortages of men, equipment and materials, particularly steel and lumber, seriously checked both the letting of contracts and work on jobs for which contracts were awarded. The number of men employed on construction of main highways at the middle of the season was about half the number employed at that time in 1941. The number of men employed on maintenance throughout the year was close to 90% of the 1941 figure.

Construction contracts awarded in the federal-state co-operative highway program from January through October amounted to \$450,154,000 for 16,125 mi. of road. The federal government was to pay \$243,224,000 of this cost. Total contracts awarded by state highway departments, including the above work, amounted to \$650,419,000 for 39,864 mi. of road. Much of this work was started late in the season or was delayed by shortages of various kinds and was not completed during the year.

Practically every large city in the country had planned post-war construction of expressways to relieve serious traffic congestion. Abnormal conditions prevented anything but a small

beginning of this work.

At the end of the year agreement on routes to comprise the national system of interstate highways had been reached between the federal government and 44 states. It was expected that establishment of the system as a whole would follow in a short time.

The Alaska Highway.—This highway was maintained in good condition and kept open to authorized traffic at all seasons of the year. Early in April the section of the highway in Canada which had been maintained by the United States army was turned over to the Canadian authorities. The highway was not opened to tourist traffic because of lack of eating and sleeping accommodations and repair services. Late in the year the highway was used for transportation of food and other supplies to interior Alaska. There was urgent need of food because of stoppage of water shipping during the summer caused by strikes.

Pan-American Highway.—Only moderate progress was made during the year. On the section from the United States to Panamá, known as the Inter-American highway, construction was retarded by the difficulty of obtaining new equipment and repair parts. Most of the machines available were near the end of their useful life. Work was done in Mexico and in four Central American countries but at the end of the year the tourist from the United States could travel only as far as southern Mexico.

There was little major construction on the South American section of the highway after the beginning of World War II. However, Ecuador began construction of a 100-mi. section from Quito to the Peruvian border, that would close one of the most serious gaps, and all other countries through which the route passes were actively preparing for major improvements in the immediate future.

All of the countries of South America were planning the extension of highways into undeveloped regions but were handicapped by inability to purchase road building machinery. Brazil, Chile, Peru, Argentina and Colombia were all prepared to start major highway improvements when circumstances permitted.

Canada.—Construction on a scale much larger than before the war was planned, including improvement of main highways in the more densely populated areas and extension of new routes through wilderness areas. Work to cost \$153,000,000 was scheduled but difficulties similar to those encountered in the United States greatly reduced the work done.

United Kingdom.—Still seriously occupied with rehabilitation from the destruction of the war and particularly with housing problems, the United Kingdom was unable to launch long discussed and much needed highway improvements. Work was done on the reconstruction and rehabilitation of roadways badly damaged by heavy war use. It was estimated that this work would take about five years after which construction of a network of national routes tying together England, Scotland and Wales would begin.

Near the end of 1946 the labour government took initial steps toward nationalization of intercity truck and bus lines and of railroads. It was planned to remove restrictions that, prior to the war, limited highway transport very largely to local movements. Relaxation of these restrictions during the war demonstrated the advantages of intercity movements.

Europe.—In France more than 4,000 of the 6,500 highway bridges destroyed or damaged were replaced and highways in general were sufficiently repaired to permit prewar speeds for automobiles. Much of the bridge repair was of a temporary nature and must be replaced later by permanent construction. Construction of the express highway from Paris toward Brittany and Normandy, begun before the war, was resumed.

A 570-ft. concrete arch bridge over the Idefjord river near Oslo, connecting Norway and Sweden, was formally opened in June. This notable structure was completed during World War II but the formal opening was delayed.

The most important highway problem in Norway was reconstruction of war-damaged roads and bridges particularly in the northern part of the country. In 1946 about \$9,000,000 was spent for highways—more than half of it for repair of war damage. Construction was started on 125 mi. of new road. This is much below the prewar rate of 300 to 425 mi. per year.

In Germany lack of essential road materials and difficulty in procuring labour made it difficult to maintain the more important highways. Makeshift expedients were used to halt the rapid deterioration of roads. Important work was done in restoring travel across wrecked bridges, particularly those across the Rhine.

The Netherlands was outstanding in restoring its transportation system from the great damage it suffered during the war. Among the many important jobs done was the improvised restoration of the highway bridge across Hollandsche Diep south of Rotterdam giving an important connection with commercial centres of Belgium and France.

Switzerland completed 30 mi. of extremely difficult construction over the Alps near Lucerne. Work had been under way for eight years.

General improvement of road conditions was indicated by establishment in April of bus service from Sweden, through Denmark and Germany, to Switzerland.

An extensive program for the construction of new roads and reconstruction of old ones was launched in soviet Russia. The government of the Ukraine appropriated 500,000,000 roubles (about \$41,000,000) to begin a long-range program.

Africa.—Seeking to protect its supply line to eastern possessions, Great Britain announced plans for a 3,000-mi. highway across central Africa. The route was to extend from Lagos, an Atlantic port in Nigeria, to Mombasa on the Indian ocean. A portion of this route was improvised during the war to get emergency supplies to armies in Egypt. The Nile river was used for the last stage of the movement. The new route was to be an alternate to the Mediterranean-Suez canal-Red sea water route which is affected by changed political conditions.

India.—During World War II the government of India actively planned betterment of economic conditions for its dense population. Improvement of means of highway transport was considered to be one of the chief needs. A network of main highways, built to modern standards, would benefit the whole country and would develop many sections not adequately served by any form of transport. There was also need for better roads from cities to the surrounding areas. In 1946 substantial progress was made in planning work to be done and means of carrying on the work. A large group of Indian engineers visited England and the United States to study methods of highway construction.

Philippines.—Reconstruction of highways in the Philippines destroyed during the war, and improvements needed for defense and economic development would cost about \$100,000,000, according to a report of U.S. engineers sent to the islands to study conditions. Steps toward launching this rehabilitation program were taken during the year. The United States was aiding the Philippine government in the work and authorized \$9,960,000 for the fiscal year ending June 30, 1947. U.S. highway engineers were sent to the Philippines to aid in a program that would require about four years for completion.

China.—China was preparing to resume the large program of highway construction that was interrupted by Japanese invasion. Chinese engineers were studying construction methods

in foreign countries in preparation for this work.

Japan.—U.S. occupation forces directed a large amount of work in reconditioning the badly worn highways of the country. (See also MOTOR TRANSPORTATION.) (T. H. MacD.)

Rockefeller Foundation: see SOCIETIES AND ASSOCIATIONS.

Rockets: see MUNITIONS OF WAR.

Roentgen Ray: see X-RAY AND RADIOLOGY.

Roman Catholic Church. The pope, Pius XII, is recognized as supreme ruler and pastor of the Roman Catholic Church. It is he who creates cardinals and appoints archbishops, bishops, vicars and prefects apostolic who exercise ecclesiastical jurisdiction throughout the world.

At the consistory held in February, Pius XII invested 28 of the new cardinals with their robes and conferred upon them the red hat. The other 4 of the 32 named on Dec. 23, 1945, were unable to attend for reasons of health and were invested later at a private ceremony. On March 9 John Cardinal Glennon, archbishop of St. Louis, Mo., died in Eire while returning to the United States. His body was brought to St. Louis and interred in a crypt beneath the cathedral. On March 22 Clement August Cardinal von Galen, bishop of Muenster, died in his episcopal city and was buried in the damaged family tomb. Third of the new cardinals to die was Augustin Parrado y Garcia, archbishop of Granada, Spain, who passed away in October. The college of cardinals was further reduced by the deaths of Camillo Cardinal Caccia-Dominioni, in November, and Jean-Marie Rodrigue Cardinal Villeneuve, archbishop of Montreal, Canada, on Jan. 17, 1947, while on a trip to California. Cardinal Caccia-Dominioni was the one who crowned Pius XII in 1939. Prominent for his relief work during World War II and a member of six of the sacred congregations, Pietro Cardinal Boetto, archbishop of Genoa, Italy, from 1938, died on Jan. 31, 1946, at the age of 75.

In May Dennis Cardinal Dougherty, archbishop of Philadelphia, Pa., celebrated his silver jubilee as a member of the sacred college. In November Samuel Cardinal Stritch, archbishop of Chicago, Ill., celebrated his silver jubilee as a bishop. During 1946 Archbishop John D'Alton of Meath was named and installed as primate of all Ireland. He succeeded Joseph Cardinal MacRory as archbishop of Armagh.

During 1946 China was raised from the status of a mission country. In May it was announced that the Holy See had divided the country into 20 metropolitan provinces, with 79 suffragan sees. Thomas Cardinal Tien, who received the red hat in February, is archbishop of Peiping.

In January Pius XII issued an encyclical commemorating the 350th anniversary of the Union of Brest, which reunited the Ukrainian Church with Rome. On March 8 a soviet-dominated synod, in which the Ukrainian hierarchy did not participate, declared the union abrogated. Eugene Cardinal Tisserant, secretary of the Congregation for the Oriental Church, in reply to the Moscow radio announcement of the schism, called attention to the complete lack of religious freedom. The Ukrainian Catholic bishops of the United States and Canada repudiated the "schism." In December the anniversary of the Brest union was solemnly celebrated in Paris, the pope being represented by Bishop Ivan Buchko, newly consecrated ordinary for the Ukrainian refugees.

Church-state relations experienced a crisis in September when Archbishop Aloysius Stepinac of Zagreb was arrested by the Yugoslav government and charged with being an "enemy of the people." He was accused of having approved forced conversion of Serbs and of other crimes. Although the Vatican denied the



CARDINALS walking in procession in the great nave of St. Peter's church, Vatican city, at the consistory on Feb. 21, 1946. Thirty-two new Roman Catholic cardinals were proclaimed by Pope Pius XII

charge and public sentiment was with the archbishop, he was condemned in October to 16 years of hard labour. Various foreign governments made representations to Yugoslavia, but without apparent success. Subsequently it was reported that the archbishop was taken from prison and allowed to set up his establishment in a hotel.

On July 7 Mother Francis Xavier Cabrini, first U.S. citizen to be declared a saint, was solemnly canonized, with 16 cardinals and 70 bishops in attendance. A pilgrimage headed by Archbishop Amelto G. Cicognani, apostolic delegate to the United States, went to the ceremony. In November the pope, in a

solemn ceremony, beatified 29 martyrs of the Boxer rebellion, most of them Franciscans.

Religious orders continued to elect superior generals to replace those who died during the war. On Sept. 15 Very Reverend John Baptist Janssens, Jesuit provincial for northern Belgium, was elected general of the Society of Jesus, to succeed Father Ledochowski who died in 1942. Representatives of 33 countries attended the congregation. On Sept. 21 the Dominicans chose their 80th master general at the general chapter of the Friars Preacher in Rome. The former general, Father Martin S. Gillet, was made an archbishop. The new general was Very Reverend Manuel Suarez, a Spaniard and rector of the Angelicum pontifical university. The Very Rev. Valentine Schaaf, first U.S.-born minister general of the Franciscans, died on Dec. 1. On April 30 the pope named the Rev. Clemente Neubouer, of Milwaukee, Wis., as minister general of the Capuchin Friars. The Society of Mary elected Very Rev. Sylvester P. Juergens, provincial of the St. Louis province, their new superior general.

At the beginning of 1946 the number of ecclesiastical jurisdictions throughout the world was 1,865. There were: residential patriarchates 10; metropolitan sees 333; archdioceses other than metropolitan sees 36; dioceses 964; abbeys and prelatures *nullius* 54; vicariates apostolic 322; prefectures apostolic 133; missions *sui juris* 13. There were in addition 4 titular patriarchates and 750 titular archbishops and bishops.

The number of Catholics in the world in union with Rome was estimated in 1946 at 400,000,000. One set of statistics gave the Catholic population of various continents as: Europe 203,944,000; Asia 9,213,413; Africa 6,866,000; North America 47,056,724; South America 60,836,000; Oceania 1,858,000. These figures total less than 400,000,000, but they were known not to be accurate, failing to take into account population growth of the last few years.

In 1946 the number of Catholics in the United States was estimated at 24,402,124, out of a total population of 133,053,845. There were 5 cardinals, 18 archbishops, 135 bishops, 28 abbots, 38,980 priests. Archbishoprics numbered 22; bishoprics and other jurisdictions 100. In Canada and Newfoundland there were 13 archdioceses; 32 dioceses; 9 vicariates apostolic and other jurisdictions. Of a total population of 11,795,000, Catholics were estimated as numbering 5,000,000. In England and Wales there were 4 archdioceses, 14 dioceses and a Catholic population of somewhat over 2,400,000. In Scotland, with a Catholic population of 615,000, there were 2 archdioceses and 4 dioceses. The Catholic population of Eire was given as 2,773,920, out of a total of 2,951,000. In Northern Ireland the Catholics numbered 455,352, the total population being 1,303,000. The ecclesiastical jurisdictions of Ireland remained the same: 4 archbishoprics and 25 bishoprics.

Missions.—In 1946 full statistics on missionary activities were unavailable, largely because of the uncertain state of affairs following World War II. There were approximately 84,000 missionaries dependent upon the Congregation for the Propagation of the Faith, of whom 22,000 were priests, 9,000 lay brothers and 53,000 sisters. The total number of Catholic U.S. personnel in overseas missions was 3,093. As an example of the problem facing the missions, in 1940 there were 740 missionaries in China but in 1946 only 562; in the Philippines in 1940 there were 231 but in 1946 only 217. War had either resulted in the death or impairment of the health of many missionaries. The future of the missions looked bright in the orient if the problem of personnel could be surmounted. With the Japanese emperor's repudiation of divinity and declaration of freedom of religion, the outlook for Christianity in Japan was favourable. In July the Japanese hierarchy, at its request, was visited by Bishops Michael J. Ready of Columbus, O., and John F. O'Hara,

of Buffalo, N.Y. Reports were satisfactory. In Indo-China, however, the insurrection resulted in anti-European tendencies, with definite loss of prestige for missionaries.

United States.—In June Bishop Aloysius J. Muench of Fargo, N.D., was named official representative to serve as liaison between the church and the U.S. military government in the U.S. zone of Germany. Myron C. Taylor continued as President Truman's personal representative at the Vatican, although some objection to this informal relationship was raised by various Protestants.

In Jan. 1946, the pope established the new diocese of Madison, Wis., naming Bishop William P. O'Connor of Superior, Wis., its first ordinary. Msgr. Albert G. Meyer was consecrated bishop of Superior in his place. To take the place left vacant by Cardinal Glennon, Archbishop Joseph E. Ritter was transferred from Indianapolis, Ind., to St. Louis, Mo. Bishop Paul C. Schulte was named to the Indianapolis see. Other bishops consecrated during 1946 were: Bishop Charles P. Greco of Alexandria, La.; Bishop Thomas L. Noa, coadjutor of Sioux City, Ia.; Bishop John R. Hagan, auxiliary of Cleveland, O.; Bishop Leo P. Dworschak, coadjutor of Rapid City, S.D.; Bishop Daniel Ivancho, coadjutor with right of succession to the Pittsburgh Greek diocese; Bishop Edward A. Fitzgerald, auxiliary of Dubuque, Ia.; Bishop D. J. Fenney, auxiliary of Portland, Me.; Bishop Timothy Manning, auxiliary of Los Angeles, Calif. Bishop Albert L. Fletcher, auxiliary of Little Rock, Ark., was named ordinary. Bishop Aloysius J. Willinger was transferred from Ponce, Puerto Rico, to Monterey-Fresno as coadjutor with right of succession. Bishop Martin O'Connor, auxiliary of Scranton, Pa., was named rector of the North American college, Rome. Bishop George J. Donnelly, auxiliary of St. Louis, was named ordinary of Leavenworth, Kan. Bishop Francis A. McIntyre, auxiliary of New York, was elevated to coadjutor archbishop of Francis Cardinal Spellman.

In January the Rev. George G. Higgins and Rev. John F. Cronin were named assistant directors of the social action department of National Catholic Welfare conference. In the same month President Truman conferred the congressional medal of honour on Rev. Joseph T. O'Callahan, of the navy, the first chaplain ever to be so honoured. Leo T. Crowley was decorated by the pope. The Laetare medal was awarded in 1946 to Dr. Carlton J. H. Hayes, wartime ambassador to Spain. The Hoey interracial awards went to Richard Reid, editor, and Charles L. Rawlings, president of the Detroit interracial council.

Other Events.—June 1946 saw the Catholic Theological Society of America formed at a meeting of theologians in New York city. In January an Inter-American Seminar on Catholic Social Studies was held in Havana, Cuba, with delegates from the United States, Canada and the Latin-American countries attending.

In August the Vatican revealed that Pius XII had written the bishops throughout the world asking them to collect views on the doctrine of the bodily assumption of the Blessed Virgin into heaven, with a view to definition.

Scholarships were donated by Catholic colleges in the United States to 59 Catholic students from China.

Church affairs in Poland remained unsettled. Catholics felt they were discriminated against in the provisional government. In September the bishops, conferring in Czesochowa, demanded Catholic representation in the parliament. In November Pres. Boleslaw Beirut declared that the church must "accept the new state of affairs" in Poland if it were to continue to enjoy the rights it possessed. Earlier in the year the bishops, in a joint pastoral, had made it clear that Catholics could not accept the communization of Poland.

The Italian hierarchy manifested grave concern about the

ascendency of leftist groups and warned its flocks against Marxian doctrines in the months of May and June. Later in the year a definitely anticlerical campaign developed and the pope was made the subject of attacks. (See PRUS XII.)

In Hungary the hierarchy made every possible effort to assist the Hungarians being driven out of Czechoslovakia. Hungarian Catholics contributed to the relief drive and Joseph Cardinal Mindszenty made unsuccessful efforts to have the Prague government modify its resettlement program. (See also CATHOLIC ORGANIZATIONS FOR YOUTH; CATHOLIC RURAL LIFE CONFERENCE, NATIONAL; CATHOLIC WELFARE CONFERENCE, NATIONAL; CHURCH MEMBERSHIP; SOCIETIES AND ASSOCIATIONS; VATICAN CITY STATE.) (J. LAF.)

Roosevelt, Anna Eleanor (1884—), U.S. government official, newspaper columnist and widow of Franklin D. Roosevelt, 32nd president of the United States, was born Oct. 11, 1884, in New York city, the daughter of Elliott and Anna Hall Roosevelt. She married Franklin Roosevelt, a distant cousin, March 17, 1905. Mrs. Roosevelt took an active interest in furthering her husband's political career. Following his election to the presidency in 1932, she embarked on a career as a speaker and writer. Her newspaper column, "My Day," became widely syndicated. Mrs. Roosevelt was named (Dec. 19, 1945) by President Truman as a member of the U.S. delegation to the United Nations general assembly, and on April 29, 1946, she was elected chairman of the Commission on Human Rights of the United Nations Economic and Social council.

Mrs. Roosevelt frequently clashed with the soviet delegates on the commission over aims and ideals. On May 13, 1946, she declared that the Russians "speak of democratic procedure, but they just don't know what it means." "They must learn," she added, "that you do not have a revolution every time you disagree." To Andrei Vishinsky's warning that the U.S.S.R. would refuse to support the projected International Refugee organization if it aided refugees who refused to return home, she replied (Nov. 8, 1946) that the United States and the soviet union have little hope of living "without friction in the same world" unless both could concede the "right of opposition."

Rosenberg, Alfred (1893–1946), German politician, was born in the Baltic city of Reval (Tallinn) and studied architecture and engineering at the Technological institute of Riga. After the end of World War I, he preached the doctrine that bolshevism was the creation of the "Jewish anti-Christ," but his ideas carried little weight until he came in contact with another disciple of racial supremacy, Adolf Hitler. Rosenberg joined Hitler, held the party together after the abortive Munich putsch of 1923 and became the number one nazi ideologist. Rosenberg was elected to the reichstag in 1930 and after Hitler came to power in 1933, he was made reich leader of the National Socialist party. In 1934 he was appointed the fuehrer's deputy for supervision of the entire spiritual and ideological training of the nazi party.

After the start of World War II, Rosenberg became a general in the S.S. (Elite Guards) and the S.A. (storm troops). He was appointed reich minister for the occupied eastern territories on July 17, 1941.

He was indicted Aug. 29, 1945, as a war criminal by the International Military tribunal sitting in Nuernberg. In the final verdict handed down by the court, he was charged with having organized the system of plunder of public and private property in the occupied areas during the war and of having helped to formulate nazi policies of Germanization, exploitation of forced labour and of extermination of Jews and opponents of nazi

rule. He was found guilty of crimes against the peace, war crimes, crimes against humanity and of conspiracy to commit these crimes, and was sentenced to death by hanging, Oct. 1, 1946. The sentence was carried out Oct. 16, 1946.

Rosenthal, Moriz (1862–1946), Polish pianist, was born on Dec. 18 at Lwow (then Lemberg), Poland. He was a pupil of Franz Liszt in Weimar and Rome and made his formal debut in Vienna in 1876. Two years later, he went on a concert tour of European capitals. Between the years 1880 and 1886, he was a student at the University of Vienna where he specialized in philosophy. In 1886, he returned to the concert stage, making his debut in Leipzig. He travelled across Europe to Great Britain, thence to the United States and South America. In his first appearance in New York (1888), he was enthusiastically hailed by critics as a "perfect pianist" and a "giant of ability." One of the great virtuosos of his time, he achieved a fabulous reputation, not only as an interpreter of Frederic Chopin and Liszt but as a master of technique. The last of Liszt's pupils to be on the concert stage, Rosenthal was before the public almost constantly for 50 years. Famed as a philosopher and wit, he was an accomplished story-teller, as well as an able and convincing writer. His treatise on piano technique, *Schule des höheren Klavierspiels*, written in collaboration with the Danish composer, Ludwig Schytte, was translated into many languages. His compositions include "Romanza," "Prelude," "Papillons," "Carneval de Vienne" and many piano pieces. He died in New York city on Sept. 3.

Rosenwald Fund, The Julius: see SOCIETIES AND ASSOCIATIONS.

Rotary International: see SOCIETIES AND ASSOCIATIONS.

Rowing. A resurgence in competitive rowing took place in the U.S., Canada and parts of Europe in 1946.

In England during February, Oxford defeated Cambridge in a revival of their ancient rivalry. The race was held on the Ouse river over an upstream course of one and one-half miles, Oxford taking the lead at the half-mile mark and never relinquishing it. The time was 8 min. 6 sec.

Intercollegiate rowing in the United States extended from east to west, although the Poughkeepsie, Dad Vail and other time-honoured college cup regattas were not renewed.

Two great college regattas were held: one at Annapolis, Md., on the Severn river on May 11, with 9 crews competing in the varsity race, and the other on Lake Washington, Seattle, Wash., on June 22, where 12 crews met in 2 events. The latter was the largest college regatta ever held on the Pacific coast.

A big Wisconsin crew won the nine-crew varsity event on the Severn, covering the one-and-three-fourths-mile distance in 9 min. 12.8 sec., and followed in order by the U.S. Naval academy, Columbia, Rutgers, Cornell, the University of Pennsylvania, Princeton, M.I.T. and Harvard. Massachusetts Tech won the junior varsity race.

The lightweight collegiate regatta (150 lb.) on the Charles river, Boston, was held the same day, Harvard winning in 6 min. 33 sec., followed by Pennsylvania, Cornell, Princeton, and M.I.T. The distance was one and five-sixteenths miles.

The Seattle regatta returned Cornell as victor, followed closely by M.I.T. and Washington university. The winning time for the one-and-three-fourths-mile course was 7 min. 19.7 sec. Wisconsin, Harvard, Rutgers, California and the University of British Columbia finished in that order. Rough water and high winds prevailed in both regattas.

The U.S. college rowing season opened on April 27 at Carnegie lake, Princeton, N.J. The University of Pennsylvania

swept this regatta, winning the varsity from Rutgers with Princeton third for the one-and-three-fourths-mile distance on rough water. Times: Pennsylvania 9 min. 55 sec., Rutgers 9 min. 59 sec., Princeton 10 min. 19.9 sec. Pennsylvania took both junior varsity and lightweight races from Princeton by close margins.

The same day on the Harlem river, N.Y., Columbia's varsity rowed to victory over Navy's highly regarded eight. The lead alternated until the last quarter mile when Columbia surged to the front to win by three-fifths of a second. Winning time for the one-and-three-fourths-mile distance was 7 min. 55 sec. Navy easily won the junior varsity contest.

On May 14 four regattas were staged: At Cambridge, Cornell defeated Harvard, Princeton and M.I.T. in that order. On the Schuylkill, the University of Pennsylvania barely nosed out Columbia by three feet after leading all the way. On the Raritan river at New Brunswick, N.J., the Rutgers varsity defeated the Navy plebe crew. Wisconsin easily defeated Marietta college of Ohio on Lake Mendota.

May 18 recorded Massachusetts Institute of Technology's victory over Harvard varsity and junior varsity crews at one-and-five-sixteenths miles. The same day Pennsylvania beat Navy and Princeton on the Schuylkill and Rutgers nipped Columbia by a foot on the Harlem.

On May 26 Wisconsin shaded Pennsylvania by two feet, at Philadelphia, while Rutgers was trouncing Princeton for the third time on its home waters.

Intercollegiate regattas were concluded on June 1. Harvard beat Yale in the latter's only race. Wisconsin was victorious in a heat regatta at one mile on Cayuga inlet over Cornell, Pennsylvania and Princeton.

Cornell and Wisconsin should be placed at the top of collegiate rowing for 1946.

The year witnessed the greatest number of schoolboy regattas ever held in the U.S., with large entry lists and unusual spectator interest. Joseph McIntyre of Philadelphia was crowned schoolboy single sculls champion, and the LaSalle High school of Philadelphia won the senior schoolboy eights.

The National Association of Amateur Oarsmen conducted their 72nd National regatta at Philadelphia on July 19–20. Seventeen national champions were crowned. The largest entry list in many years competed.

Highlights of this first national regatta after 1942 were the winning of the Julius H. Barnes Point Trophy by the Detroit Boat club. Its crews entered six and won six events. Joseph Angyal, New York, captured both lightweight singles races.

Jack Kelly, Jr., of Philadelphia, Pa., son of the two-time Olympic champion, beat his fellow townsman, Arthur Gallagher, former U.S. singles champion (1942), for the single sculls title.

In Canada the Royal Canadian Henley at St. Catherines, Ontario, staged its 64th annual regatta on July 25–26–27. The famous Hamilton Leanders captured the point trophy from the West Side club from Buffalo, N.Y., and also won the feature race: the senior eight from the same club.

Jack Kelly, Jr., successfully defended his singles crown, won in 1945, and Homer Zink, Jr., of Belleville, N.J., took the lightweight.

In England, early in July, the Royal English Henley regatta was resumed for the first time after 1939. Young Jack Kelly, Jr., and Arthur Gallagher flew to England to challenge for the Diamond sculls, held for two consecutive years before World War II by world champion Joseph Burk, U.S.A. Both Kelly and Gallagher advanced to the semi-finals, where they were paired against each other. Kelly defeated Gallagher by four lengths, but was beaten in the final by the French champion Jean Sepharies by three lengths.

In war-torn Europe, a startling revival in rowing took place. In Belgium, France and Holland racing craft were removed from safe hiding places; crews were seen on streams almost before the invading enemy had completely evacuated. In Switzerland, Italy, Spain and Portugal increased interest was manifested, rowing was resumed and rowing publications appeared.

The Olympic games were awarded to England in 1948.

(C. L. Br.)

Roxas y Acuna, Manuel (1892–), Philippine statesman and president of the Philippines commonwealth, was born Jan. 1, in Capiz, Panay Island, the Philippines. He was educated in English-language public schools and was graduated from the University of the Philippines college of law in 1913 with an LL.B. degree. Elected to the house of representatives in 1921 Roxas later became speaker of the house.

In Nov. 1938 Roxas was named secretary of finance in Manuel Quezon's cabinet. Shortly after the Japanese attack on the Philippines, Roxas was assigned, Dec. 16, 1941, as liaison officer and aide to Gen. Douglas MacArthur. When the latter went to Australia Roxas remained for a while on Corregidor and later turned up as a cabinet minister in the pro-Japanese Laurel government. After the war when he was charged with collaboration, Roxas claimed that he used his high position to carry out espionage for the Allies and sabotage enemy activities; these declarations were supported by Gen. MacArthur and Roxas was subsequently cleared of collaborationist charges. He was unanimously elected president of the reconstituted senate and campaigned for president of the republic in early 1946; in the elections, held April 23, 1946, Roxas defeated his opponent, Sergio Osmeña. He was inaugurated on May 28, 1946.

Ruanda and Urundi: see BELGIAN COLONIAL EMPIRE; MAN-DATES.

Rubber. Successful reconversion of the rubber industry proceeded rapidly during 1946. Shortly after the first of the year the production and exports of GR-S (butadiene-styrene co-polymer) rubber were increased to promote full operation of factories despite shortages of natural rubber. An agreement reached March 2 between the United Rubber Workers of the Congress of Industrial Organizations and the four largest manufacturers of rubber products increased pay and favoured steady production. Manufacture of rubber goods continued at high levels throughout 1946, accompanied by expansion of the industry in many countries, including new factories for tires and other rubber articles in the Netherlands, Sweden, South Africa, Egypt and Peru, as well as expanded facilities in the United States. Interest centred in the early delivery of tires for passenger cars since all over the world many people were driving cars on rubber made into tires six years before. The resulting demand for materials stressed sharply the need for large supplies of natural rubber from the formerly abundant sources in the far east where bad social and economic conditions, unstable government and shortages of labour and materials were reported throughout the first half-year. Only minor delays were incurred as a result of destruction of rubber trees by the Japanese military occupants. By midyear the Malayan and Borneo sources of Hevea rubber had started brisk production, while the Netherlands Indies were still lagging, and shipments from French Indo-China reflected the recovery of a large inventory rather than an active resumption of tapping. For many years before World War II rubber plantations were subjected to economic controls to limit production and keep up prices. No

scheme of restriction was in force during 1946, but past events indicated that unrestricted competition on a free market favours the small producers. In the Netherlands Indies the potential capacity of the small holders to produce rubber comprises nearly two-thirds of the total, and after the war this region had hardly been tapped. In 1936, Netherlands Indies natives exported 149,000 short tons of rubber at an f.o.b. price of about two cents per pound. With a potential yearly capacity from small holder sources probably in excess of 700,000 short tons from the Netherlands Indies alone, there was little doubt that very large tonnages would be made available as soon as unimpeded commercial activity was resumed. The eventual recurrence of a local price comparable with the former low of two cents per pound seemed reasonable. By contrast with the prospect of low-cost rubber from the small holder, the plantations of the East Indies were confronted with many adverse factors, including higher labour costs, expensive removal and control of infestations like lallang, a variety of spear grass, re-establishment of malaria controls and the need to adjust their future operations to a completely altered outlook concerning contract labour and the former social and governmental relations. Need for government subsidies to plantations had already been hinted in Great Britain.

Natural Rubber.—Stocks of natural rubber (including latex and guayule) in the United States in Dec. 1945—133,000 short tons, had risen by April 1946 to 205,000 short tons with world stocks of 625,000 short tons; this exceeded all inventories from 1942. United States consumption of crude rubber for 1946 was estimated (October) at close to 300,000 short tons compared with 118,000 short tons in 1945. Premature reports that more than 100,000 short tons of rubber were to be shipped from Indo-China to the United States were later altered to indicate that these shipments were going to French rubber factories which required more rubber than had earlier been anticipated.

Rubber purchases for the United States continued to be made by the Rubber Development corporation subject to the restrictions which had prevailed from 1941 covering the maintenance of an adequate stockpile. Allocations to the industry were at a price of \$0.225 a pound for No. 1 ribbed smoked sheet. Purchases for the account of the Rubber Development corporation were arranged through the Combined Rubber committee, on which there were representatives of the United States, United Kingdom, Belgium, Canada, France and the Netherlands. By early fall British sources were voicing dissatisfaction with the action of the Combined Rubber committee which had maintained prices in the range of \$0.2025 to \$0.235 a pound f.o.b. far eastern ports and were arguing for a free market. Early in the fourth quarter the announcement came from both the Combined Rubber committee and the British board of trade that all international controls over the distribution of natural rubber would be removed on Jan. 1, 1947. This action created a free market for rubber except in the United States. According to F. D. Ascoli, chairman of the Rubber Grower's association (London), after Oct. 1946 only natural rubber would be used in Great Britain to make tires. These events heralded the return of increased supplies of natural rubber. Hence, after five years of the shortage caused by war the world could soon look for free competition between natural and synthetic rubbers.

By the end of the second quarter the huge guayule rubber project of the U.S. department of agriculture, with nearly 30,000 ac. planted in 1942 and 1943, was abandoned by action of congress and most of the shrub was uprooted to free the land for normal agricultural use. Experiments on the growth of rubber in North America (guayule and kok-saghyz, mainly) were reduced to a small scale by the withdrawal of appropriations. In contrast with these decisions were the continuance of

the research program on the growth of kok-saghyz in Sweden and the plans to resume planting large crops of this dandelion source of rubber by the U.S.S.R.

Synthetic Rubber.—Statistics pertaining to general purpose rubber, GR-S, which had for four years extensively supplanted crude rubber, and the special purpose rubbers, GR-1 (butyl), GR-M (neoprene) and the nitrile rubbers, are submitted in the following tables:

Table I.—Statistics for Synthetic Rubber, by Types, for the U.S., 1942-45 (Short Tons)

Production	GR-S	GR-M* (Neoprene)	GR-1 (Butyl)	Nitrile* Types	Total
1942	4,170	10,000	26	10,900	25,096
1943	204,100	37,600	1,540	16,200	259,440
1944	761,500	63,460	22,700	18,800	866,460
1945	811,800	51,150	58,660	8,800	930,410
Consumption					
1942	2,890	7,650	25	9,200	19,765
1943	147,800	29,350	340	13,900	191,390
1944	555,000	51,800	12,050	15,800	634,650
1945	672,200	47,480	48,170	9,000	776,850
Exports					
1942	250	1,160	—	180	1,590
1943	16,700	2,840	45	710	20,295
1944	110,200	5,370	590	620	116,780
1945	85,700	6,540	1,100	450	93,790
Stocks at End of Period					
1942	1,180	2,000	4	1,980	5,164
1943	34,700	7,180	1,160	3,500	46,540
1944	130,070	13,150	11,080	5,800	160,100
1945	191,040	10,870	20,580	5,380	227,870

*Includes production of privately owned plants.

Table II.—Consumption of Synthetic Rubber by Types, Jan.-June 1946 (Short tons)

United States	January	February	March	April	May	June
GR-S	63,629	59,641	69,767	67,338	67,058	59,563
Neoprene	3,715	3,277	3,911	3,991	4,060	3,510
Butyl	7,335	8,156	8,994	7,350	7,726	6,807
Nitrile rubbers	353	348	448	509	580	567
Total	75,032	71,422	83,120	79,188	79,424	70,447
World						
Total	89,600	89,600	100,800	98,000	98,000	86,800

From London Rubber Secretariat, Rubber Statistical Bull. 1, 3, (Sept. 1946).

Table III.—World Consumption of Synthetic Rubber, All Types, Including United States, United Kingdom, France, Germany, U.S.S.R. (Excluding Home Production), Australia, Canada, South Africa and the Rest of the World

Short Tons	1939	1940	1941	1942	1943	1944	1945
	16,800	50,400	78,400	128,800	324,800	828,800	946,400

From London Rubber Secretariat, Rubber Statistical Bull. 1, 3, (Sept. 1946).

The dominant position of the United States in the manufacture of both synthetic rubber and rubber articles explains the large ratio of its consumption compared with the world total, and makes the recommendations of the Inter-Agency Rubber Policy committee pertaining to the eventual disposition of government-owned factories of vital importance to the users of rubber. In two reports released by the Office of War Mobilization and Reconversion, Washington, Feb. 19 and July 22 respectively, the committee, headed by W. L. Batt, made recommendations as follows: For the immediate future, until supplies of natural rubber were assured, all but the least efficient ("fringe") synthetic rubber plants should be maintained in operation or stand-by condition, stocks of natural rubber should be increased and government allocation of rubber should be continued with a gradual increase in the amounts of natural rubber permitted in civilian products. For the long-term program the committee advocated the production and use of sufficient synthetic rubber to supply at least one-third of the rubber requirements of the United States exclusive of special purpose rubbers, the private ownership and operation of the synthetic rubber industry, the maintenance in stand-by condition of plants with an estimated yearly capacity of about 672,000 short tons or 60% of existing capacity and the retention of a strategic stockpile of rubber. The committee favoured transfer of the plants to private industry as far as possible and as soon as possible in order to guarantee improvement in the quality of the product through research and to insure vigorous com-



RAYON TIRE CORD which has been dipped in latex, is being dried on these "drying cans" to remove its moisture content before a calendar coat of rubber is applied to it. The scene was a United States Rubber company tire plant, in 1946

petition with natural rubber with such incentives as would favour private initiative. The War Assets administration was to be directed to dispose of the "fringe" plants earlier than the "basic" plants since the latter must serve as sources of rubber in the event of national emergency and hence need to be vigilantly managed in the national interest. To implement such management it was anticipated that congress would be asked to provide a "National Rubber Supervisory Body" with broad powers to act in the interests of national security, including government-sponsored research, stockpiling of rubber, continuous operation and maintenance of plants and whatever aid to industry would be required to assure continuous operation of the plants which supply the minimum requirement of synthetic rubber (estimated at about 280,000 short tons). The best method of government support was considered to be a product specification or a subsidy or a combination of both to insure the minimum consumption of synthetic rubber by the industry. In short, the Batt committee's recommendation favoured the return of the industry to private agencies as soon as a free market with adequate supplies of rubber could be established. A minimum intrusion of government control rather than government ownership would thus be established.

In contrast with this attitude was the action of the Canadian government in acquiring the Polymer corporation to be operated as a government enterprise for the manufacture of synthetic rubbers, ostensibly for several years, the plans to nationalize industry in the British occupation zone of Germany where a large synthetic rubber plant was located and state ownership and operation of the synthetic rubber plants in the U.S.S.R. and in Sweden.

Reports of tire tests on government and private test car

fleets revealed that the tread wear of synthetic rubber passenger car tires was at least as good as that of natural rubber tires. In the more efficient government-owned plants GR-S had been made at a cost of \$0.11 to \$0.12 a pound excluding amortization, depreciation, profit and certain administrative costs.

Great activity was displayed outside the government synthetic rubber program in originating and testing special purpose polymers, such as the polyesters, Paracon and Paraplex, the polyacrylates, e.g., lactoprene, the silicon rubbers, and advantageous mixtures such as those of Hycar and Geon. These and many other new products of industrial research furnished examples of compositions of great superiority to those made from natural rubber in resistance to temperature, to flexure fatigue, to sunlight, to electrical stresses and to swelling and penetration by solvents and by gases. Natural rubber is not in competition with such special purpose polymers which lend themselves to advances in engineering design and give products with superior performance.

Reclaimed Rubber.—The tonnages of reclaim required by the rubber industry were second only to those of natural and synthetic rubbers. The consumption of reclaimed rubber for the United States had been at the rate of 75 to 80% of world consumption from 1941.

Table IV.—U.S. Consumption of Reclaimed Rubber (Short Tons)

1941	1942	1943	1944	1945	1946 (6 Mo.)
282,000	287,000	326,000	281,000	270,000	148,000

Satisfactory progress was reported during 1946 concerning the industry's ability to handle processes for making reclaimed rubber from tires which originally contained natural rubber, GR-S or blends of these. Hybrid reclaims do not deviate widely in properties from those predicted from a study of the parents, which signified that the intrusion of large tonnages of GR-S into the tire compositions in late years was not a seriously disturbing factor in the efficient use of existing reclaiming facilities.

Tires.—Great Britain's production during the war included 32,693,748 automobile tires and 47,168,747 bicycle tires. Expansion of facilities for tire manufacture in 1946 included South Africa 75,000 a year, Sweden 600,000 a year and the completion of a number of projects in the United States which were started in 1945.

Rubber Director W. J. Sears of the Civilian Production administration reported the production in 1946 (to Sept. 30) of 11,472,327 bus and truck tires and 47,704,382 passenger car and motorcycle tires, and stated that the goal for 1946 of 69,150,000 tires of all classifications would probably not be attained although the shortage anticipated would not exceed 3,000,000 tires. By October, although the demand for truck and bus tires was partly satisfied, the need for passenger car tires was still urgent.

Third World Rubber Conference.—Representatives of the United States, United Kingdom, France and the Netherlands convened for a six-day meeting at The Hague on Nov. 25. At this, the third annual meeting of the Rubber Study group, the questions of paramount importance were the supply and demand for both natural and synthetic rubber, the anticipation of the earliest date for a world-free rubber market and the probable date at which a surplus of rubber could be anticipated. (See also BUSINESS REVIEW; CARBON BLACK; PETROLEUM; RAYON AND OTHER SYNTHETIC FIBRES.) (H. L. TL.)

Rugby: see FOOTBALL.

Ruhr: see SAAR.

Rulers: see PRESIDENTS, SOVEREIGNS AND RULERS.

Rumania. A kingdom in southeastern Europe. Area (1939) 113,889 sq.mi., pop. 19,933,802. Rumania later lost the provinces of Bessarabia and northern Bukovina to the U.S.S.R. Capital: Bucharest. Principal cities: Bucharest (648,162); Jassy (104,471); Galatz (102,232); Timisoara (89,872). Religion: mostly Greek Orthodox. King: Michael I (Mihai). Prime minister (1946): Peter Groza.

History.—At the end of 1945 Rumania was governed by the National Democratic front, a coalition of several parties under communist inspiration. The two most important Rumanian parties, the National Democratic Peasant party under Julius Maniu, the veteran democratic leader of the peasantry, and the Liberal party under Dinu Bratianu were not represented in the government. The official propaganda line was directed against the reactionary Maniu and against the western democracies. At the Big Three conference in Moscow at the end of 1945 it was decided to send representatives of the three powers to Rumania to broaden the government by inclusion of democratic elements, to restore the liberty of the press and to prepare free elections. Some hopes for the liberalization of the regime were entertained but they were not realized. The opposition demanded that the key ministries of the interior and justice, held by Communists, be given to nonparty men who would ensure freedom from intimidation. These demands were rejected and Teohari Georgescu remained minister of the interior. The two candidates presented by the leading opposition parties for inclusion in the cabinet, Constantin Bratianu of the Liberal and Ion Mihalache of the Peasant party, were not accepted; instead of them the government agreed to the inclusion of Emil Hatieganu, rector of Cluj university, as the representative of the Peasant, and Michael Romniceanu as the representative of the Liberal party, as ministers without portfolio.

On the basis of the official pledges by the Rumanian government, to hold free elections and to assure liberty of the press, of speech and assembly, the United States and Great Britain announced on Feb. 6 their recognition of the government. On Feb. 8 the first number of the newspaper of the Liberal party, *Liberalul*, was allowed to appear; in a signed editorial the Liberal leader Constantin Bratianu protested that in spite of government pledges "public liberties are not yet restored. Journalists receive even now directives as under the regimes of terror, and in the whole country none but extreme left wing newspapers are allowed to be read." Newspapers of the opposition were not necessarily suppressed by the government but by the typographical workers who under order of their communist unions refused to print articles critical of the government. The two representatives of the democratic opposition parties who had no resort of their own, spent their time in vainly protesting against interference and terrorism directed against their parties. The opposition parties charged officially on April 15 "flagrant breaches with respect to the liberties granted by the Moscow agreement. The clear intention not to co-operate with the opposition is evident by the continual attacks upon opposition parties and leaders." The U.S.S.R. objected to an international supervision of the elections, thus removing the only guarantee for their relative fairness.

In June the U.S. and British governments protested the failure of the Rumanian government to keep the pledges made in agreement with the Moscow declaration. These, like later repeated protests and warnings, were not heeded by the Rumanian government and produced not the slightest effect upon the course of events.

As in other central European countries, Rumania's economic life was completely co-ordinated with that of the U.S.S.R., as it had been after 1939 with that of Germany. Through a network of jointly owned Sovrom companies, the U.S.S.R. controlled all

major Rumanian economic and transportation enterprise. The vague definition of German assets in the Potsdam declaration helped the process of soviet penetration into Rumanian economy. The soviet-controlled companies were granted special privileges, priorities and rebates so that they enjoyed a tremendous advantage over competing private enterprise. In addition to war booty and restitution of looted property, the soviets were entitled to reparations amounting to \$300,000,000. The original period of payment in six years was extended by the Russians in 1946 to eight years. Among the reparation items were the following, valued at 1938 prices in U.S. dollars: petroleum products \$150,000,000; railway equipment \$48,504,000; industrial equipment \$28,034,000; sea and river craft \$90,656,000; the rest for grains, horses, other livestock and lumber.

The drain of reparations to the U.S.S.R. and the loss of farm machinery and draft animals, coupled with a severe drought, produced in Rumania, formerly one of the granaries of Europe, most difficult economic conditions in the fall of 1946. The Rumanian currency went through a process of inflation with corresponding rocketing prices which made life for the middle class extremely difficult. By the middle of November the Rumanian leu was quoted around 90,000 to the U.S. dollar, one-third of its value in the summer of 1946.

Elections were held on Nov. 19. The government presented a democratic bloc, the bloc *Partitul Democrat* which in its platform confirmed the continuation of the constitutional monarchy and demanded only the nationalization of the national bank. This bloc consisted of the six groups forming the government. The opposition was not united and was in every way hampered in its activities. The U.S. state department denounced on Nov. 26 the Rumanian elections as unfair and undemocratic and indicated that the U.S. did not believe that the results did truly represent the will of the Rumanian people.

The elections, though by far not so totalitarian as in Yugoslavia, brought the expected result. Of the 6,823,928 votes cast (1,144,786 registered voters did not go to the polls) the government received 4,766,630 votes. Of the opposition parties the National Peasants received 879,927, the Hungarian Popular union 569,651, Liberals 259,306, the National Peasant Democrats 156,755 and the Independent Socialists 65,528 votes. The two ministers who represented the opposition in the cabinet resigned. The new parliament was opened formally by King Michael on Dec. 1. In his address he announced the country's first nationalization project, the Rumanian National bank, of which the government was to become the only stockholder.

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Running: see TRACK AND FIELD SPORTS.

Runyon, (Alfred) Damon (1884–1946), U.S. author and journalist, was born on Oct. 4 in Manhattan, Kan. Educated at public schools in Pueblo, Colo., he enlisted in the army during the Spanish-American War when only 14, after successfully exaggerating his age. He served with U.S. forces during the Philippines insurrection, and upon demobilization became a reporter for the Pueblo *Chieftain*. By 1911 he was a sports reporter in New York and shortly afterwards built up a reputation as a general reporter of murder cases, political conventions and presidential elections. When the U.S. army sought Pancho Villa in Mexico in 1916, Runyon covered the story for the Hearst newspapers; during World War I, he accompanied the U.S. 1st army. Later, he became a columnist and by 1937 his popular feature "As I See It" was syndicated to all the Hearst papers. Subsequently, another column "The Brighter Side," was distributed. A prolific writer,

he was a playwright, poet and novelist, but it was through his short stories that he became internationally famous. New York's Broadway was the milieu for many of his stories; his characters were the gamblers, promoters, fight managers, race-track bookies and other habitués of the street. Employing an unusual and colourful style, his characters such as "Joe the Joker" and "Regret the Horseplayer" became familiar to thousands of his followers. In 1941, he became a writer-producer for Hollywood motion picture companies. His first production was entitled *The Big Street*. His works include *Tents of Trouble* (verse) (1911), *Rhymes of the Firing Line* (1912), *Guys and Dolls* (1932), *Blue Plate Special* (1934), *Money from Home*, *A Slight Case of Murder* (1935), *Take It Easy* and a book of essays *My Old Man* (1939). He died in New York city on Dec. 10.

Rural Electrification. The electrification of rural areas in the United States proceeded at an accelerated pace in 1946, after virtual elimination of war-time controls permitted construction of new rural power lines as fast as materials could be obtained. As of June 30, 1946, the Rural Electrification administration estimated that 3,106,000 farms were converted to power lines, and that 2,769,000 farms still lacked service.

From 1934 to 1946, the number and percentage of electrified farms in the United States increased as follows: Dec. 1934, 744,000, 10.9%; June 1936, 840,000, 12.3%; June 1938, 1,300,000, 19.1%; June 1940, 1,870,000, 27.1%; June 1942, 2,337,000, 38.3%; June 1944, 2,573,000, 42.4%; June 1946, 3,106,000, 52.0%. The percentages are based on the total number of farms reported in the agricultural censuses of 1935, 1940 and 1945. From the time the Rural Electrification administration was established in 1935, REA-financed systems had built power lines to about half of the farms that had received central station electric service. REA made more than 95% of its loans to non-profit rural electric co-operatives. These co-operatives are owned by the consumer members and governed by boards of directors selected by the members.

In 1946, REA-financed co-operatives started construction of power lines into hundreds of unelectrified rural areas in all parts of the United States. Some of the unelectrified areas covered several counties; others extended over large portions of various states. A number of areas were practically without rural distribution lines and less than 10% of the farms were electrified in many counties. The co-operatives also prepared plans for the extension of service into hundreds of other areas where farms still lacked electricity. Upon completion, these plans were to be forwarded to REA with applications for loans to finance construction.

REA-financed systems in 42 states reported that larger supplies of electrical energy were needed to meet rising consumption on electrified farms. The increased demand reflected the needs of newly-electrified farms and more extensive use of power on farms already served. During World War II, farm families with electric service made greater use of electrical farm and household labour-saving equipment, such as water systems, milking machines, pig and chick brooders, feed grinders, hay hoists, hay driers, grain blowers, corn shellers, farm shop tools, refrigerators, washing machines and irons. After the war, this trend gained momentum as many electrical devices became available in larger quantities. REA-served rural consumers used 2,424,000,000 kw.hr. of electricity in 1946, as compared with 2,135,000,000 kw.hr. in 1945 and 1,925,000,000 kw.hr. in 1944.

By the end of 1946, REA had approved approximately \$957,000,000 in loans for rural electrification. Eight hundred and seventy-two borrowers had REA-financed rural electric facilities in operation, including 500,000 miles of lines serving 1,675,000

consumers. About 80% of these consumers were farms; the rest consisted of nonfarm homes, stores, churches, schools and other rural establishments. The REA borrowers had paid nearly \$126,000,000 in principal and interest on their government loans, including \$20,000,000 paid on principal in advance of the time it was due. REA loans are made on a self-liquidating basis at 2% for periods up to 35 years.

Because of the contribution electric power can make to farm production and farm living, development of new and improved electrical equipment for the farm and rural home received increased attention from federal, state and private research agencies. Great interest was shown in farm applications for electrical refrigeration equipment, particularly freezers and food storage chests for the farm home. New applications under study in 1946 included the use of electric light bulbs as a lure in destroying insect pests. Research resulted in the installation of electrically-operated new hay-curing equipment on thousands of farms. This equipment helps the farmer to produce better quality hay and prevent losses due to unfavourable weather during the haying season. (C. Hn.)

Great Britain and Europe.—In 1946 the extension of rural electrification became a matter of first importance in Great Britain and most countries in Europe. The necessity, brought about by the general food shortage, for increasing the output of the available agricultural labour by mechanical aids was pressing. Electricity was required for such mechanization, and to provide amenities in rural districts in order to prevent the long-continued migration from country to town largely because of the better living conditions.

In Great Britain there was an insistent demand for electricity on farms, which was strengthened by the very bad harvesting conditions experienced in 1946. These called special attention to the need for labour-saving devices and for crop-drying equipment, research upon which was in progress during the year. Liaison committees of agricultural and electricity supply interests were active and details were published of a five-year plan for the electrification of 150,000 farms at an estimated cost of £72,000,000, to be provided in appropriate proportions by the two industries concerned. The government was to be asked to accord high priorities for the supply of the essential materials. A number of constructional projects and distribution schemes prepared by the North of Scotland Hydro-Electric board were approved, and work was started on some of these. In Eire the organization for the development of the country's rural electrification scheme was outlined and a start made on the constructional work.

On the continent, rural developments were on similar lines to those in Great Britain. France nationalized its electricity supply industry and a five-year program of rural development was drawn up, the co-operation of agricultural and electrical interests being called for to complete it. Electrically operated threshing became widespread on French farms. In Switzerland there were further developments in electrical grass drying. Swedish rural electrification progressed and it was anticipated that 95% of all rural dwellings would be electrified by the end of 1950. Constructional work on village power plants proceeded actively in Russia, and 2,000,000 kw. were to be provided for agriculture in the postwar five-year plan, already under way in 1946. Details were made public of a 20-year plan for a national hydroelectric system for Greece which, if carried out, would ensure the rehabilitation of the country. (E. W. G.)

Rural Rehabilitation Loans: see FARMERS HOME ADMINISTRATION.

Russell Sage Foundation: see SOCIETIES AND ASSOCIATIONS.

Russia: see UNION OF SOVIET SOCIALIST REPUBLICS.

Russian Literature. No outstanding work in soviet literature appeared during 1946. A Fad-eyev's successful novel *Young Guards* continued the tradition of wartime literature, combining conventional heroics with factual documentation; the story is centred on anti-German activities of communist youth in Krasnodon which came to light during the war.

By far the most important literary event of the year was the literary "purge" announced in August. A special resolution of the central committee of the Communist party denounced the work of two Leningrad reviews (*Zvezda* and *Leningrad*), accusing them of sponsoring antisoviet writers. The once popular humorist Mikhail Zoshchenko (whose work has been translated into several languages) and the well-known prerevolutionary poetess Anna Akhmatova were singled out for a particularly virulent attack. Zoshchenko was charged with showing an unpatriotic attitude during the war, with lampooning soviet society in his latest story (*The Adventures of an Ape*) and with open hostility to the soviet regime. His autobiographical work, *Before Sunrise*, published in 1943 and already denounced, was recalled. Akhmatova's poetry was proclaimed "empty," "im-bued with bourgeois mentality," and incompatible with the soviet conception of life. It is interesting to note that in 1940, after 20 years of almost complete silence, Akhmatova was allowed to publish a book containing some new poems. She also wrote some patriotic poems during the war. A more general and significant charge of "servility to modern western bourgeois civilization" was laid at the door of the Leningrad reviews. They were accused of "poisoning" the minds of soviet youth. After listening to a report from A. A. Zhdanov, the official head of the Leningrad communist organizations, the Leningrad writers hastened "to assure comrade Stalin that they would be able to overcome in a short time those major shortcomings." The Communist party organization of Leningrad, and the newspapers *Leningrad Pravda* and others, were accused of having "overlooked" this vital matter. This episode was but part of a general tightening-up of the ideological party line, which came as a reaction after wartime "laxity"; Moscow theatres were severely rebuked for including in their repertoire "decadent" bourgeois plays by Somerset Maugham, Pinero and others, and the famous composer Shostakovich was taken to task for his ninth symphony, proclaimed "a formalistic trifle." One of the leading soviet authors, Nikolay Tikhonov, was involved in the purge and was dismissed from the post of chairman of the Union of Soviet Writers and replaced by a "collective."

Outside the U.S.S.R. there was a mild revival of literary life in Paris; a new book of stories by Ivan Bunin, *Temnyya allei* (mostly love stories with a strong erotic element), and several slender almanacs appeared. The pages of the *Novy Zhurnal* in New York city were strengthened by some Parisian writers. A number of younger soviet writers in Paris rallied to the soviet regime, following a widespread postliberation movement which was already on the wane in 1946. (G. St.)

Russian S.F.S.R.: see UNION OF SOVIET SOCIALIST REPUBLICS.

Rye. The 1946 rye crop in the U.S. was the smallest in more than 70 years except for that of 1934. The crop at 18,685,000 bu. was 22% less than the 23,952,000-bu. crop of 1945 and less than half of the average of 42,356,000 bu. for 1935-44. The acreage was only 89.6% of 1945 and about half the average. The yield was about average at 11.7 bu. per acre. Of the total acreage planted in the fall more than half was used for hay, pasture or plowed under for soil improvement. The farm price of rye advanced slowly throughout 1945 from \$1.06 to \$1.43 per bushel. By Feb. 1946 the price was higher

U.S. Rye Production in Leading States, 1946 and 1945

		(In bushels)			
State	1946	1945	State	1946	1945
Nebraska . . .	3,070,000	4,512,000	Indiana	540,000	875,000
South Dakota . .	2,530,000	4,205,000	Oregon	540,000	462,000
North Dakota . .	2,058,000	1,552,000	Kentucky	518,000	500,000
Minnesota . . .	1,534,000	1,712,000	Illinois	475,000	588,000
Wisconsin . . .	874,000	1,092,000	Oklahoma	432,000	740,000
Michigan	672,000	840,000	Virginia	392,000	486,000
Colorado	646,000	960,000	Pennsylvania . .	341,000	636,000
Kansas	556,000	850,000	Montana	300,000	187,000

than that of wheat and by April stood at \$1.95 per bushel which was above the record of \$1.76 in 1917. A ceiling on rye was imposed by OPA on June 1 which brought the average price for June down to \$1.45 per bushel. Reports of a "corner" on the principal markets were widespread. When ceilings were removed the price of rye rose again and for October averaged \$1.99 per bushel to farmers. In December the average was \$2.18 which was a record above World War I. (J. C. Ms.)

Saar. The Saar is an industrial mining district on the border of France and Germany. The territory was administered by the League of Nations from 1920 until 1935 when as the result of a plebiscite it was restored to Germany. Its area is 738 sq.mi., of which 574 sq.mi. belong to the Prussian Rhine province and 164 sq.mi. to the Bavarian Palatinate. The population is about 860,000. The economic importance of the territory is based upon its coal mines.

The Saar territory belongs to the area in Germany put in 1945 under French occupation. The French government several times expressed its determination not to allow the return of the Saar under the political and economic control of a central German administration. In July 1946 the French ordered the administrative transfer of 79 Rhineland villages and hamlets totalling about 600 sq.mi. to the Saar. On Dec. 22 the French established a customs frontier between the Saar and the rest of Germany, officially "to prevent the exporting of food products from the Saar and an influx of currency into the Saar." This did not amount to an immediate incorporation of the Saar into France, but in view of a possible future integration of the Saar, France intended to undertake economic measures to ensure that the Saar be in as good condition as possible when that future moment might arrive. France was especially concerned about an increase in the output of the mines by augmenting the food supply of the miners.

While the political parties in Germany protested the French measure, the Germans living in the Saar were reported to favour largely an Anschluss or union with France. In elections in the Saar two of the three leading political parties favoured the step, the Catholic Christian People's party who won 53% of the votes and the Social Democrats who gained 25% of the votes. The third party, the Communists, who obtained only 8% of the votes, were violently opposed to the union with France. The French authorities disclaimed any wish to annex the Saar without the consent of the other occupying powers but they insisted that the French have "a historic and economic right to the Saar." At the end of 1946 the number of miners employed in the Saar was about 48,000 and the daily output of coal was 34,000 tons as against 38,000 tons before World War II. (H. Ko.)

Sabotage: see FEDERAL BUREAU OF INVESTIGATION.

Safety: see ACCIDENTS.

St. Christopher: see LEEWARD ISLANDS.

St. Croix: see VIRGIN ISLANDS.

St. Helena and Ascension Islands: see BRITISH WEST AFRICA.

St. John: see VIRGIN ISLANDS.

St. Kitts-Nevis: see LEEWARD ISLANDS.

St. Louis. Eighth largest city of the United States, St. Louis, Mo., had a population of 816,048 by the federal census of 1940, with an additional 541,567 persons living within the greater metropolitan area. Mayor (Jan. 1, 1947): Aloys P. Kaufmann (Rep.).

The political trend of late years was continued at the Nov. 5, 1946, elections with the Republican party winning by substantial margins. It elected all its nominees for city offices, 2 of 3 state senators and 11 of 18 state representatives. St. Louisans also favoured the Republican party nationally, giving majorities to its candidate for the U.S. senate and to two of three Republican candidates for the house of representatives from local districts.

Though it ended the last four fiscal years (1943-46) with surpluses, the municipal government anticipated a deficit by April 1947. Cost of government increased sharply and city employees' wages were raised \$2,100,000 annually. Much tax revenue, meanwhile, was in jeopardy caused by pending test suits. Challenged were a city income tax (one-fourth of one per cent of gross earnings of individuals and net profits of businesses) enacted Aug. 1, 1946, and expected to bring \$2,500,000 annually; and the right to collect tolls (about \$800,000 a year) on the Municipal bridge spanning the Mississippi river.

The city began postwar public improvements financed with \$63,385,000 of bond funds voted prior to 1946. Concentration was on vast expansion of aviation facilities, for which \$14,000,000 was available.

During the year voters approved a \$4,000,000 bond issue to better collection and disposal of garbage and rubbish, and increased the public library tax from four to six cents on each \$100 valuation. A new pipe line authorized by the Federal Power commission promised to increase the flow of natural gas into St. Louis 40% within a year or two. Fifty new street cars, part of a \$9,000,000 order for 1946-47, were added to the transit system. After 120 years, Jefferson barracks, historic frontier army post, was deactivated as a military establishment.

John Cardinal Glennon (*q.v.*), 83, archbishop of St. Louis for 42 years, died in Eire March 9, 1946, while en route home 19 days after his elevation to the College of Cardinals in Rome. (E. L. R.)

St. Lucia: see WINDWARD ISLANDS.

St. Pierre and Miquelon: see FRENCH COLONIAL EMPIRE.

St. Thomas: see VIRGIN ISLANDS.

St. Vincent: see WINDWARD ISLANDS.

Salazar, Antonio de Oliveira (1889-), Portuguese statesman, was born at Santa Comba Dão (Coimbra) on April 28. In 1916 he became professor of economics at Coimbra university. Shortly after the revolution of May 1926 the Portuguese president, Gen. Antonio Oscar de Fragoso Carmona, invited him to join the government as finance minister; he accepted the post, but, finding himself unduly restricted, resigned within a week. After stipulating that complete freedom should be given him within his department, he resumed office on April 27, 1928. In 1930 Dr. Salazar founded the civil organization known as the National union. On July 5, 1932 he became president of the council of ministers; in the following year the new corporative constitution of the Portuguese republic was submitted to the country in a plebiscite and a national assembly elected. In 1936 Dr. Salazar assumed the portfolios of war and foreign affairs. In Sept. 1944 in drastically remodelling his government, he handed over the war portfolio to a former undersecretary in the department but retained the portfolio of foreign affairs. On May 18, 1945, he made an important speech to the national assembly justifying Portuguese neutrality in World War II.

vis à vis the Anglo-Portuguese alliance. "It is at times," he observed, "a great favour to be quiet, provided one is vigilant and faithful; and it can not be disputed that it served a positive interest of the Allied nations for us not to have become involved in the conflict."

In Oct. 1945 Dr. Salazar permitted the creation of political parties other than his own, but both during the following election period and in 1946 their movements were severely restricted.

Throughout the year Dr. Salazar's health gave cause for anxiety and he delegated much of his work to colleagues, especially to the minister of the interior, Col. Botelho Moniz, who, it was thought by some, might succeed him. (*See PORTUGAL.*)

(E. A. P.)

Sales, Retail and Wholesale: *see* BUSINESS REVIEW.

Salt. With the close of World War II, the output of salt in the United States dropped from 15,717,171 short tons in 1944 to 15,394,141 tons in 1945, including 3,505,740 tons of rock salt, 3,630,729 tons of evaporated salt and 8,257,672 tons of salt in brine. Rock salt made a small increase, but both other types declined. Even with this quantity available, demand constantly crowded supply. War demand increased many uses and created some new ones. The 1944 peak output was 57% greater than that of 1939, and many postwar readjustments were in prospect as the industry returned to normal civilian supply.

In Canada 1944 production also reached a new high, at 695,217 short tons, as compared with 687,686 tons in 1943, but dropped back to 678,004 tons in 1945. (G. A. Ro.)

Salvador, El. A republic on the west coast of Central America, the only one without a Caribbean littoral. It is the smallest Central American state but the most densely populated (area, 13,176 sq.mi., pop. 1,915,546 by 1944 official est.). The capital is San Salvador (1944 est. pop. 110,435); other cities are Ahuachapán (13,765), Cojutepeque (15,317), Nueva San Salvador (formerly Santa Tecla) (24,239), San Miguel (18,676), San Vicente (13,637), Santa Ana (47,631), Sonsonate (17,540). Language, Spanish; religion, Roman Catholic. President in 1946, General Salvador Castañeda Castro.

History.—The year 1946 was fraught with political and social agitation, and the government was forced to yield some ground to leftist groups. The early months were peaceful, and May 1 (Labour day) was celebrated in the capital by mass demonstrations for the first time in 15 years, although the speeches were censored in advance. Late in May there was popular agitation for a more progressive constitution and for the removal of three cabinet members, accused of collaboration with former dictator Maximiliano Hernández Martínez. The demonstrations increased in intensity, and the administration was forced to reshuffle its cabinet three times during the year.

The popular movement reached a crisis in September when clashes with the police in the capital resulted in four killed and several injured, Sept. 15, and when a general strike was organized on Sept. 23 by labour and university student groups. Schools, banks, stores and transportation facilities were forced to shut down. Martial law was imposed Sept. 26 with a suspension of constitutional guarantees, a curfew, press censorship and national guard patrols in the capital. Two days later normal business and traffic were resumed. The government dismissed most of the unpopular cabinet members, finally appointed a minister for the new labour portfolio and promised to promulgate a labour code. Other demands by the strikers were not met, however, and tension continued throughout the year.

• In foreign affairs, El Salvador was host to three conferences

designed to revive the old Central American union. A meeting of the Unionist party council at San Salvador Jan. 15, a conference of the presidents of the republics in September, and a session of special commissions on Dec. 4 found only Guatemala and, to a lesser extent, Costa Rica collaborating with El Salvador. Conventions with both countries were signed in Sept. for the elimination of passport requirements, and resolutions were passed in favour of abolishing customs affecting their mutual commerce. In April Dr. José Gustavo Guerrero, one of El Salvador's leading proponents of the union, was elected to the United Nations Court of International Justice.

Education.—Primary schools in 1944 numbered 1,376, with 98,935 students; intermediate schools, about 50, with 4,207 students. In 1945 the campaign to combat illiteracy (approximately 75%) increased the number of primary schools to 1,519 and inaugurated afternoon and night adult classes in almost all urban centres. It was estimated that 68% of the total population was being affected.

Finance.—The monetary unit is the colón, valued in 1946 at 40 cents U.S. The 1946 budget estimated revenues at 37,317,547 colones and expenditures at 37,223,163 colones. The foreign debt at the beginning of 1946 amounted to \$18,300,000, including unpaid interest. On June 30, of the total commitments by the U.S. Export-Import bank to El Salvador, \$1,400,000 was outstanding and \$200,000 remained undisbursed.

Trade and Resources.—Exports were down 7.2% to \$21,331,631 in 1945 while imports rose 10.2% to \$13,534,230. The United States received \$17,000,000 and supplied \$8,700,000 worth of the trade. Coffee production for the 1945-46 crop year was estimated at 862,500 bags (60 kg. each), compared with 920,000 bags in 1944-45. Gold exports in 1945 were down to \$372,000 from \$788,000 in 1944, owing to scarcity of mining machinery.

Communications.—Two railroads were in operation with an estimated 376 mi. of track. All-weather roads totalled 1,378 mi. (150 mi. paved) and unimproved roads, 2,300 mi. External air service was supplied by TACA, Pan American Airways and the national A.L.A. line inaugurated May 18, 1946.

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(M. L. M.)

Salvation Army. The Salvation Army is a religious body, operating in 1946 in 98 territories of the world, preaching the gospel of Christ in 102 languages and ministering to emergency needs of humans. Trained officers numbering 27,000 guided its more than 5,000,000 followers.

Following the Salvation Army's positive reaction to war urgency needs, the organization sought to help win the peace by action. Its facilities were revamped to serve men headed overseas as replacements, to help returning servicemen step back into civilian life, to assist their wives and families, to brighten the days for hospitalized servicemen, to continue to provide a home away from home. Such activities were channelled through its network of rehabilitation services, its mobile canteens, its Red Shield clubs and those operated through the U.S.O.

A national goal was set for expanded programs: preventive and rehabilitative service in police courts and prisons, extension of Salvation Army facilities to small towns and rural areas of the U.S. and a quickened effort to broaden the army's religious, welfare, health, educational and character building activities.

Among reconversion "musts" aimed at through its activities, the Salvation Army emphasized the recapture of a normal mental outlook; care and recovery for the sick and maimed; food and clothing for the needy; a broad program of employment; the return of family life to a normal peacetime basis; and build-

ing up of health and character for the children of the nation.

During 1946 Salvation Army units were pressed into service to aid in securing temporary shelter for victims of the nationwide housing shortage. Youth activities were intensified, particularly during the summer months when more than 27,000 mothers and children were emancipated from the blights of stifling city summers at Salvation Army Fresh Air camps.

During the country-wide clothing drive, Salvation Army centres shouldered their share of the job by collecting, repairing and crating garments for the needy overseas. Additional overseas relief activities were in full swing. Local corps and other units hurried a wide range of relief supplies to war-torn countries. Many Salvation Army kitchens were converted to canneries where volunteers processed food for overseas shipment. Its world-wide chain of units facilitated the task and many governments requested the organization to render more aid than ever before. Relief shipments were speeded to all countries where the need was greatest.

The entire program was co-ordinated through national headquarters, New York city, by Commissioner Donald McMillan, national secretary. (See also CHURCH MEMBERSHIP.)

(D. MN.)

Samoa, American. A group of islands in the South Pacific, a U.S. possession by virtue of a tripartite treaty with Germany and Great Britain regulating the disposition of the Samoan archipelago, concluded in Nov. 1899. Area, 76 sq.mi. Pop. (1940) 12,908. The capital is Pago Pago, on the island of Tutuila. There are six inhabited islands, Tutuila, Aunu'u, Ofu, Olosega, Tau and Swains. There is also an uninhabited coral atoll, Rose Island, located 70 mi. east of its nearest neighbour.

American Samoa is governed by a naval officer, commissioned as governor by the president. There is a native governor in each of the three administrative divisions; these native governors appoint the county chiefs, who select the village chiefs. The natives are of Polynesian stock and more than doubled in numbers during the period of U.S. rule. There were 36 public schools with an enrolment of about 3,000, and 6 private mission schools in 1943.

The chief product of American Samoa is copra, of which about 1,100 tons are exported annually. Taro, breadfruit, yams, pineapples, oranges and bananas are produced commercially. The government handles the crop for the natives. The budget for 1939 called for an expenditure of \$127,317; the estimated income was \$106,231.

Construction of a naval base at Pago Pago, begun in 1940, was completed during World War II. The U.S. also maintains an airfield, as well as a wireless and coaling station at Pago Pago, which has the only good natural harbour at Samoa. Tutuila was not an important base during the war and its chief function was as a refueling point and naval repair station.

(W. H. CH.; X.)

Samoa, Western: see MANDATES; PACIFIC ISLANDS, MANDATED.

Sand and Gravel. The renewal of building activity in 1945 increased the demand for sand and gravel in the U.S., but decreases in most other uses offset some of the increase in sand, and left gravel with a net decrease, chiefly because of decline in paving demand. The output of sand rose from 68,978,900 short tons in 1944 to 71,726,000 tons in 1945 while gravel dropped from 125,805,000 tons in 1944 to 123,798,000 tons in 1945.

The production of sand and gravel in Canada rose from 28,399,986 short tons in 1944 to 29,750,703 tons in 1945 and 36,223,834 tons in 1946. (G. A. Ro.)

Sandstone: see STONE.

San Francisco. The resident population of San Francisco, Calif., according to a special U.S. census amounted to 827,400 in Aug. 1945. Between that date and Dec. 31, 1946, 25,081 births and 13,962 deaths were reported, leaving a net gain of 11,119. During the interim there was little change in the resident military population in San Francisco and the provision for housing new population was probably offset by reduction of ship population—crews of vessels registered in San Francisco—and a decrease in density after the close of the war. The population in 1940 was 634,536.

San Francisco business and industrial growth during the year 1946 was healthy and sound. Nearly all lines of trade and industry were expanding to serve new markets. Insured workers' unemployment claims at the middle of Dec. 1946 numbered 16,405 of which less than half were compensable. At approximately the same time the unfilled employment opportunities in San Francisco were reported at 3,658, the majority of which were in the clerical, professional and skilled trade groups.

An appraisal of 1946 activity compared with the preceding year based upon the 11 months' cumulative reports showed the following gains: building permits were up about one-half in number and one and three-quarters in value; real estate sales approximately two-thirds; department store sales one-fifth; number of shares traded on the San Francisco stock exchange nearly two-thirds while the market value increased approximately one-third. Bank debits were up 10%; air traffic increased about 59% in planes and 89% in passengers while freight traffic dropped 24%; exports based upon the first three quarters were up a little more than one-third in value while imports were up two-thirds. Inquiries from tourists and settlers rose 157%; sales of electrical energy were practically identical with the previous year and 25 commercial failures were reported with liabilities of slightly less than \$1,000,000 and assets of \$346,000. The total number of outlets licensed in San Francisco Oct. 1, 1946, to sell tangible personal property was reported at 23,217 or 374 more than the number on July 1, 1946. New industries and expansions reported in San Francisco for the year 1946 were expected to reach about 240 with outlays of \$17,500,000.

San Francisco's funded debt outstanding on June 30, 1946, was \$114,734,200, leaving an actual margin for further bond issues of \$87,721,528. Estimated revenue receivable during the fiscal year 1946-47 amounted to \$116,431,697 of which \$47,300,376 was from taxes. The total assessed valuation for the 1946-47 fiscal year was \$1,223,787,734. The tax rate for the 1945-46 fiscal year was \$5.55 per \$100 assessed valuation.

(R. B. KR.)

San Marino. An independent republic in northern Italy, 14 mi. southwest of Rimini by road. Area: 32 sq.mi.; pop. (Sept. 1939) 14,547. Chief town: San Marino. Executive power is exercised by regents, two of whom are appointed every six months from the popularly elected grand council. Wine, cattle and building stone from the Mount Titano quarries are the chief exports.

Under a Socialist government a new program of public works and a new social policy were inaugurated. The former "duce" of San Marino, Giuliano Gozi, chief secretary of state, was sentenced to seven years' imprisonment by the magistracy of the council of 12 on Jan. 29. In March the treaty of friendship with Italy was renewed. (J. RA.)

Santo Domingo: see DOMINICAN REPUBLIC.

São Tomé: see PORTUGUESE COLONIAL EMPIRE.

Sarawak: see BORNEO.

Saskatchewan.

Central of the three prairie provinces of Canada, Saskatchewan was created by parliament in 1905. Area: 251,700 sq.mi., of which 13,725 are fresh-water lakes; pop. (1941 census): 895,922; 600,846 rural, 477,563 male; (dom. bureau of statistics 1946 est.) 845,000. Chief cities: Regina, provincial capital (58,245); Saskatoon (43,027); Moose Jaw (20,753); Prince Albert (12,508). Administered by a lieutenant governor, an executive council and a 52-member legislative assembly, Saskatchewan is represented federally by 21 members of parliament and 6 senators.

History.—In 1946 the voting age was dropped from 21 to 18, doubling the number of voters. Compulsory automobile insurance was introduced. Plans for free hospitalization for all citizens, for a compulsory \$5 annual headtax, went into effect at midnight, Dec. 31. It was the first such scheme in North America. The provincial government expanded its ten commercial enterprises by going into fish processing and spray painting. A further reduction of public debt was made (1946: \$169 per capita; 1944: \$252 per capita).

One provincial royal commission studied fish production and marketing; another studied penal reform; a special body surveyed the cause, nature and cost of farm accidents.

Northern Saskatchewan development progressed notably. A new townsite was opened at Lac La Ronge, pushing the frontier 100 mi. northward. Brush clearing on 200,000 ac. in rich Carrot River valley went forward for settlement of 5,000 war veterans. To meet the problem of northland communication, the province's radio branch was extended. A big scheme to develop fur resources, costing \$50,000 annually, began with co-operative sharing of returns by trappers. Government tests proved imports via the Hudson bay sea route could be made more cheaply than via the rail route from eastern Canada.

To aid drought-stricken Saskatchewan farmers, the federal government paid out about \$10,000,000 under the Prairie Farm Assistance act. The federally controlled Royal Canadian Mounted police undertook to blanket the province with their own radio network and two-way radio cars. (C. Cy.)

Education.—For the school session, 1943-44, the enrolment in all educational institutions was 204,001; total revenue for the provincially controlled schools in 1944 was \$14,086,946. The

University of Saskatchewan, with its seat at Saskatoon, is the provincial university. The fall 1945 registration was 2,780.

Agriculture.—In 1944, the estimated gross value of agricultural production was \$624,608,000; farm income, \$503,300,000. In 1945 the wheat crop was 162,000,000 bu. The value of field crops was \$302,904,000 (1944, \$440,494,000). For the first 50 weeks of 1945 the inspected slaughterings of livestock were: cattle 161,276; calves 23,339; hogs 669,436; sheep 48,344.

Sastri, V. S. Srinivasa (1869-1946), Indian statesman, was born on Sept. 22 near Kumbakonam, Madras. Starting his career as a schoolteacher, the Rt. Hon. Sastri joined the Servants of India society in 1907, rose to the presidency of that organization in 1915 and subsequently became leader of the Indian Moderates. He represented his country on government missions abroad, and his last assignment in 1937 took him to Malaya where he conducted an inquiry into Indian labour conditions in that region. He later retired from active political life and in 1940 resigned as vice chancellor of Annamalai university, a post he had held for five years. He died on April 17, according to a report from Madras, India. (See *Encyclopædia Britannica*.)

Saukel, Fritz (1894-1946), German politician, was born Oct. 27 in Lower Franconia. While he was a seaman during World War I, his ship was captured by the British and he spent the remainder of the war as a prisoner in England. Saukel joined the nazi party at its inception and became one of its leading propagandists in Lower Franconia. He became a nazi group leader in Thuringia and later a member of the provincial diet. He subsequently served as minister of the interior and state commissioner.

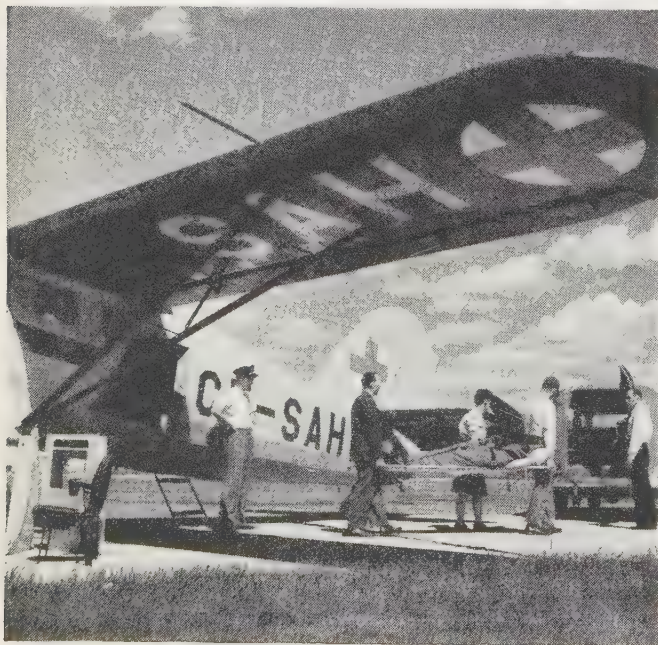
During World War II, Saukel was chief commissioner for the utilization of manpower and met Hitler's request for greater production by rounding up slave labourers for Germany's factories. Travelling through nazi-occupied territories in Europe, he recruited slave labour by force and made the fullest exploitation of their powers. After the war he was brought to trial at Nuernberg before the International Military tribunal along with other nazi leaders and he was found guilty Oct. 1, 1946, of war crimes and crimes against humanity and sentenced to hang. In the verdict Saukel was described as being in charge of a program involving deportation for slave labour of 5,000,000 people under cruel and insufferable conditions. Sentence was carried out Oct. 16.

Saudi Arabia: see ARABIA.

Savings and Loan Insurance Corporation, Federal: see HOUSING.

Savings Banks: see BANKING.

Schacht, Hjalmar (1877-), German financier, economist and politician, was born Jan. 22 at Tingleff near Flensburg. He studied political economy and was employed by several German banks in high executive positions. In 1923 he was appointed president of the Reichsbank. Because of his opposition to the Young plan, he resigned from the Reichsbank in 1930, but was reinstated by Hitler in 1933. Thereafter, he co-ordinated the activities of the Reichsbank with the German rearmament program, assisted in the reorganization of Germany's economy for war and instituted the system of exchange control. Schacht subsequently opposed Hermann Goering's program of economic autarchy. However, Goering won Hitler's support and Schacht resigned Nov. 16, 1937, from his post as minister of economics and plenipotentiary general for war economy to which he had been named in 1934. Thereafter, Schacht



TRANSFERRING PATIENT from air ambulance to motor ambulance at the Regina, Sask., airport during 1946; the air ambulance service is provided by the Saskatchewan department of health

began to object to what he called the reich's program of "excessive militarization," and on Jan. 19, 1939, was dismissed as president of the Reichsbank. Later he was also forced to give up his post as minister without portfolio (Jan. 22, 1943).

Schacht, who was involved in the abortive plot to assassinate Hitler, July 20, 1944, was arrested three days later and was put in a concentration camp until the end of World War II.

He was subsequently released by the Allied authorities and on Aug. 29, 1945, he was indicted by the International Military tribunal to stand trial on charges of various war crimes. He was acquitted by the tribunal, Oct. 1, which ruled that there was no proof that Schacht carried out his program as part of the deliberate nazi plan to wage aggressive war. After his release, Schacht was again arrested, Oct. 7, 1946, by German police authorities to stand trial before a German denazification court.

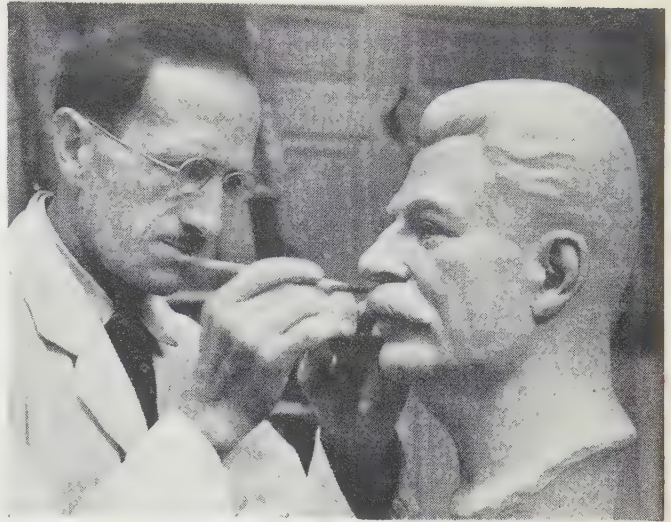
Schirach, Baldur von (1907–), German politician, son of a former German theatre director and a U.S. mother, studied at the University of Munich. He joined the National Socialist party in 1925 and was elected to the reichstag in 1932. He was appointed "reichsleiter" (reich leader) in June 1933, and entered Hitler's inner circle. On June 18, 1933, Von Schirach was made youth leader of the German reich. He held this post until Aug. 1940 when he was appointed gauleiter of Vienna. Taken prisoner in 1945, he was indicted Aug. 29, 1945, by the International Military tribunal to stand trial as one of the major nazi war criminals. During the trials, Von Schirach admitted (May 23, 1946) that Hitler had given him the post of gauleiter for the express purpose of driving the Jews and Czechoslovaks out of Vienna. He also acknowledged (May 27, 1946) that he had taken part in plans to ship Vienna's Jews to eastern areas, but denied that he knew they were to be murdered. Von Schirach was found guilty of crimes against humanity and was sentenced, Oct. 1, 1946, to 20 years imprisonment.

Schwellenbach, Lewis Baxter (1894–), U.S. jurist and cabinet member, was born Sept. 20 in Superior, Wis. He was graduated from the University of Washington, Seattle, Wash., in 1917 with an LL.B. degree and served with the U.S. army as a private during World War I. He was admitted to the bar in 1919, became active in Democratic state politics, and in 1934 was elected to the U.S. senate. During his tenure, Sen. Schwellenbach supported the administration in both its domestic and foreign policies. He resigned from the senate in Dec. 1940 to become federal judge of Washington state, eastern district. President Truman named him secretary of labour, May 23, 1945, and his appointment was approved by both the A.F. of L. and the C.I.O. He endorsed, Sept. 25, the theory of raising the minimum wage law to 65 cents an hour, asserting that the resulting wage increases would not register an appreciable effect on the costs of production, and urged the senate to provide legislation to this end.

Schwellenbach, who was credited with originating the fact-finding procedure for settling labour disputes, warned (Feb. 26, 1946) that no single formula, such as the Case strike-control bill, would work. He favoured price control, warning (June 20) that any weakening of OPA would result in a new cycle of wage demands and work stoppages. Schwellenbach did not play an important role in either of the two major coal strikes in 1946, although the president conferred with him on these issues.

Scotland: see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

Scrap: see SECONDARY METALS.



ERNEST SHONE-JONES of London working on a head of Joseph Stalin for the Icelandic government in 1946. The figure was to be included in a permanent exhibition in Reykjavik, Iceland

Sculpture. The trends of sculpture in 1946 were not clearly defined. Prewar conditions of easy success were wanting, giving place to a sterner struggle. Commissions were few and not a great amount of work was displayed; but the general standard was less bound by convention and so had latent possibilities. Increased activity, too, lay in the immediate offing, notably in the field of war memorials.

In the United States, where reconversion was speeded, the period was marked by little major activity until the end of the season. New York's Museum of Modern Art then gave the English sculptor Henry Moore a large retrospective exhibition which placed the modern viewpoint before the public very notably. Two others, given by the National academy and the progressive Whitney Museum of American Art, aimed to show the current state of U.S. sculpture in its varied aspects. The joining of these exhibitions by returned war veterans was in both instances perceptible. Meanwhile, the official National Sculpture society, once a dominating factor in the sculpture field, was not remarkable for its leadership, though a new program was promised.

There were indications, but not many, of the revival of practical sponsorship, and a few important commissions were in progress in 1946: among these were Herbert Haseltine's bronze statue of Sir John Greer Dill, the British field marshal, to be placed over his grave in Arlington National cemetery, near Washington, D.C.; Richmond Barthé's bronze bust of the Negro educator Booker T. Washington, installed in the sculptural Hall of Fame on the campus of New York university; Hans Schuler's bust of the southern poet Sidney Lanier, also placed at New York university; and John Angel's statue of St. John given to the Cathedral of St. John the Divine, New York city, as a testimonial to the Right Rev. William T. Manning, bishop of New York, on his retirement. Brenda Putnam, New York sculptress, was engaged on the designing of a gold medal to be presented by congress to Fleet Adm. Ernest J. King in recognition of his services during World War II. A similar medal for General of the Army George C. Marshall also was authorized.

In a report of the subject of war memorials, the American Institute of Architects counselled a thorough deliberation of the problem and ample time allowed before proceeding with monuments, in order to avoid the errors of the past. The Brooklyn Civic centre, in line with this sentiment, provided for a building in which sculpture was to be used in the memorial chapel.

Great Britain gave signs of a reawakened interest in sculpture for memorials and public buildings that were auspicious but

confined to a narrow front. The Royal Society of British Sculptors planned several exhibitions to encourage a livelier public interest in the art. The subject of the first, to be held in 1947, was "Children in Sculpture." Another, planned in collaboration with the Royal Institute of Architects, was aimed to increase the use of sculpture in buildings and their layouts.

Some important commissions were in progress; among these were Sir William Reid Dick's bronze statue of Franklin D. Roosevelt, to be erected in a fittingly imposing setting in Grosvenor square, London; Charles Wheeler's stone groups of the winds to be placed at the four corners of the new Waterloo bridge; Gilbert Ledward's bronze figures, a memorial to men of the submarine branch of the royal navy, the commandos and the airborne forces, to be placed in Westminster abbey; and William McMillan's fountain for Regent's park, the first of a series of works to be executed by various sculptors under the terms of the Constance fund. Alfred Hardiman, whose fountain figure for the council house of Bristol was awarded the gold medal of the Royal Society of Sculptors for the best work of the year, was engaged on a companion figure for the same civic centre, and on a memorial fountain to Lord Southwood. Henry Moore was engaged on a memorial figure for Dartington hall, shown in his October exhibition at the Leicester galleries, London.

In France, to which returned several sculptors, including Jacques Lipchitz, who were resident in the United States during a part of World War II, the accustomed support given to sculpture hastened a revival on both traditional and exploratory lines. New work was expected from French sculptors, among them Marcel Gimond, Emmanuel Auricoste, Robert Couturier, Henri Martin and Salendre.

The U.S.S.R. paid practical tribute to sculpture by arranging a travelling exhibition of photographs of works by many soviet sculptors. The exhibition made it clear that their inspiration springs from nature and from life. Many of the soviet sculptors were employed in portraying representatives of the army and of farm and factory workers.

Among others may be mentioned Matvej Manizer, Vera Mukhina, Vladimir Ingal, Benjamin Bogolubov, Alexander Grube and Leonid Sherwood. (See also ART EXHIBITIONS.) (C. BU.)

SEC: see SECURITIES AND EXCHANGE COMMISSION.

Secondary Education: see EDUCATION.

Secondary Metals.

Data on the recovery of secondary metals in the United States is shown in the table at right; it should be pointed out, however, that the total recoveries shown do not represent metal brought back from the pool of metal in use, as large amounts of fabrication scrap are included.

The effect of World War II on the secondary metal industry was marked not only by heavy increases in recoveries,

but also by marked shifts in the relative amounts of old and new scrap contributing to the output. Shortage of supply to meet war demand led to increases in the amount of old scrap drawn from the pool of metal in use, but these increases were not as marked as the larger turnover of new scrap from the wide variety of plants making war materials; hence, in spite of the increased amounts of old scrap brought back into use, the ratio of old scrap to total recovery decreased in most cases. However, it must be kept in mind that it is only the reworking of old scrap that increases the actual supply of metal available for use; the reworking of new or plant scrap is merely an additional stage in the preparation of metal that has not been in use.

Dealers' receipts of all types of nonferrous scrap totalled 534,403 short tons in the first half of 1946, as compared with 498,766 tons in the last half of 1945, and 536,107 tons in the first half, or a total of 1,034,873 tons for the year, and 1,030,262 tons in 1943. Dealers' shipments to consumers followed the same general pattern, but at a slightly lower level, so that stocks increased from 155,182 tons at the end of 1944 to 174,677 tons at the end of 1945, and 174,206 tons at the end of June 1946.

There was some improvement in the supply of iron and steel scrap after the peak demand in 1943, but the supply remained short. Consumption of scrap declined from 61,650,956 tons in 1943 to 61,349,201 tons in 1944, 56,191,085 tons in 1945, and, because of the steel and coal strikes early in 1946, only 19,058,000 tons in the first half of 1946. In the production of steel, which accounts for four-fifths of the scrap consumption, it required 656 lb. of plant scrap and 406 lb. of purchased scrap to make a ton of steel in 1944, but in 1945 these figures were 633 lb. and 450 lb. respectively, while in the first half of 1946 they were 534 lb. and 482 lb.; although these figures indicate a reduction of total scrap used, the plant scrap:purchased scrap rate shifted from 62:38 to 58:42 and then to 53:47, which corresponds with the 1937 low. Stocks, however, were low, having declined from 7,175,500 tons at the end of 1943 to 5,969,217

Secondary Nonferrous Metals Recovered in the U.S.

(Thousands of short tons or fine ounces)

	1939	1940	1941	1942	1943	1944	1945
Copper—tons							
As metal	151.4	170.8	135.9	114.6	137.9	102.1	112.9
In alloys	345.1	351.8	580.7	795.6	935.1	835.4	875.0
In compounds	3.2	9.4	9.8	17.5	13.0	13.4	18.7
Total	499.7	532.0	726.4	927.8	1,086.0	950.9	1,006.5
Percentage*		63	57	46	39	48	56
Lead—tons							
As metal	86.9	59.6	75.3	68.6	58.3	55.0	61.1
In alloys	154.6	200.8	322.1	254.4	283.8	276.4	301.9
Total	241.5	260.3	397.4	323.0	342.1	331.4	363.0
Percentage*		87	96	79	83	88	86
Zinc—tons							
As metal	69.6	69.0	89.7	81.4	78.9	79.5	83.9
In alloys	98.9	112.3	143.2	215.7	257.9	229.2	234.6
In compounds	38.5	40.8	48.5	33.4	31.6	36.7	41.9
Total	206.9	222.0	284.0	330.5	368.5	345.5	360.4
Percentage*		29	39	24	23	33	34
Tin—tons							
As metal	4.5	5.1	5.9	5.8	5.2	4.2	3.7
In alloys	24.0	26.5	35.0	31.8	32.3	27.9	30.9
In compounds	0.7	0.7	1.1	0.3	0.3	0.5	0.5
Total	29.2	32.2	42.0	37.9	37.8	32.6	35.1
Percentage*		62	70			66	68
Aluminum—tons							
As metal	2.9	5.6	8.3	14.1	5.9	2.3	2.1
In alloys	51.0	74.7	97.6	182.7	306.8	321.7	295.4
Total	53.9	80.4	106.9	196.5	314.0	325.6	298.4
Percentage*		57	41	21	11	7	9
Magnesium—tons							
Total (in alloys)	?	?	1.7	6.2	11.4	14.2	9.2
Percentage*	?	?	1	1	1	1	8
Nickel—tons							
Total	2.9	5.2	5.3	4.1	6.9	4.3	6.5
Percentage*		46	40	42	27	51	34
Antimony—tons							
Total	9.8	11.4	21.6	18.2 [†]	15.5	15.9	17.1
Percentage*		98	99+	99+	99+	98	88
Platinum—ounces							
O.P.M.†—ounces	45.4	47.7	37.5	56.2	68.6	85.9	58.9
Gold—ounces	8,950	7,964	8,850	8,136	3,006	7,337	
Silver—ounces	24,972	22,564	20,361	30,021	44,113	56,189	

*Percentage of the total secondary metal recovered from old materials, the remainder having come from the reworking of new plant scrap.

†Other platinum group metals.

tons in 1944, with apparently a further reduction of the same size or even greater in the first half of 1946. (G. A. Ro.)

Second World War: *see* WORLD WAR II.

Secret Service, U.S. Security work of the secret service during 1946 entailed protection of the president; safeguarding the 700-year-old Lacock Abbey copy of the Magna Carta in transit from New York to Washington, and protection (by the secret service uniformed force) of \$500,000,000,000 in paper money, stamps and other government obligations in transit and in production and storage. The White House was opened to the public Nov. 14 for the first time after 1941, giving added security duties to the secret service and the White House police. In one case the secret service identified and arrested a man who threatened the life of the president. He was held under \$10,000 bail for the action of the grand jury.

In September, secret service agents arrested five men in New York and New Jersey for manufacturing counterfeit \$20 notes. Later, with the co-operation of a navy diving crew, agents recovered from the Passaic river 44 pieces of plates used to print the notes.

In Missouri a secret service agent unearthed a coin counterfeiting plant inside the state penitentiary. A prisoner, serving a sentence for burglary, made clay moulds for fake nickels, dimes, quarters and half-dollars and spent the coins in the prison commissary.

The amount of counterfeit money seized exceeded that seized in 1945, primarily because several bogus bills were received from foreign countries. Representative value of counterfeit bills seized totalled about \$208,122.85, of which \$41,000 represented bills passed abroad. Counterfeit coins seized totalled \$10,020.67. Victims of fake bills and coins in the United States lost \$54,736.31 during the year, as against losses of \$25,666.86 during 1945. Some 84 persons were arrested for counterfeiting offenses, as compared with the 1945 total of 43 arrests.

The major enforcement activity of the secret service comprised government cheques and bonds which were stolen and forged. More than 30,477 forged cheques were received for investigation, representing an increase of about 31.1% over the 1945 total of 23,241. There were 2,074 persons arrested for forgery. In Washington, D.C., agents smashed a forgery ring in May with the arrest of three men and one woman who admitted stealing, forging and cashing about 100 treasury cheques and savings bonds.

The arrest of a group of juveniles in New York city shows how extensively young boys are engaged in cheque theft and forgery. Six boys, ranging in age from 13 to 16 years, were arrested in April for stealing cheques from the mails. All were placed in the custody of the federal probation officer.

Forgeries of savings bonds totalled 14,578 as compared with 6,573 for 1945.

There were 1,960 convictions for cheque forgery in 1946 as against 1,625 in 1945. Bond forgery convictions totalled 280 for an increase of 0.8% over the 1945 figure of 278. There were 61 convictions for counterfeiting. Fines in criminal cases aggregated \$65,189.04 and jail sentences totalled about 2,525 years. Additional sentences of about 2,610 years were suspended or probated. The secret service disposed of some 48,947 criminal cases, as compared with 29,751 in 1945. (J. J. My.)

Securities: *see* BUSINESS REVIEW; STOCKS AND BONDS.

Securities and Exchange Commission.

On Dec. 31, 1946, the members of this bipartisan, quasi-judicial

agency of the federal government were Chairman James J. Caffrey and Commissioners Robert K. McConaughy, Richard B. McEntire and Edmond M. Hanrahan. With headquarters in Philadelphia, the commission maintains regional offices in Atlanta, Baltimore, Boston, Chicago, Cleveland, Denver, Fort Worth, New York city, San Francisco and Seattle.

Securities Act of 1933.—During the year, securities in the aggregate amount of \$7,000,000,000 were registered under this act for public sale and distribution, representing the highest annual volume to that time and bringing the total of registered securities to \$35,600,000,000. The sole objective of registration (to which requirement there are certain exceptions) is to provide disclosure of significant financial and other information upon which investors may exercise a rational judgment whether to purchase registered securities. The principal medium for disseminating the information is the prospectus or selling circular, which must be delivered to prospective purchasers and must contain an accurate summarization of the information disclosed. Important penalties attach to the filing of materially incomplete or inaccurate information, or the sale of securities upon the basis thereof; and investors have a right of recovery for losses sustained in the purchase of registered securities in the event of such incomplete or inaccurate disclosure of the facts.

It is important to emphasize that investors must judge for themselves, upon the basis of the facts disclosed, whether to acquire registered securities offered for sale to them, the commission having no power to deny registration for lack of merit.

Securities Exchange Act of 1934.—Under this act there were registered with the commission at the year end: 19 national securities exchanges; 3,585 security issues (of 2,188 companies) listed upon exchanges; 4,200 over-the-counter brokers and dealers; and 1 association of such brokers and dealers, with a membership of 2,514.

With respect to the securities listed upon exchanges, the act provides for disclosure of financial and related data upon which investors may exercise an informed judgment as to their merits. In addition, proxy solicitations must meet certain minimum disclosure requirements, and solicitations by nonmanagement groups are facilitated. Requirements for reporting the stockholdings and transactions of "insiders," and provisions permitting recovery by the corporation of their short-term trading profits, operate to curb misuse of inside information.

Provisions of the act and commission regulations thereunder prescribe certain minimum standards of business conduct in the securities markets which operate to curb manipulation, misrepresentations and other abusive practices and to establish just and equitable principles of trade. Designed to protect investors against abusive practices, in both the exchange and the over-the-counter markets, these provisions are implemented by the commission's surveillance of securities trading practices and its power to enforce sanctions of the act against violators. Among such sanctions is the power to suspend or expel from membership in exchanges or the association of over-the-counter brokers and dealers, or to deny or revoke broker-dealer registrations with the commission, if it is found, after hearing, that the act or regulations thereunder have been violated. Nearly 270 such actions had been taken by the commission to June 30, 1946. Other "enforcement activities" are discussed below.

Public Utility Holding Company Act of 1935.—Designed to regulate the financial and related practices of companies in electric and gas public utility holding company systems, and thus curb the abuses which gave rise to enactment of the law, this act also requires various readjustments by system companies to simplify over-capitalized and complex corporate and system structures, to correct unfair distributions of voting power among security holders and to limit system operations to eco-

nominically integrated and co-ordinated utility properties (plus incidental systems and businesses). Constitutionality of the integration requirement was upheld by the U.S. supreme court during the year.

Electric, gas, and nonutility properties approximating \$6,000,000 had been sold or otherwise divested from holding company systems, either in anticipation of the requirement for integration or pursuant to orders directing compliance therewith. An additional \$3,300,000,000 of such properties were subject to divestment orders at the year-end. In 31 cases, the commission had ordered corporate and capital simplification and equitable redistribution of voting power; 46 similar cases pending at the year-end were in advanced stages; and in 68 cases, plans for voluntary compliance with such objectives had been approved by the commission.

At the year-end, the issuance and sale of approximately \$9,700,000,000 of securities had been passed upon by the commission as meeting certain exemption provisions or as conforming to specific statutory standards prescribed in the act for the protection of investors and consumers.

Other Acts.—During the year, (1) indentures covering debt securities aggregating \$3,000,000,000 were qualified under the Trust Indenture Act of 1939, bringing the total to \$9,000,000,000; and (2) the commission served as adviser to federal courts in 104 reorganization proceedings under Chapter X of the Bankruptcy act. At the year-end, 361 registered companies with aggregate assets approximating \$3,500,000,000 were subject to the requirements of the Investment Company Act of 1940 and 853 registered investment advisers were subject to the provisions of the Investment Advisers Act of 1940.

Enforcement Activities.—The commission is authorized to investigate complaints or other evidences of fraud or other law violations in securities transactions. Evidence of such violations may be used in administrative proceedings, as heretofore related, or in civil actions before federal courts seeking an injunction against the acts or practices complained of, or in criminal prosecutions (conducted through the department of justice) for willful violations. At the year-end, such actions had resulted in court injunctions against 1,056 companies and persons and in convictions of 1,200 individuals. (See also STOCKS AND BONDS.)

(O. L. DS.)

Seeing Eye, The. From its founding in 1929, The Seeing Eye, Inc., had trained more than 1,300 dogs as guides for blind men and women. During 1946, 148 blind persons came to the school to spend a month learning to use their dog guides; among them were veterans of World War II who were provided with Seeing Eye dogs at no cost to the servicemen or to the government. They were given priority over other applicants. The school's four year course for instructors, which had become inactive during the wartime manpower shortage, was revived and five sighted men were taken on as apprentices. Seeing Eye graduates were using dog guides in all 48 states, the District of Columbia, Canada, Hawaii and Puerto Rico. They followed almost 100 different types of occupations. The Seeing Eye is a philanthropic organization, supported by members and contributors who during 1946 numbered about 24,000. It is located at Morristown, N.J. Henry A. Colgate is president and chairman of the board of trustees. (H. A. CE.)

Seiberling, Charles Willard (1861-1946), U.S. industrialist, was born on Jan. 26 at Western Star, O., and was educated at Oberlin college, Oberlin, O. He was engaged in the manufacturing business in 1881 and two years later became the superintendent of J. F. Seiberling and company (1883-95), and afterward the secre-

tary of the Akron India Rubber company (1895-98). In 1898, he founded the Goodyear Tire and Rubber company with his brother, Frank, on \$3,500 borrowed capital and in the years that followed the firm expanded until it was one of the largest in its field. The depression of 1920 caught the concern heavily loaded with inventory, and in the face of rapidly dwindling prices the two brothers lost most of their capital and the control of Goodyear in that same year. Obtaining new capital they started again, and with Charles as vice-president and treasurer built up the concern known as the Seiberling Rubber company. Valued at \$7,000,000, it became the eighth largest enterprise of its kind. During his lifetime Seiberling was president of the Thomas Phillips company and of Seiberling Latex Products company, and director of the Citizens Savings and Loan company, and the Macedonia-Northfield Banking company. He died at Akron, O., on Sept. 20.

Seismology. In 1946, the United States navy expanded its program of utilizing seismographic data to detect and track hurricanes. The California Institute of Technology extended its investigation of earthquake magnitudes from instrumental records to include deep focus earthquakes, and published new information on the rate at which the frequency and magnitude of earthquakes decrease with depth. Several new seismological stations were either established or modernized in the United States and South America, and advances were made in the application of electronic principles to new seismograph design, especially in the field of high-magnification visible recording.

Most of the stations left unharmed by World War II resumed world-wide exchange of data all of which eventually appears in the *International Seismological Summary* sponsored by the International Geodetic and Geophysical union. Preliminary information on important earthquakes was issued by the International Seismological association (Strasbourg) and by Science Service (Washington) in co-operation with the U.S. coast and geodetic survey and the Jesuit Seismological association. The latter group issued 45 immediate epicentre locations in 1946.

Seismic seawaves generated by submarine earthquakes killed 173 in the Hawaiian Islands on April 1, 100 in the Dominican Republic on Aug. 4 and 1,500 in Japan on Dec. 21. The April 1 seaquake originated in the Aleutian Islands and caused \$20,000,000 damage in the Hawaiian Islands. The Japanese and Dominican Republic earthquakes were the strongest of the year.

Destructive shocks accompanied by casualties also occurred in Algeria, Turkey, Russia and Peru. The dead in all earthquakes combined totalled about 5,000. Two unusually strong shocks in the Puget sound (Washington) area caused considerable damage and some casualties. In Switzerland a moderately strong shock damaged buildings and disrupted communications in the canton of Valais. Ground vibrations from the atomic bomb experiment at Bikini Island were recorded on a number of sensitive seismographs in the United States. (See also COAST AND GEODETIC SURVEY, U.S.; DISASTERS.)

(F. NN.)

Selective Service, U.S. Outstanding in connection with the administration of the Selective Training and Service act during 1946 was the question of its continuance after the cessation of hostilities to provide adequate military manpower to meet United States commitments to associates in United Nations and for maintenance of national security. This question involved the effect of Selective Service in stimulating voluntary recruitment as well as in supplementing it to supply immediate military manpower needs, together with the potential value of the Selective Service system as basic provision for registering, classifying and selecting U.S. youth

for specialized training to preserve national security.

Pending final decision before the expiration date of the Selective Service act, on March 31, 1947, congress twice, during 1946, extended its duration period to meet then current requirements of the armed forces, and the war department twice suspended calls on Selective Service to test its effect on recruitment. The second of these so-called "draft holidays" was in effect at the close of 1946 without announcement as to whether it would be necessary to resume inductions under the Selective Service act pending decision concerning its extension after March 31, 1947. It was noteworthy, however, that both "draft holidays" during 1946 resulted in dropping voluntary enlistments to levels far below projected minimums.

President Truman, in his "state of the nation" message to congress, Jan. 21, 1946, urged extension of the Selective Training and Service act for at least one year, from the then stipulated expiration date, May 15, 1946, to fulfil demobilization promised to World War II veterans and at the same time meet military manpower commitments to the Allies. However, congress was still indecisive on May 14, the day before the act would have expired, and temporized with extension until July 1, 1946.

The act, during this period of extension, was amended to halt induction of 18- and 19-year-old registrants, except volunteers, fathers (none of whom had been drafted after Dec. 1945) were specifically exempted from induction, and the age bracket for induction was set at 20 through 29 years. Hitherto, after the surrender of Japan on Aug. 14, 1945, the induction age bracket for Selective Service had been 18 through 25 years.

Following this action by congress, the war department began its first "draft holiday" test of the effect of Selective Service on recruitment with the announcement, June 24, 1946, that no calls on Selective Service would be made during July and August.

Army enlistments for June 1946, had totalled 62,494, of which 30,633 were men subject to induction through Selective Service. Without recruitment through Selective Service, the total for July 1946, was only 44,063, of which 26,812 were listed by the war department as "without previous military service," indicating that they were Selective Service registrants liable

for call. The total for Aug. 1946, dropped to 39,615, including 27,580 "without prior military service."

On June 29, 1946, congress again extended the life of the Selective Training and Service act (public law 473) fixing the expiration date as March 31, 1947. This extension amended the act to make the age bracket for liability to military service 19 through 44 years old (which included all Selective Service registrants except those 18 years old), to provide for the induction of World War II veterans who had not served overseas for at least 6 months, to exempt all fathers, and to limit military service through Selective Service induction to 18 months.

As the army did not desire recruits 30 years old or over, President Truman, on July 16, fixed the induction age bracket for Selective Service registrants at 19 through 29 years.

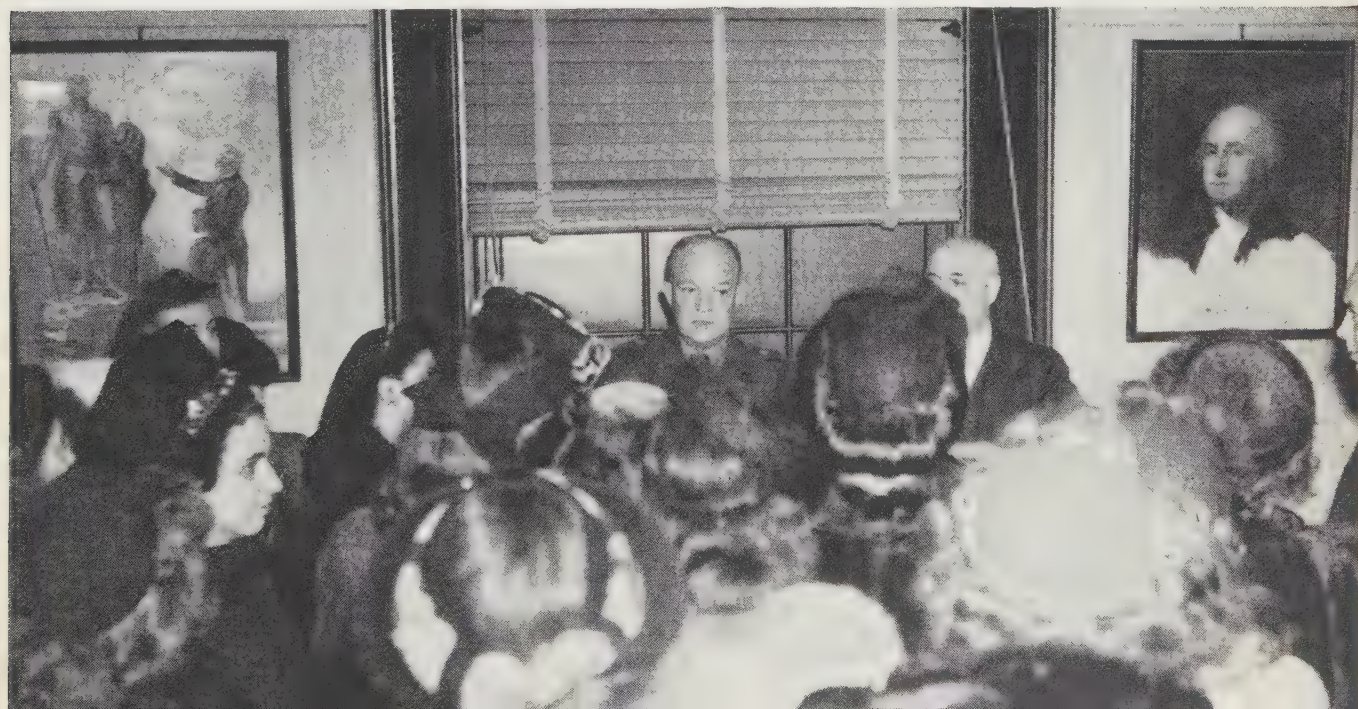
Following the first "draft holiday" during July and August, and the placing of a call for 25,000 men with Selective Service, army recruitment for Sept. 1946, jumped from the total of 39,615 in August to a total of 61,750 in September. The September total included 52,696 "without previous military service," compared with only 27,580 in that category in August.

The second "draft holiday," which remained effective at the close of 1946, began in October and was marked by an even more drastic drop in recruitment than occurred during the first, and this decline was reflected in navy and marine corps enlistments.

With the announcement that no calls on Selective Service would be made during Oct. and Nov. 1946, enlistments in the army dropped from 61,750 in September to 48,769 in October. Moreover, the total enlistments for the first week of November were only 4,851 as compared with 7,599 for the last 10 days of October, and the enlistments of men "without previous military experience" during the 7 weeks from Oct. 1 to Nov. 21 were only 47,699 as compared with a total of 52,696 for the 4 weeks of September.

The most decided drop in all enlistments, and particularly in those of men without prior military service, occurred in the second week of October. This was coincident with the withdrawal of the October call that had been sent to Selective Service and also marked the ending on Oct. 6 of extended G.I. Bill benefits offered by the Voluntary Recruitment act (public law 190) to men voluntarily enlisting before that date.

SERVICEMEN'S WIVES besieging General Dwight D. Eisenhower in Washington, D.C. on Jan. 22, 1946, demanding the return of their husbands from overseas



More than half of October's recruits, or 28,303, enlisted in the first week. For the second week, enlistments dropped to 7,383, then to 5,484 for the third week, and totalled 7,599 for the last 10 days of the month. Enlistments of men without prior military service who were subject to draft during the first week of October totalled 25,909, dropped to 5,344 the second week, to 3,567 the third week, and totalled 4,487 for the last 10 days of the month. These figures remained virtually stationary during November and December and a continued downward trend was indicated by December figures as the "draft holiday" moved into 1947.

On Dec. 2, 1946, during the second "draft holiday," Major General Lewis B. Hershey, director of Selective Service, called for a thorough inventory of U.S. military manpower as it was represented by the rosters of Selective Service local boards.

This survey, which was completed according to instructions on Dec. 20, was designed to place Selective Service local board records in a state of readiness for any calls which might be issued by the war department during the first part of 1947, and to supply data for use by congress in connection with legislation providing for national security and adequate military strength for fulfillment of the nation's commitments to its associates in the United Nations.

These data, transmitted to National Selective Service headquarters by local boards through their state headquarters, were being collated and analyzed at the close of 1946 but would not be available in final form until sometime during the first quarter of 1947.

This manpower picture, close to the end of 1946, for men who were 18 through 44 years old at the time of registration was approximately as follows:

Total registrants	35,180,000
Class I-C, all ages, (Registrants in the armed forces, or honourably discharged therefrom.)	14,064,000
18-year-old registrants (Exclusive of Class I-C)	700,000
Registrants 19-through-29-years old (Exclusive of Class I-C)	3,403,000
Registrants 30-through-49-years old (Exclusive of Class I-C)	17,013,000

The current Selective Training and Service act prohibited any classification activity on registrants 18 years of age; therefore these registrants were in an unclassified status until they became 19 years old. Practically all of the registrants in the 30-49 age group retained IV-A (deferred by reason of age) classifications except a few who were classified I-G (honourably separated from the armed forces) or IV-B or IV-D (deferred by law). Registrants in this age group were in an inactive classification stage as far as Selective Service local boards were concerned.

The only registrants currently under active classification at the close of 1946 were those within the 19-29 age group and their classification status was as follows:

Total registrants (exclusive of Class I-C)	3,403,000
IV-F (rejected for military service)	1,989,000
I-A (being processed for induction)	162,000
Unclassified	23,000
II-A (deferred in occupations other than agriculture)	63,000
II-C (deferred in agriculture)	179,000
III-A (deferred fathers)	851,000
III-D (deferred as hardship cases)	12,000
All other classes	79,000
Deceased	45,000

When congress voted on June 29, 1946, to extend the Selective Service act until March 31, 1947, the cumulative inductions through Selective Service into the armed forces (from Nov. 18, 1940, to June 30, 1946) totalled 10,002,569. At the close of 1946, these cumulative inductions were approximately 10,022,367.

When the nation was attacked at Pearl Harbor, Dec. 7, 1941, the trained military manpower of the United States was only about 1,000,000 officers and men. When the fighting was ended by the surrender of Japan on Aug. 14, 1945, more than 12,000,-

000 of the 14,700,000 men who served under arms against Germany, Japan and their allies were still in service.

Of the 14,700,000 who served in the armed forces of the United States while hostilities were in progress during World War II, 9,700,000, or approximately 66%, were registrants inducted through Selective Service. And among the remaining 5,000,000, a large proportion were influenced to enlist or seek a commission because of their liability to be drafted.

When the war department ended the first "draft holiday" by issuing a September call upon Selective Service for 25,000 registrants, who were required to be 19 through 29 years old to meet the minimum fixed by congress and the maximum acceptable to the army, Selective Service local boards were instructed that occupational deferments in that age group should be gradually reduced to the barest minimum consistent with calls of the army. The purpose was to confine occupational deferments, within the very limited military manpower pool of that age bracket, to those who, after drastic scrutiny, were found to be absolutely "indispensable and irreplaceable to national existence" as individuals in their current occupations. The only exception to this general rule was by statutory provision, the so-called Tydings amendment concerning farm workers.

New categories established for occupational deferment on July 22, 1946, authorized local boards to give "most serious consideration" to registrants in the 19-29 age group who were students in medicine, dentistry, veterinary medicine and osteopathy, and certain teachers and research workers in the physical sciences and engineering who were certified by the Office of Scientific Research and Development.

On Oct. 12, 1946, four new categories for *special* occupational deferment consideration as "essential men" were made at the request of the director of the Office of War Mobilization and Reconversion. They included college and university teachers, home construction workers, and critical production and transportation workers. It was provided that requests for deferment in these four special categories must be certified by designated government agencies.

At the end of the year 1946, there were approximately 300 conscientious objectors assigned to 4 camps and projects. More than 11,300 who had been under control of the Selective Service system had been discharged.

The Veterans Personnel division of the Selective Service system was established by section 8(g) of the Selective Training and Service act of 1940, and continued through all amendments. This division was charged with the responsibility of assisting veterans in obtaining their right to be restored to their former positions as well as in obtaining new employment. During 1946, the activities of this division increased and continued proportionate to the rate of demobilization, especially during the early part of the year.

From Dec. 1, 1945, through Nov. 30, 1946, 4,736,636 veterans contacted Selective Service local boards for information or assistance, in addition to 16,728 persons who were not veterans.

Effective July 16, 1946, under the President's Reorganization Plan No. 3, the function of assisting veterans in obtaining new employment was transferred from the Selective Service system to the United States Employment service. During the first six months of 1946 and prior to the transfer of this function to the United States Employment service, Selective Service facilities and personnel had been utilized throughout the country in those areas where the United States Employment service did not have established facilities.

During this period 32,000 new jobs were obtained for veterans directly by Selective Service officials and 800,000 veterans were referred to other agencies more directly concerned in job-placement activities.

The statutory re-employment rights of veterans were obtained with remarkably little litigation. Since the beginning, and up to Dec. 31, 1946, Selective Service had found it necessary to refer only 2,507 cases to the various United States attorneys, 2,322 of them during 1946, and over 600 of those have already been settled amicably for the veteran without the necessity of any court action. This number is from an estimated total of 5,000,000 veterans with re-employment rights. During 1946, also 103 court decisions were rendered, interpreting the re-employment provisions of the Selective Service law.

While the great majority of the veterans had come home and exercised their rights for old jobs, if they had one, or decided not to do so, many of the difficult cases were in the process of settlement. As of Dec. 31, 1946, there were 254 cases pending in court, awaiting decision, and 1,372 in the hands of the various United States attorneys, awaiting determination as to whether or not litigation would become necessary. During 1946, 254 suits were filed in the federal courts on behalf of veterans.

Fifty-five state organizations (including New York State Procurement office), 6,443 local boards and 505 appeal boards comprised the Selective Service system in 1946.

There were 184,229 persons connected with the system at the close of 1946. Of this number 174,513 who were uncompensated were divided as follows: 23,641 local board members; 7,715 government appeal agents; 73,134 members of advisory boards for registrants; 27,245 examining physicians, 6,839 examining dentists; 1,974 members of boards of appeal; 8,396 members of medical advisory boards; 19,868 re-employment committeemen; 5,180 advisers and field agents of the medical survey program; 2 state directors; and 519 special advisers and consultants.

Executive officers of the Selective Service system on Dec. 31, 1946, were: director, Major General Lewis B. Hershey; deputy director, Brigadier General Carlton S. Dargusch; asst. director, camp operations, Colonel Lewis F. Kosch; executive asst. to the director, Colonel Campbell C. Johnson; adjutant general, Lieut. Colonel Samuel L. Davis; asst. executive, Colonel Raymond T. Higgins; asst. executive, Lieut. Colonel Oliver H. Folk; budget officer, Lieut. Colonel Arthur R. Boone; chairman, presidential appeals board, Colonel Henry F. Rhodes; chief liaison and legislative officer, Colonel Louis H. Renfrow; chief information officer, Lieut. Colonel Irving W. Hart; chief medical officer, Colonel Richard H. Eanes; general counsel, Colonel Daniel O. Omer.

(L. B. H.)

Selenium. World production of selenium is of the order of 600–700 short tons a year, mostly from the United States and Canada. In the United States production advanced from 485,446 lb. in 1944 to 542,099 lb. in 1945, while sales rose from 423,907 lb. to 666,363 lb., a near record figure. At the same time, imports increased from 97,800 lb. in 1944 to 219,215 lb. in 1945. Supplies were plentiful, and production exceeded sales from 1942. Producers had accumulated stocks of more than 500,000 lb., but the high sales of 1945 cut stocks to 392,953 lb. The Canadian production declined from 374,013 lb. in 1943 to 298,592 lb. in 1944, but increased to 419,000 lb. in 1945. Canada supplied all of the U.S. imports. (G. A. Ro.)

Senate: see CONGRESS, UNITED STATES; ELECTIONS.

Senegal: see FRENCH COLONIAL EMPIRE.

Serbia: see YUGOSLAVIA.

Serum Therapy: see MEDICINE.

Service Organizations, United: see UNITED SERVICE ORGANIZATIONS.

Seventh-day Adventists. The principal event in the 1946 history of this church

was the holding of the 45th session of the general conference. To this session, convened in Washington, D.C., June 5–15, came 828 delegates from different countries. This was the first world conference held after 1941. At this session preliminary plans were laid for reorganization of church work throughout the world, both as to rehabilitation and as to realignment of conference territories in view of boundary changes made by World War II. Reports from overseas delegates revealed that despite the almost complete disruption of church life in many lands, the war period showed a membership increase outside America from 309,329 on Dec. 31, 1939, to 363,864 on Dec. 31, 1945. At this session action was taken to publish an overseas edition of the church paper, the *Review and Herald*. The plan, as set in motion in December, provided coverage of approximately 200,000 overseas members.

The annual autumn council, constituted largely of North American leadership, held in Grand Rapids, Mich., in October, voted for 1947 the largest budget in the history of the church, \$13,762,401. This was primarily for overseas work, and did not include the funds for the routine operation of church work in the United States and Canada. Action was taken to incorporate the expanding welfare and charitable activities of the church under the title: Seventh-day Adventist Charities, Inc. Other important actions included: encouraging members to move out of large cities into the country; the appointment of a temperance secretary in each local church; the survey of denominationally owned medical institutions with a view to increased specialized training for the staffs, and specifically in the field of physical medicine.

The number of stations broadcasting the church-sponsored radio program, "The Voice of Prophecy," continued to expand during 1946. By the end of the year it was carried on 440 stations in the United States and Canada, and on 139 stations overseas, which covered Central and South America, the Philippines and China.

World membership as of Sept. 30, 1946, was 583,923, divided as follows: U.S. and Canada, 218,160; overseas, 365,763. Church receipts for 1946 in the United States and Canada were in excess of \$27,000,000, representing a per capita contribution of \$122.69. In addition to this the membership in America, in 1946, contributed to famine relief of overseas members, and to rehabilitation, in excess of \$1,300,000. Retail sales by denominational publishing houses for the calendar year 1946 were in excess of \$6,000,000 in the United States and Canada, and \$2,000,000 overseas. Enrolment in denominational schools in the United States and Canada—elementary, secondary, college—as of Sept. 30, 1946, was 37,956. Conferences and institutions throughout the world showed assets of \$130,000,000 at the close of 1946. (See also CHURCH MEMBERSHIP.) (F. D. N.)

Sewage: see PUBLIC HEALTH ENGINEERING.

Seychelles: see BRITISH EAST AFRICA.

Seyss-Inquart, Arthur (1892–1946), Austrian politician, was born July 22, in Stannern, Austria-Hungary (now Czechoslovakia). He graduated from the University of Vienna and practised law. He served in the Austro-Hungarian army during World War I and joined the Austrian nazi party in 1928, soon becoming one of its acknowledged leaders. When Chancellor Kurt von Schuschnigg, bowing to Hitler's wishes, reshuffled the Austrian cabinet in Feb. 1938, he reluctantly gave Seyss-Inquart the key post of minister of the interior and security. After Schuschnigg's resignation, March 12, 1938, Seyss-Inquart became chancellor and urged Hitler to speed German troops into Austria to "restore order." Two days after the formal proclamation of Anschluss, Seyss-Inquart was ap-

pointed governor of Austria. In May 1940, he became German high commissioner for the Netherlands. Employing brutal measures to extirpate opposition to Nazi rule, he liquidated Dutch Jews and ordered the execution of Dutch patriots for "serious" offenses. He fled from the Netherlands just before its liberation and was captured by the Allies in Germany on May 8, 1945. Seyss-Inquart was among the top Nazi leaders indicted Aug. 29, 1945, on charges of war crimes before the International Military tribunal at Nuernberg. He was convicted of crimes against the peace, war crimes and crimes against humanity and on Oct. 1, 1946, he was sentenced to death. He was hanged in Nuernberg, Oct. 16.

Sharpening Stones: see ABRASIVES.

Sheep. The decline in the sheep industry from the peak reached in 1942 continued through 1946. The number on United States farms Jan. 1, 1946, was estimated by the United States department of agriculture at 44,241,000 head compared with 47,780,000 head a year earlier and a prewar average of 51,344,000, 1935-39. The lamb crop also declined each year after 1942 to 26,000,000 head in 1946, the smallest number raised in any year after 1927. The total slaughter of sheep and lambs was high during the first half of 1946, however, due to the reduction of herds. The sale of ewes was at such a rapid rate that the lamb crop of 1947 was expected to show another decline as great as that of 1946.

Lamb feeding was at a high level from 1941 through 1946. On Jan. 1, 1946, there were 6,724,000 lambs on feed, a number exceeded only in 1942, 1943 and 1945. This large feeding was the result of fewer ewe lambs being kept, the lamb feeding subsidy payments and the general meat shortage. Large feed supplies also favoured the feeders. The supply of lamb and mutton for civilian consumption was about 1,000,000,000 lb. or 7 lb. per capita which was exceeded only in 1945 when the large production of 1944, 1,023,000,000 lb. came to market.

The price of wool to farmers continued practically unchanged from Jan. 1945 to the end of 1946 at around 40 cents per pound. Wool was removed from price control in September but the price did not rise and wool prices were expected to continue stable since government purchasing would continue until April 1947. Stocks of wool on July 1, 1946, exceeded 1,000,000,000 lb.

Prices of lamb and mutton were controlled from 1942, but not the live animals. The subsidy paid to slaughterers for lambs began in 1943, was stopped in Aug. 1945 and replaced by direct payments to farmers for sheep and lambs sold for slaughter. This program was terminated on June 30, 1946. Average prices paid to farmers for lambs were steady at \$12.90 per 100 lb. through 1945. In July this price rose to \$15.90 per 100 lb.; October \$17.50 and \$18.60 in December. The ceiling prices for lamb adjusted in September were designed to return feeders \$2 to \$3 per 100 lb. more than the June ceilings. When all control was removed Oct. 15 all prices advanced and receipts at the markets also increased. After a few weeks however retail prices became stabilized at near the level of the first half of the year. (See also LIVE-STOCK; MEAT; WOOL.) (J. C. Ms.)

Sheldon, Edward Brewster (1886-1946), U.S. playwright, was born on Feb. 4 in Chicago and attended Prof. George Pierce Baker's class in dramatic literature and construction at Harvard. He was graduated with an A.B. degree in 1907 from that school, and the next year one of his plays, *Salvation Nell*, had its première in New York city. In 1909 he produced *The Nigger*, a play which shocked New York audiences because its theme was based on

the love of a white Southern girl for a man with Negro blood. In 1913 he established his reputation as a playwright with the highly successful drama *Romance*, which also brought fame to Doris Keane, who played its leading role. Another of his plays, *The Jest* (1919), co-starred John and Lionel Barrymore, while *Lulu Belle* (1926), in which the author collaborated with Charles MacArthur and in which Lenore Ulric was the star, ranked next to *Romance* in popularity. *Jenny*, produced in 1929 and starring Jane Cowl, and *Dishonored Lady* (1930), starring Katharine Cornell, were written in collaboration with Mrs. Margaret Ayer Barnes. Among Sheldon's other works are *The Boss*, *Princess Zim-Zim* (1911), *Egypt*, *The High Road* (1912), an adaptation of the German play, *The Song of Songs* (1914), *The Garden of Paradise* (1915), *The Czarina* (1917), *The Lonely Heart* (1920), *Bewitched* (1924), which he co-authored with Sidney Howard, and *The Proud Princess* (1924), which he co-authored with Dorothy Donnelly. Hampered by blindness and partial paralysis, he had virtually retired from active writing during the last two decades of his life. He died in New York city on April 1.

Shidehara, Kijuro, BARON (1872-), Japanese statesman and diplomat, was created a baron in 1920. He was graduated from the Imperial university, Tokyo (1895), entered the diplomatic service in 1896, and was appointed Japanese minister to the Netherlands (1914). The following year, he was made vice-minister of foreign affairs. He was Japanese ambassador to Washington, D.C. (1919-22), and attended the Washington conference (1921-22). Baron Shidehara was foreign minister from 1924-27 and from 1929-31, when he resigned in protest against Japanese seizure of Manchuria. This earned him a reputation as a "liberal." It was subsequently alleged, however, that Shidehara, related by marriage to the Mitsubishi family, had championed the practices and policies of the "Zaibatsu" (Japanese big business). He lived in relative seclusion until the fall of the first postwar cabinet of Prince Naruhiko Higashi-Kuni in 1945, whereupon Shidehara formed the new government on Oct. 6. On Oct. 9, he promised establishment of a "liberal" regime. He urged caution in abolition of Shinto as the state religion and, like his predecessor, Higashi-Kuni, defended the authority of the emperor.

Shidehara complied reluctantly with Allied directives to liberalize his government and he resigned April 22, 1946, after the first postwar elections held in Japan. He became vice-premier in the succeeding Yoshida government, May 22.

Shipbuilding. Approximately one-half of the gross tonnage of merchant seagoing ships in the world on June 30, 1946, consisted of vessels flying the U.S. flag. World tonnage of ships, each of 1,000 tons or more, on that date was distributed as follows:

	Number of vessels	Gross tonnage		Number of vessels	Gross tonnage
United States . . .	4,861	35,363,000	Sweden	443	1,437,535
Great Britain . . .	3,159	18,064,000	Netherlands . . .	291	1,591,000
Norway	607	2,933,000	France	262	1,370,000
Russia	488	1,851,675	Other countries . .	2,334	8,389,790
				12,445	71,000,000

The total number of ships on June 30, 1946, was somewhat smaller than that prior to World War II, but because of the greater average size, world tonnage was about 13,000,000 gross tons greater.

New ship construction in the United States declined rapidly after World War II, which contrasted markedly with an increased volume of shipbuilding in Europe. On Sept. 30, 1946, there were 464 vessels with a gross tonnage of 1,874,878 under construction in Great Britain and Ireland, 62 vessels of 354,283 tons being built in the United States and a total of 521 ships of

1,339,998 gross tons under construction in other countries. Of this total world construction, 1,047 vessels of 3,569,159 gross tons, 643 vessels of 1,963,490 gross tons were motor vessels of which only 17, of 8,178 gross tons, were being built in the United States. The rest of the vessels were powered with other types of propelling machinery.

There were 122 seagoing merchant vessels of 928,230 gross tons under construction in the United States on Jan. 1, 1946, most of them under wartime contracts not yet completed. Up to Dec. 1, 1946, only 21 additional contracts had been placed for seagoing merchant vessels, totalling 109,000 gross tons, although there were many miscellaneous small craft being built, such as carfloats, barges, tugs and fishing vessels, the aggregate tonnage of which was small. At the end of the year there remained under construction in the United States approximately 52 seagoing vessels of about 346,000 gross tons and seven dredges of 31,040 displacement tons.

Many merchant vessels built during World War II and some older ships were placed in reserve in four locations on the Atlantic coast, three locations on the Pacific coast and two locations on the Gulf of Mexico. Ship repair yards were active during 1946, both in repairing merchant vessels and in reconverting merchant vessels from war use back to peacetime use.

A large number of vessels which were used during the war were available for scrapping, and 13 concerns were engaged in shipbreaking—four on a large scale and nine on a smaller scale.

Employment in private shipyards fell from approximately 305,000 on Jan. 1, 1946, to 157,000 in October, and a further reduction to about 110,000 was expected by the end of the year. This compares with a peak employment of 1,400,000 in Nov. 1943. The average hourly earnings, which continued to be among the highest of any durable goods industry in the United States, increased from \$1.272 for Jan. 1946 to \$1.430 in Sept. 1946, compared with \$1.069 for January and \$1.201 for September, averages for durable goods industries as a whole. In Feb. 1946 a horizontal increase of 18 cents an hour was given

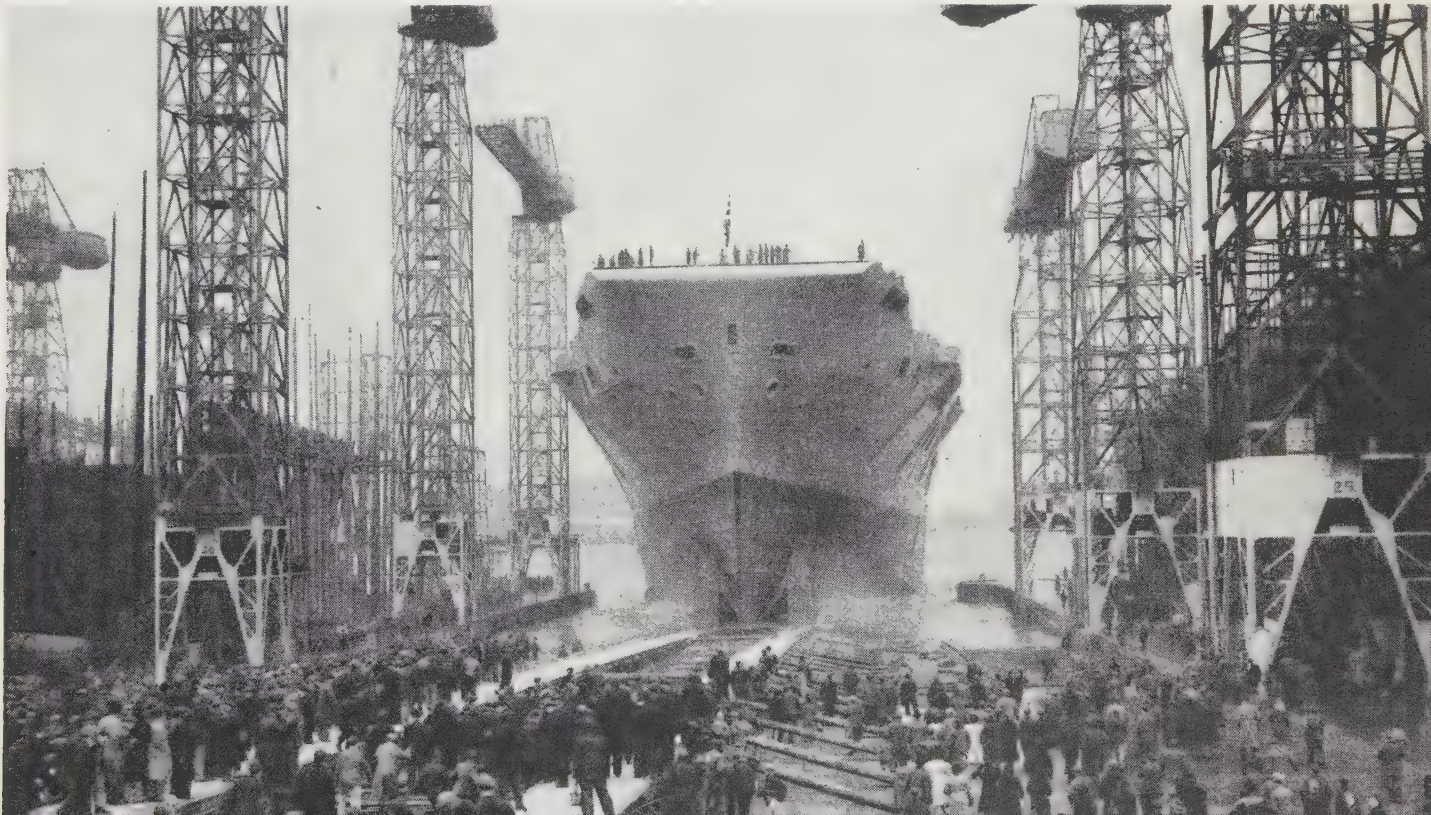
in the industry. (See also SHIPPING, MERCHANT MARINE.) (X.)

Great Britain.—The year 1946 began with all the British yards working to capacity, although not all had yet been able to turn over from war to a peacetime routine. Many outstanding naval contracts were still on hand although they were being cancelled by the admiralty as quickly as possible and many ships went straight from the launching ways to the ship breakers. Some ships ordered by the ministry of war transport were being completed for government work but others had been bought by the builders to finish on speculation, or by private owners to alter as far as possible to their ideas. Many private orders were also on hand; admiralty restrictions on their design diminished according to the date of the licence granted until they were very small.

Although restrictions on design were limited, the admiralty still maintained a large measure of control. Every ship ordered had to have a licence granted on its merits, the war losses sustained by its owner, the importance of the trade on which it was to run and the national need for tonnage of its type. In March it was announced that a shipbuilding advisory committee would be set up, replacing that which had been working from 1944; the admiralty, ministry of transport, shipbuilders, ship-owners and labour were to be represented with a civil service chairman. It was intended to advise on priorities in building licences, the allocation of shipbuilding facilities to British, Allied and neutral owners, etc.

Applications for licences to build continued unchecked for some time, and there was talk of employing the royal dockyards on mercantile work to relieve the commercial establishments; the result of the same experiment after World War I, however, was most unsatisfactory and the authorities were not anxious to repeat it. Comparatively few ships of the tramp type were ordered, partly because the admiralty did not normally consider them a priority type and partly because the owners were nervous of the cost and the effect on the market of the sale of government-standardized ships. Many yards which specialized in tramps turned to better-class tonnage. Towards the middle of the year there was a distinct falling off in orders for all types,

H.M.S. "EAGLE," giant British aircraft carrier, sliding into the water after having been launched by Princess Elizabeth at Belfast, Northern Ireland, on March 19, 1946



but by that time the yards were fully booked for a considerable time ahead.

Domestic orders were checked by the anxiety of the authorities to encourage the export market for currency purposes. At the request of the board of trade the industry sent a deputation round South America which returned with valuable orders to be started as soon as possible; in May it was announced that orders for export amounted to £30,000,000. A large part of these had been placed because of the continental builders' difficulty in guaranteeing quick deliveries, but a number of orders were lost through an attempt by the authorities to stipulate that hull and machinery should both be built in Britain. When £16,000,000 was agreed as compensation for the services and losses of French ships running for Britain during the war, about two-thirds was spent in British yards.

Apart from new construction, repairs which had been deferred through the war, reconstruction after alterations and reconditioning demanded first attention. Prices rose to such a height, and the work took so long, that it was often questioned whether it was worth while, but it was frequently a shipowner's only means of restarting a service.

Like the ships, the yards had been forced to run with the minimum of repairs during the war, when many timesaving practices were tried which promised, with the necessary modifications, to answer well in commercial work. As soon as possible without checking deliveries, many firms combined restoration with improvements to secure more efficient work and rapid output, although this frequently meant the sacrifice of a proportion of the slipways. Better means of fabricating large sections, although not the complete prefabrication popular during the war, were conspicuous in every case.

The supply of material presented many difficulties, particularly as other branches of production claimed priority over shipbuilding. Shortages of coal and steel caused periodical delays in different districts; the controlled price of iron and steel was increased early in the year and again in the summer. It was difficult to obtain castings and forgings that would satisfy the standards of shipbuilders or surveyors and a large proportion had to be welded before they could be used. Competition with the house-building industry for priority in sanitary, electrical and various other fittings necessary for the completion of ships caused further delay so that as the year progressed ships lagged more and more behind the contracted time of delivery.

As is inevitable immediately following a war, labour presented great difficulties. The change from war to peace caused a certain amount of temporary unemployment in many yards, and this was prolonged in some areas through the holding up of work by a shortage of various kinds of labour. Minor sectional strikes, usually against the advice of the unions, were incessant and caused idleness among workmen in other branches. Most of the disputes were amenable either to ordinary negotiations or to the National Arbitration tribunal, but the men were impatient of any delay. Many of the improved methods of shipbuilding caused disputes between the unions as to the demarcation of labour. Wages were high at the beginning of the year and were increased by agreement, although the employers rejected the claims for a 5-day 40-hour week without loss of earnings. Holidays on pay were granted and conditions were generally improved, but the output reckoned in man-hours continued to decline very seriously. The problem of apprenticeship had been under consideration before the war and apprentices had been granted good pay during the progress of hostilities; at the first opportunity measures were taken by several of the big yards to improve the training and to give promising and ambitious apprentices the opportunity of preparing themselves for high positions.

The Commonwealth.—In the outlying portions of the empire the shipbuilding industry, which had done excellent work during the war when cost was a minor consideration, was immediately handicapped by high prices in competitive tenders. Only the Canadian yards succeeded in getting a certain number of foreign contracts. In New Zealand shipbuilding was generally regarded as unpractical and in Australia it was admitted to be possible only by generous government aid. In India, where the traditional skill of the native craftsmen in wooden construction had been put to good use, pressure was brought on the new government to establish and support a steel shipbuilding industry.

Europe.—On the continent the industry depended largely on the extent of the damage done by the Germans at the evacuation of occupied territory or by Allied operations. Only Sweden was entirely unaffected and booked orders for years ahead, the minor Spanish and Portuguese industries being handicapped for materials and labour. Italy recovered the most rapidly and during the year sought orders all over the world. (See also BUSINESS REVIEW.)

(F. C. Bo.)

Shipping, Merchant Marine. Reconversion of the U.S. merchant marine to peacetime operations, the absorption of remaining tasks of the War Shipping administration after Sept. 1, 1946, the sale of surplus war-built merchant vessels, the disposal of surplus marine property and equipment and related programs occupied the major attention of the U.S. Maritime commission in 1946.

Passing the peak of its wartime job of shipbuilding in 1943, the commission had met the needs of the joint chiefs of staff and the United Nations in the supplying of military and civilian ocean transport and, at the end of World War II, was engaged in building only specialized craft. From 1939 to the end of 1946 about 5,865 major merchant types had been built, enough to carry 75% of the 268,000,000 long tons of outbound war cargoes and 90% of U.S. military personnel and to supply the military with special designs on basic merchant-type hulls.

The resumption of full, peacetime operations was delayed by the essential requirements of world rehabilitation and relief which immediately followed the war's end. The return of vessels to former owners for private operation was largely accomplished by the end of 1946, although necessary repairs and conversions had a delaying effect. The S.S. "America," largest U.S.-built passenger vessel, made its maiden postwar voyage in November following conversion from war service as the troopship U.S.S. "West Point."

Owning two-thirds of the world's merchant fleet which had rendered vital war service, the United States had a fleet in excess of any anticipated requirements, but short on a number of desirable types, mainly fast passenger ships to meet foreign competition and vessels for domestic trades.

To dispose of the surplus tonnage congress enacted the Merchant Ship Sales act of 1946 setting forth the policies for the commission's program. By the end of 1946 more than 1,000 sales to domestic and foreign operators had been approved, which, when completed, would return more than \$1,000,000,000 to the federal treasury. By the end of the year more than 1,650 war-built and less desirable vessels were assigned to the reserve fleet to be held and preserved to meet any future national defense or emergency needs.

With new, efficient, fast ships being planned and built by foreign competitors, the U.S. flag fleet composed of war-built and older ships would within a few years be outclassed and obsolete. Plans of the commission were designed to accomplish a balanced fleet with special attention to passenger requirements in the North Atlantic, Mediterranean, South Atlantic and Pacific essential trade routes. Other plans included passenger-



Above: THESE PICKETS of the A.F. of L. seamen's union patrolling the waterfront at New York city were among the thousands who went on strike Sept. 5, 1946, in every port in the U.S.

Right: THE U.S. FOOD SHIP "AMERICAN FARMER," which collided with another vessel in the Atlantic, was abandoned by her crew, later taken in tow by a British vessel, and still later taken over by a U.S. crew and brought into port under her own power, is shown arriving at Falmouth harbour, Eng., on Aug. 8, 1946

Below: CARGO SHIPS and other types of craft lying at anchor in Suisun bay, Calif., during 1946, after they had been carefully treated to preserve them for possible future use



Above: "NORMANDIE," former French luxury liner which was sold for scrap in 1946, being guided by tugs through New York harbour on her way to Newark, N.J., where she was to be broken up



cargo, cargo and refrigerated ships to meet competition on the high seas. Despite growing foreign competition, a critical shortage of materials forced the delay of initial ship construction to meet these needs.

On May 22, 1946, the maritime commission announced its determination of the 31 trade routes essential to the economy and defense of the nation and later in the year announced that on Jan. 1, 1947, payment of operating-differential subsidies with the recapture clause protecting the government would be resumed to aid U.S. flag operators to meet foreign competition with its lower labour and other costs. These parity payments had been suspended during the war. Of shipping companies, 12 held operating parity agreements at the end of 1946.

Construction parity payments which offset lower foreign costs, and which were in limited use during World War II, were to be made available to private operators desiring to build new ships and would keep valued shipbuilding know-how available in the United States.

The maritime commission, directed by the Merchant Marine act, 1936, exercised some control over the maritime industry and in many matters (freight rates, labour agreements and other maritime agreements) served in an advisory capacity.

(W. W. SH.)

Great Britain.—The disorganization of turning over from war to peace, the number of ships under requisition by the various governments and the long time taken to recondition ships after war service or to build new ones made 1946 a trying year for all shipowners. It began with full government control in addition to the demands of the United Maritime authority, arranged by agreement before the end of hostilities. At its close the United Maritime Consultative council remained, with representatives of all the leading maritime powers. In October the council recommended the establishment, through the United Nations, of a permanent international shipping organization of defined scope. The scheme was immediately criticized and its ratification became doubtful. The general requisition of British shipping ended in the spring but the direction of all voyages and the strict control of freights continued.

Nearly all European countries bought British and U.S. government ships. Many British owners of cargo liners preferred the faster U.S. ships to the 11-knot British standard ships and several were bought by various lines at high prices. The ministry of transport issued its first offer to sell in January with a reserve price placed against each ship. The more efficient ships went well, often at high prices, but concessions had to be made for others. Most of the tramp type were offered on time-charter also and this proved popular; many tramp owners preferred to charter until prices were reduced and liner owners also took this opportunity to tide them over the rush period. Private sales of British steamers were also controlled but permission was not generally refused within the flag, although every suggestion to sell a ship to foreign interests was carefully examined.

Passenger business was hampered by the fact that nu-

merous liners were serving as troopships, and long waiting lists for passages accumulated. Civilians were allowed to travel by transport but there were many complaints concerning conditions, food, empty berths, etc., which were generally unavoidable.

Most inward cargo in British ships was still for the government, but the export drive failed to balance it; British ships took a comparatively small part in the United Nations Relief and Rehabilitation administration cargoes which provided welcome freights to some flags.

British Commonwealth.—Canada sold most of its government-built ships to private owners but the Australian authorities had to continue running many of theirs and planned to extend the state fleet. South Africa started building up a merchant navy with enthusiasm; several new private companies built or bought ships and some big British liners were transferred to the South African flag. The new Indian leaders promised to give native shipping strong state aid.

Europe.—Practically all European governments took part in the Seamen's conference of the International Labour office at Seattle, Wash., but there was some doubt as to how readily some countries would ratify the convention.

Every major country except Sweden started the year with its strength far less than that of 1939, often not more than half; Sweden had covered its war losses by new construction. Apart from purchases every effort was made to get ships built or to salvage and refit war wrecks. Many former warships were bought for conversion, particularly by Greece. Germany had to surrender all its big ships and many smaller; Britain received the bulk because of its losses, but many were reallocated to other flags. The former German liner "Europa," taken over by France and renamed "Liberté," sank at Le Havre, France, on Dec. 9 after being torn from its moorings in a heavy gale. Attempts at salvage were being made.

(F. C. Bo.)

Shipping Administration, War: see WAR SHIPPING ADMINISTRATION.

Shoe Industry. During the war years and rationing period, the spotlight was focussed upon shoes, and consumers—for the first time—began to get some realization of the greater value they bought with their shoe dollar. The Office of Price Administration, which continued in effect for the first

Comparative Statistics of U.S. Shoemaking, 1944, 1945, 1946

Production of Shoes by Major Types (000's omitted)

		Women's	Men's	Misses' and Children's	Youths' and Boys'	Infants'	All Other	Total
1944	All Leather	117,024	66,121	35,643	16,265	29,075	22,833	286,961
	Other	68,300	3,710	10,011	1,051		47,413	130,485
								417,446 (†)
1945	All Leather	119,949	65,467	41,996	14,201	30,217	21,321	293,151
	Other	75,369	2,863	12,098	1,702	4,585	51,470	148,087
								441,238 (†)
1946*	All Leather	180,500	99,000	50,300	19,600	32,700	28,000	410,100
	Other	55,800	800	3,500	100	2,600	49,900	112,700
								522,800 (†)

Estimated Consumption of Shoes by Major Types (000's omitted)

		Women's	Men's	Misses' and Children's	Youths' and Boys'	Infants'	All Other	Total
1944	All Leather	134,000	67,000	40,400	19,700	32,000	24,000	317,100
	Other	56,000	3,100	8,300	900		45,700	114,000
								431,100 (†)
1945	All Leather	125,000	62,000	41,000	15,800	31,000	20,000	294,800
	Other	86,000	3,500	12,800	2,000	4,000	46,000	154,300
								449,100 (†)
1946*	All Leather	231,000	98,000	54,000	19,000	34,800	74,000	510,800 (†)

Per Capita Production of Shoes by Major Types (Pairs Per Capita)

		Women's	Men's	Misses' and Children's	Youths' and Boys'	Infants'	All Other	Total
1944	All Leather	2.26	1.29	3.15	1.22	2.77	0.17	2.08 (†)
	Other	1.32	0.07	0.89	0.08	....	0.34	0.94 (†)
1945	All Leather	2.31	1.27	3.65	1.04	2.70	0.15	2.09 (†)
	Other	1.45	0.05	1.05	0.12	0.41	0.37	1.06 (†)
1946*	All Leather	3.47	1.91	4.30	1.41	2.84	0.20	2.91 (†)
	Other	1.07	0.02	0.30	0.01	0.23	0.35	0.80 (†)

Estimated Per Capita Consumption by Major Types (Pairs Per Capita)

		Women's	Men's	Misses' and Children's	Youths' and Boys'	Infants'	All Other	Total
1944	All Leather	2.59	1.31	3.58	1.48	3.05	0.17	2.30 (†)
	Other	1.08	0.06	0.73	0.07	....	0.33	0.82 (†)
1945	All Leather	2.40	1.20	3.57	1.14	2.77	0.13	2.11 (†)
	Other	1.65	0.07	1.13	0.14	0.36	0.33	1.10 (†)
1946*	All Leather	4.43	1.89	4.62	1.37	3.03	0.51	3.63 (†)

*Preliminary.

No breakdown available for 1946 consumption of shoes, other than leather.

(†) Excludes shoes for military purposes.

nine months of 1946, kept a strong rein on prices and endeavoured to minimize the effect of inflated demands on curtailed supplies. When price controls were lifted, the industry was on its own; but surprisingly enough, prices did not jump too high. Shoe merchants were wary. They bought small lots and made short-term commitments. They wanted to keep in line with the trend of the basic material—leather.

Leather accounts for the principal cost in making a pair of shoes, and since the United States imports one-third of its raw stock, leather prices are inevitably affected by trends in the world market. During 1946 leather was in short supply and nations the world over were competing for their share of the available hides and skins and raw materials. Up to June 26, 1946, the International Hides, Skin and Leather committee, comprised of the major leather producing and consuming nations, was a strong deterrent to inflation of world market prices of leather. This committee allocated and channelled the available supplies fairly and equitably; and maintained effective controls. Unfortunately, the committee was liquidated on June 26. With the barriers removed, leather hungry countries competed in the world market and prices rose precipitously. United States tanners were restrained by the limitations put upon them by the OPA but when these controls and ceilings were finally dropped on Oct. 30, 1946 (in the wake of decontrol of meat and other products), they were obliged to pay the higher prices in order to augment their supplies. Shoe costs, therefore, naturally tended to increase.

Despite uncertainty and concern, more shoes were made month after month in 1946 than ever before and at the end of the first six months a production record had been established. Although the pace could not be maintained, the estimated figures for the entire year were some 522,000,000 pairs. It was the first time that the industry had exceeded the 500,000,000 mark and it was accomplished in a period marked by continuous obstacles and shortages of supplies.

The full effect of release from war-imposed style restrictions became noticeable in 1946, when U.S. manufacturers and designers were again given the opportunity to create and devise new shoes. Innovations in sole treatment, colour, decorative motif, etc., gave shoes an added appeal and consumption of women's shoes topped any figures for previous years. Men's, boys' and children's shoes were needed and greater quantities would have been absorbed at retail if size ranges had been more complete. In men's shoes the principal scarcity was in dress types.

Plastics and synthetics, which attained a strong foothold in the shoe industry when leather was short and shoe wardrobes needed the extra replenishment of unrationed footwear, maintained their position during 1946, although their wider usage was more apparent in accessories than in the shoe field.

Rubber footwear was coming back to its own and leading rubber companies were increasing their production of the basic canvas and active sports types. New methods of construction, to give added support, and comfort features were being incorporated into these rubber and waterproof types.

A Reciprocal Trade Agreement Negotiation conference was scheduled to be held in April 1947 between the United States and Australia, Belgium, Brazil, Canada, Chile, China, Cuba, Czechoslovakia, France, India, Lebanon, Luxembourg, the Netherlands, New Zealand, Norway, Union of South Africa, Union of Soviet Socialist Republics and the United Kingdom. Hides and skins, leather and most types of shoes were included on the list of products which were to be considered for possible granting of tariff concessions by the United States.

During the last three months of the year 1946 there were indications that the demand for shoes, which had been such an

important spur to U.S. shoe manufacturers for five years, might be slackening. (See also LEATHER.) (E. G. AN.)

Shows. **Horses.**—The 1946 season witnessed the recovery of most of the important horse shows and the beginning of several new ones. Restrictions on shipments and travel were no longer the major handicaps. While the total number of light horses in the U.S. was less than before the war, the entries indicated that the best show animals had been retained and a considerable lot of young stock trained for the show rings. The public appeared even more enthusiastic to attend and support the exhibitions.

The Chicago Horse show set a new record with 128 classes and \$75,000 in awards. The National at New York came back to its former status with a record attendance. At the American Royal Live Stock and Horse show at Kansas City, Mo., \$45,000 in cash awards attracted more than 450 entries in 129 classes from the middle west and some distant states. In the far west the Grand National at San Francisco was notable with 70 classes and \$16,500 in prizes. The Pacific International at Portland, Ore., was reported the greatest success for that region. The Los Angeles, Calif., National was a notable revival as was the St. Louis National. The Houston, Tex., show attracted many entries and visitors from the southwest. The Tennessee Walking Horse National celebration at Shelbyville, Tenn., was the largest display of this breed ever held.

The smaller community exhibitions exceeded the 175 record of 1945, and the horse departments of the several state fairs also increased in number of entries. Heavy horses were still predominating in the latter in spite of the severe competition of motor power with the heavy draft horse. (J. C. Ms.)

Livestock.—After four years of all but complete restriction during the war, the U.S. livestock show circuit was largely returned to its prewar schedule during the year 1946. With but few exceptions, all of the major state fairs and expositions of the country were held on schedule that year.

The National Western Live Stock show at Denver was the first major show of the year. It was held as usual in January. It was one of the few shows in the United States that went on uninterrupted by the war.

Another January event important to the southwest was the Houston Live Stock show. Both the beef and dairy breeds of cattle were featured. It took place in 1946.

The oldest livestock exposition in the United States is the Southwestern Exposition and Fat Stock show at Ft. Worth, Tex. It was held in March 1946 in the Will Rogers Memorial amphitheatre. Daily rodeos were its chief entertainment feature.

The American Royal in Kansas City, Mo., is one of the major expositions of the fall season. It was held, complete in all departments, in Oct. 1946, after a four-year war lapse, during which the setting of the show, the Coliseum adjoining the Kansas City Stock yards, was requisitioned for war purposes.

The Pacific International at Portland, Ore., is one of the top expositions of the west coast and was again resumed in 1946. The Aksarben show in Omaha, Neb., was one of the strongest steer shows of 1946, with accent on exhibits owned and shown by 4-H and Future Farmer of America boys and girls.

Another important west coast sectional show is the Great Western Live Stock show at Los Angeles, Calif. This exposition was held during the first week of Dec. 1946. It was preceded by the Grand National Live Stock exposition in the Cow palace in San Francisco. The latter show took place in mid-November.

There was scarcely a state fair grounds of importance in the United States that was not requisitioned during the war for military purposes. Despite problems incident to the reconditioning of these grounds, nearly all of them were made ready in time to

reopen in 1946. By comparison to the quality and number of livestock displays that distinguished these events in prewar times, the 1946 versions were, for the most part, under par in terms of livestock exhibits.

This was attributed to the high prices of feed, scarcity of farm labour and the months that are required to prepare animals for show. These summer and early fall state fairs revived on short notice. All, however, established new attendance records.

With one exception, all of the major midwest state fairs went on in July and August 1946. These included the Illinois, Wisconsin, Iowa and Indiana state fairs. The Minnesota state fair, noted in prewar times as the largest farm machinery show in the country, coupled with strong exhibits of livestock from Minnesota farms and adjoining states, was ready for restoration in 1946, but the management was forced to cancel it a week ahead of its scheduled opening because of the prevalence of polio, unusually severe at the time in Minnesota.

The New York state fair, one of the east's largest, and the Kentucky state fair, outstanding for its saddle horse shows in prewar times, did not go on in 1946. Plans were under way for their revival in 1947. The Eastern States exposition at Springfield, Mass., held annually in September before the war, also did not take place in 1946, but dates were announced for Sept. 1947.

The U.S.'s leading livestock show for four decades prior to the war was the International Live Stock Exposition and Horse show in Chicago. Founded in 1900, it closed on Dec. 6, 1941, in its last prewar showing a few hours before the attack on Pearl Harbor.

A series of market shows—including all the fat stock classes featured at the full International—were held at the Chicago Stock yards during the ensuing four years; and the full International Live Stock exposition again went on the first week of December in 1946 in the International amphitheatre, which was occupied by the Signal corps of the army for four and a half years. The "Victory" International Live Stock exposition of 1946 exceeded all records in the number and quality of its exhibits and in the number of people attending. Visitors came from every state in the union and Canada, and exhibits from 35 states and the dominion. The value of the livestock on display, \$15,000,000, was the highest worth of any aggregation of farm animals ever assembled at any show.

In Canada, the only show to survive the war was the Calgary exhibition and stampede, a July event that was again held in 1946. Three other large Canadian shows were restored in 1946. They were the Edmonton exhibition, the Saskatoon exhibition and the Regina Provincial exhibition—all July shows.

Another postwar Canadian show, returned to the September calendar, was the Exposition Provinciale at Quebec; and the Royal Winter fair took place in Toronto in November, the latter comprising Canada's largest livestock show of the year.

A dairy show of national calibre, combined with a national showing of Belgian draft horses, was held annually in October at Waterloo, Iowa, prior to the war. Known as the National Dairy Cattle congress and Belgian Horse show, this event was again held in Oct. 1946.

The only show of importance in Great Britain that survived the war was the annual Perth show and sale in Scotland. It features exhibitions of Aberdeen-Angus and Shorthorn cattle. It took place in Feb. 1946 in consecutive weeks for the two breeds.

South America's leading agricultural show, the Palermo, in Buenos Aires, was held in Aug. 1946. It is the world's largest showing of Shorthorn cattle. It runs for ten days. To a lesser extent than Shorthorns, the Palermo also features Hereford and Aberdeen-Angus cattle as well as Holsteins and Guernseys, the two principal dairy breeds of the Argentine. (W. E. O.)

Dogs.—An all-time record was set up in the number of shows of all breeds—249 in 1946 against 142 for 1945. Many men returning from war service swelled the ranks of exhibitors, though it is to be added that women constituted 47% of all exhibitors.

The outstanding show winner was a 12-lb. Boston terrier female named Champion Mighty Sweet Regardless, owned by Mrs. C. J. Fitzgerald of Detroit, Mich. Mighty Sweet triumphed as best of all breeds at 18 shows in 1946.

The bird dog (setters, pointers and Brittany spaniels) field trials numbered 415, comprising 1,310 stakes and 25,351 starters. Practically all these trials were run under the rules of the *American Field*, Chicago, whose stud book registered 21,052 dogs, a record year, with leaders in order—9,202 pointers, 7,623 English setters, 1,090 Irish setters.

Stud book registration with the American Kennel club, leading registry for all breeds, reached approximately 165,000 dogs and showed the ten leaders as follows, in order: cocker spaniel, beagle, Boston terrier, collie, dachshund, boxer, Chihuahua, Pekingese, springer spaniel and chowchow.

The national championship in retrievers (all breeds) was won at Herrin, Ill., by the black Labrador Shed of Arden, owned by Paul Bakewell III, of St. Louis. (W. Ju.)

Shverník, Nikolai Mikhailovich (1888—), soviet statesman and government official, became an apprentice at the age of 14 in an electrical machine plant. In 1905, he joined a revolutionary party and actively agitated among factory workers. Later, he joined the bolsheviks and upon the outbreak of the revolution in 1917, he was elected chairman of the All-Russian Union of Ordnance Workers. Shverník enlisted in a guerrilla detachment and during the civil war became an officer in the army. He was elected chairman of the metal workers' regional committee in the Donbas in 1921 and was appointed People's Commissar of Workers and Peasants Inspection in 1923. In 1930, he was elected to head the entire trade union movement in the soviet union as first secretary of the Central Council of Soviet Trade Unions. Shverník was also chairman of the Council of Nationalities of the Supreme Soviet. During World War II, he was chairman of the Extraordinary Commission investigating axis crimes in the U.S.S.R. He was also a member of the Central committee of the Communist party in the U.S.S.R. Upon President Mikhail Kalinin's retirement, he was named chairman of the praesidium of the Supreme Soviet. His appointment to this top post was announced March 19, 1946.

Siam (Thailand). A kingdom of southern Asia between Burma and French Indo-China, extending southward into the Malay peninsula. Area: 198,247 sq.mi.; pop. (census 1937): 14,464,105, (est. March 1940) 15,717,000. Chief towns (pop. 1937): Bangkok (cap., 681,214); Chiangmai (544,001); Khonkaen (473,475); Chiengrai (443,476); Language: Siamese; religion: Buddhism. Ruler: King Phumiphon Aduldet (succeeded June 1946); regents: Prince Chainat and Minavaraj Sevi; prime minister: Thawan Thamrong Nawasawat.

History.—On Jan. 1, 1946, a peace treaty was signed between Great Britain and India and Siam. Under its terms Siam agreed to return all acquisitions of British territory, to take part in regional security arrangements in southeast Asia under the provisions of the United Nations charter, and to undertake that no canal linking the Gulf of Siam with the Indian ocean would be cut across Siamese territory without the prior concurrence of the British government. Siam also agreed to provide 1,650,000 short tons of rice for Asia; to participate in any general international arrangement regarding tin or rubber, to prohibit exports



KING PHUMIPHON ADULDET of Siam, surrounded by royal household guards and protected by the royal umbrella, entering the grounds of the throne room to attend rites for his brother, former King Ananda Mahidol, whose death occurred on June 9, 1946

except under the direction of the combined boards, and to regulate trade and stimulate production of rice, tin, rubber and tea.

In the early months of 1946 efforts were made to arrange a conference which would formally end the state of war between France and Siam and restore the territory ceded by Vichy to Siam in 1941. The presence of armed bands of refugee Annamites hostile to France necessitated constant crossing of the frontier by French frontier police to round up guerrilla troops. The Siam government reported that on May 24, 25 and 26 some 800 French troops crossed the Makong, and on June 1 it made a formal protest to the United Nations, appealed for sympathy and assistance, and at the same time asked for admission to membership of the United Nations. On July 16 it asked that the situation be brought before the Security council as one threatening the maintenance of peace but subsequently requested a postponement of the discussion. Negotiations instituted by France on Aug. 1 for bringing the case before the International Court of Justice were also broken off. On Oct. 15 the Siamese parliament endorsed the government's decision to return the disputed territory to France, and on Nov. 17 an agreement was signed in Washington by a French and Siamese delegation which provided for the return of the ceded territory to France. Diplomatic relations were restored, Siam withdrew its complaint against France laid before the Security council, and France withdrew opposition to the admission of Siam to the United Nations.

On June 9 King Ananda Mahidol was found dead in his bedroom from a gun-shot wound. A commission aided by a committee of 19 medical members was appointed to inquire into his death and on July 2 an official police statement declared that 12 out of 20 members reported that murder was the most likely explanation. Prince Phumiphon Aduldet, 18-year-old brother of the dead king, was unanimously selected by the legislature to succeed to the throne and a council of regency was appointed.

On Jan. 31 Kuang Aphaiwong was appointed prime minister. He resigned on Aug. 21 and was succeeded by Thawan Thamrong Nawasawat on Aug. 23. It was announced in October that the Siamese government was to buy for £1,250,000 that part of the Burma-Siam railway built with prisoner-of-war labour. First claim on the money was to owners of rolling stock, locomotives and rails removed by the Japanese from Burma, Malaya and the Netherlands Indies. The remainder was to be credited against Japanese reparations. The British government acted as agent for the Allies in the deal. (J. R.A.)

Education.—In 1938–39: government schools 429, scholars 61,297; local public and municipal schools 11,072; scholars 1,484,483; universities 2, students (1937) 11,525.

Banking and Finance.—(1942) revenue \$77,650,000; expenditure \$95,800,000; expenditure, capital (est. 1941) \$20,700,000; public debt (March 31, 1940) \$25,500,000; notes in circulation (July 31, 1941) \$96,000,000; reserves (July 31, 1941), gold \$35,850,000; foreign assets (July 31, 1941) \$56,100,000; exchange rate (average 1940) 1 baht=35.15 U.S. cents; (Sept. 1941) 1 baht=36.97 U.S. cents.

Trade and Communication.—Foreign trade 1940–41 (merchandise): imports \$60,200,000; exports \$95,000,000. Communications: roads, state highways completed (1938) 1,815 mi.; railways open to traffic (1938) 1,925 mi.; airways, length of route opened (1938) 444 mi.; motor vehicles licensed (1937–38): 11,439; wireless receiving set licences (1938) 29,834.

Agriculture and Mineral Production.—Production (in short tons); rice (1939–40) 5,590,200; rubber (1940 exports) 49,500; tin ore, metal content (export 1940) 19,470; tobacco (1938–39) 9,240; cotton ginned (1940–41) 2,640; maize (1938–39) 6,160.

Silk. Return of silk to world textile markets was initiated in 1946 by a series of six sales conducted by the U.S. Commercial company, a government agency operating under the Reconstruction Finance corporation in Washington, in which a total of 32,700 bales of Japanese silk was offered to buyers who represented U.S., British and Swiss consumers. Reflecting a somewhat apathetic attitude of former users toward the once favoured fibre was the fact that only about 20,000 bales were sold. The sales were held monthly beginning July 12, 1946, in New York and, with the exception of the first two sealed bid sales, were based on a minimum published price for each grade, referred to as an "upset" price. This minimum steadily declined on the higher preferred grades. In Sept., the first public sale, the price of the highest grade offered, 20/22 denier Special AAA, 965 evenness, was \$10.50 a pound. The same grade in December had a minimum of \$7.80. In 1941, when silk was removed from civilian commerce, the price was about half of the latter amount.

The sale of the Japanese raw silk was a keen disappointment to the government officials since it had been expected that the cash return on the sale of the silk would go far in underwriting the cost of necessary supplies for the Japanese people. By the end of the year, plans were under way to embark on a plan to promote the use of silk in order to dispose of the large stocks on hand in the United States and in Japan. The stocks were reported as 99,200 bales in Japan and between 55,000 and 60,000 bales in the United States.

Practical Problems in Silk Manufacture.—To what degree weavers and knitters in the United States and Europe would return to the use of silk depended not only on price. It was conceded that silk should be reserved for the luxury type of product, but important also were the quality of silk sent from Japan and the cost of handling it in modernized mills which had been streamlined for rayon yarn production. Rayon processing did not require the same degree of individual attention from the worker. The winding of silk was tedious and time-consuming. Workers accustomed to smooth-running synthetic yarns balked at returning to silk. With a labour shortage still existing in textile mills, 1946 found mill managers loath to return to a fibre that could be woven only on a loom load, *i.e.*, looms per worker, of 4 or 6, compared with 32 on rayon.

At the year's close, the U.S. Commercial company indicated an intent to offset the fear of unstabilized prices by guaranteeing a price for a period of six months. Hosiery and fabric trade associations were also planning to work out revisions of the international raw silk grading system known as the International Raw Silk Classification. While this indicated an acceptance of silk as a regular textile supply source, there was little evidence of a return to prewar consumption figures of about 35,000-40,000 bales per month. Best estimates were a consumption of about 4,000 to 5,000 bales a month, for the most part by fabric makers. Hosiery manufacturers found that even the small amount of silk hosiery marketed in 1946 found few buyers. The retail price steadily declined from around \$3.00 a pair to \$1.30 for the sheer type. It was expected, however, that there would be a market for a heavier type purchased chiefly by older women. The relative amount of raw silk that could be used would still be small. Underwear fabrics, of chief interest to potential silk fabric users, were beginning to appear in increasing quantities by the close of the year but silk prints for dresses that in 1945 were selling at \$11.00 or \$12.00 a yard in the retail stores were being featured by the same stores at about \$3.00 a yard by the close of 1946. Silk underwear of the type that could have been purchased on the retail counter of 1940 for



STACKS of raw silk awaiting shipment to the U.S. from Japan in 1946

\$5.00 a garment was \$18.00 to \$25.00 in 1946.

Other Silk Sources.—The amount of Japanese silk available clouded over the other sources of silk, China, Italy, Brazil, etc. Italian silk was reported as poor grade. Chinese silk was received in small quantities but only for special purposes. Brazilian silk was forgotten by the close of the year. All of this did not discourage the promoters of sericulture (raising of silkworms and reeling of raw silk) in the United States. In Texas and New Jersey, offers were being made to provide mulberry cuttings and silkworm eggs to those who wanted an easy, lucrative business, said widely distributed circulars and advertising in national farm journals. Estimates as to potential sales were based on prewar reports on raw silk consumption at prices reflecting 1945 purchases of Brazilian silk. (See also RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY.)

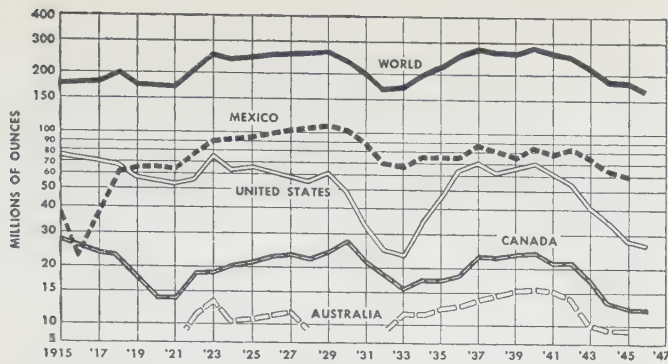
BIBLIOGRAPHY.—Textile Economic Bureau, New York; National Federation of Textiles, Inc.; Department of Commerce, Washington.
(I. L. BL.)

Silver. Output of silver by the major producing countries is shown in the table.

World Silver Production (Millions of fine ounces)						
	1940	1941	1942	1943	1944	1945
United States	68.28	71.08	55.86	40.87	35.65	29.33
Canada	23.83	21.75	20.70	17.35	13.63	12.87
Newfoundland	1.49	1.66	1.11	1.26	1.16	1.08
Mexico	82.64	78.36	84.86	76.63	65.46	61.10
Honduras	3.90	3.63	3.48	3.16	3.12	3.00
Argentina	3.71	2.92	2.84	?	?	?
Bolivia	5.63	7.35	8.12	7.30	6.80	6.68
Chile	1.51	1.24	1.32	1.09	1.09	?
Peru	19.37	15.12	16.04	14.66	15.83	16.08
Belgian Congo	3.54	3.47	3.96	3.11	2.61	2.50
South Africa	1.29	1.48	1.48	1.33	1.21	?
Australia	15.87	15.41	14.24	10.33	9.37	9.40
Total	275.39	261.57	247.75	217.04	186.20	?

It will be noted that data are lacking from Europe and Asia, each of which supplied about 8% of the prewar output. In these figures, almost as much as in the case of gold, is evidence of the extent to which output was restricted in favour of metals essential to the war program.

United States.—The U.S. outputs shown in the table are refinery data. Mine production was slightly lower, declining



SILVER PRODUCTION of the major producing countries and of the world, as compiled by *The Mineral Industry*

from 34,473,540 oz. in 1944 to 29,024,197 oz. in 1945, a drop of 57% from 1940. Silver shared with gold the burdens imposed by the suspension of production, but to a less pronounced degree.

Even after the restriction order was rescinded on July 1, 1945, mine output continued to decline, not reaching the minimum (1,637,091 oz.) until Feb. 1946. By October the monthly total had grown to 2,073,079 oz., and the total for the 10 months was 17,178,176 oz.; this figure is equivalent to an annual rate of 20,414,000 oz., which may be increased still further by improvement in the final two months of the year.

Canada.—The trend of silver production in Canada was much the same as in the United States—a decline of 46% between 1940 and 1945, ending with 12,866,597 oz. in 1945. The 1946 production rate improved over 1945, with a total of 10,085,435 oz. in the first three quarters, an increase of 6% over the same period of 1944. (See also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

Simeon II (1937–), former king of Bulgaria, was born on June 16. After the death of his father, King Boris, on Aug. 28, 1943, the six-year-old Simeon ascended the throne and ruled under a three-man regency council formed by Prince Cyril, Boris' brother, Lt. Gen. Nikola Michov, former war minister, and Bogdan Philoff, former premier. After Bulgaria quit the axis the regents were arrested and on Feb. 1, 1945, all three were executed as enemies of the regime and as collaborators with the Germans. On Sept. 8, 1946, the Bulgarian people voted the monarchy out of existence and Simeon and his mother, Queen Ioanna left Bulgaria Sept. 17 and went into exile in Alexandria, Egypt.

Singapore: see MALAYAN UNION AND SINGAPORE.

Sinkiang (HSIN-CHIANG, NEW FRONTIER, CHINESE TURKESTAN). Largest and farthest inland province of China, bounded N. by the Mongolian republic; E. by China; S. by Tibet and India; W. by Afghanistan and by the Tajik, Kirghiz and Kazakh Republics of the U.S.S.R. Area (according to Chinese police of the interior, 1938), 705,969 sq.mi.; pop. (provincial police figures, published in 1946) 3,730,051. Capital: Urumchi (Tihwa) (est. pop. 50,000), in the northern part of the province. The two largest towns, Kashgar and Yarkand, with estimated populations of 80,000 and 75,000, are in the south; 84% of the total population is on the western side of the province, adjacent to the U.S.S.R. and separated from China by the major desert expanses. Chinese estimates are that 90% of the population is Turkish-speaking, the settled majority being Uighurs and the nomadic minorities Kazakhs and Kirghiz; the Chinese comprise about 5%, divided between Moslems and non-Moslems and the remaining 5% include Mongols, Manchus, Tajiks and still smaller minorities. The prevailing religion is

Islam; with Lama Buddhism among the Mongols and nominal Confucianism and Taoism among the non-Moslem Chinese. Governor (appointed 1945): Chang Chih-chung.

According to a Chinese estimate, only about 2% of the province is cultivable. About one-third is suitable for grazing. The rest is desert. Most agriculture is concentrated in oases, irrigated from rivers coming down from high mountains, but there is a little rainfall agriculture in the north. Principal food crops are wheat, corn and rice, with beans, melons and fruit as subsidiary crops and cotton as a cash crop. Some silk is produced in the south. Farm rents range as high as two-thirds of the crop in the south and 80% in the north.

Livestock figures fluctuate sharply, especially when spring blizzards cause heavy mortality. A Chinese estimate of 1943 listed 11,720,000 sheep, 1,550,000 cattle, 870,000 horses, 90,000 camels.

The most productive parts of Sinkiang are within about 63 mi. of Russian railways, but not less than 620 mi. from Chinese railways, and trade tends to move accordingly. All principal towns are linked by rough truck roads, on which operated, in 1944, 210 government-owned trucks and 140 privately owned. Toll charges were high, and gasoline expensive.

Limited market impedes industrialization and most industry was owned or part-owned by the government. Five towns had electric light plants; there was one cotton textile mill and one chemical factory. The Russians developed some oil production during World War II but withdrew their equipment in 1943. Reserves were believed to be large. The Chinese air service extended to Sinkiang.

Russian political influence was strong from 1934 to 1943, when there was considerable danger of Japanese penetration, but was then withdrawn. The provincial government was dominated by appointees of the national government, but there was a growing autonomy movement among the non-Chinese majority. (O. Le.)

Sjahrir, Sutan (1910?–), Indonesian statesman and politician, joined the Indonesian Socialist party and during World War II refused to collaborate with the Japanese occupation authorities in the Netherlands Indies. This stand made him more acceptable to the British and Dutch as a representative of the Indonesian nationalists than President Achmed Soekarno and in Nov. 1945, he became premier of the "Indonesian republic." Sjahrir overhauled the cabinet, ousted all but one of Soekarno's cabinet officers and assumed the portfolios of foreign minister and home minister himself.

Incensed by the arrival of British reinforcements in Java in the fall of 1945, Sjahrir warned (Dec. 11, 1945) that the Indonesians would fight any attempt to bolster Dutch rule of the islands. He also denounced the U.S. for providing equipment to the Dutch troops. Following a controversy with opposition members who wanted him to form a more representative cabinet, he resigned in late Feb. 1946. However, he was given a vote of confidence in the national committee and formed a new government, March 12.

After nearly a year of fighting between Indonesian and Dutch troops, Sjahrir and Netherlands officials signed a truce, Oct. 14, 1946, and on Nov. 15, he initialed a draft plan under which the Dutch agreed to recognize the Indonesian republic and the latter's claims for equality and freedom.

Skating: see ICE SKATING.

Skiing. Alf Engen of Sun Valley, Ida., won the national open ski jumping title at Steamboat Springs, Colo., with a leap of 259 ft. Although 30 ft. short of the national record, set

by Torger Tokle (deceased), Engen's leap was 11 ft. more than the former course record. Art Devlin of Lake Placid, N.Y., the national amateur champion, was second.

Steve Knowlton of Aspen, Colo., was crowned both open and amateur downhill champion with his time of 2 min., 6.9 sec., for the mile-and-a-quarter run at Franconia Notch, N.H. Dick Movitz, 20-yr.-old Salt Lake, Utah, youth, won the national slalom, while Barney McLean of Denver captured the combined championship.

Merrill Barber of Brattleboro, Vt., and Walter Bietila of Ishpeming, Mich., gave Devlin his chief competition in amateur jumping. Barber won the national all-around title, while Bietila captured the eastern amateur and the Iron Mountain, Mich., titles. Devlin won the Tokle Memorial jump at Bear Mountain, N.Y. Kristofer Berg, a Norwegian student in the Harvard school of business, won both the eastern slalom and downhill events. Barber won the annual Norge jump at Fox River Grove, Ill., with jumps of 169 and 176 ft.

In women's competition, Paula Kann of North Conway, N.H., was crowned national downhill champion, while Rhona Wurtele of Montreal won the slalom and combined events. On the collegiate front, McGill of Montreal won the Dartmouth carnival with 568.7 points to 553.5 for Dartmouth. The Hanover, N.H., school won the Middlebury, Vt., and University of Vermont carnivals.

Water Skiing.—The fourth national water ski tournament at Lake Macatawa, near Holland, Mich., was won by a pair of teen-aged champions—Lewis Withey III, 16, of Grand Rapids, Mich., and Willa Worthington, 18, of Oswego, Ore. More than 40 exponents of the new and thrilling sport competed.

(M. P. W.)

Skin Diseases: see DERMATOLOGY.

Slate. The production of dimension slate in the United States rose from 60,950 short tons in 1944 to 69,660 tons in 1945. The production of slate granules and flour increased from 416,890 tons in 1944 to 482,230 tons in 1945, making total productions of 477,840 tons and 551,890 tons. (G. A. Ro.)

Slezak, Leo (1873–1946), Czechoslovak opera singer, was born on Aug. 18 in Schoeneberg, Moravia. A heroic tenor, he made his debut at Brno in *Lohengrin* in 1896, later appeared at the Berlin royal opera, the Vienna court opera and Covent Garden, London. English critics regarded him as the most important tenor after Enrico Caruso and considered him an even more finished artist. He stood 6 ft., 9 in., and weighed 350 lb., towered over his supporting cast and executed his roles, especially in Wagnerian operas, with great zest. He made his New York debut at the Metropolitan opera house in 1909 and remained for a three-year engagement. He was a member of the Vienna state opera, and while on leave appeared in Germany, Austria, Milan (Italy), Moscow (U.S.S.R.), St. Petersburg (U.S.S.R.), Warsaw (Poland) and Paris, on the concert stage and in opera. Slezak died in Bavaria, according to a London report of June 6.

Slovakia: see CZECHOSLOVAKIA.

Small, John Davis (1893–), U.S. government official and businessman, was born Oct. 11 in Palestine, Tex. He was graduated from the U.S. naval academy at Annapolis (1915), and served in the navy until 1926, when he resigned to enter business. In 1942, he was appointed deputy director of the army and navy munitions board. He joined the War Production board in Oct. 1944. Two months after the war,

the WPB was abolished, and on Nov. 3, 1945, Small was named administrator of the newly-established Civilian Production administration, with the task of steering the U.S. economy back to a peacetime basis. Small and Wilson Wyatt, housing expediter, put a ban on all general building construction on March 26, 1946, to give priority to housing for war veterans. Small's demand (May 16) that congress outlaw all strikes brought immediate repercussions from labour groups, which asked for his dismissal. He was also denounced by veterans' organizations because of CPA approval of more than 30,000 nonhousing projects (announced June 25), but Small denied that this construction would imperil building of veterans' housing. He resigned Dec. 5 and in his final report, issued on Dec. 24, he stated that most reconversion problems had been "licked."

Smith, Logan Pearsall (1865–1946), British essayist and critic, was born on Oct. 18 in Philadelphia. He spent four years at Haverford college, Haverford, Pa., and Harvard, worked for a year with his father's firm and then went to live in England, becoming a naturalized citizen in 1913. He entered Balliol college, Oxford, and studied under Benjamin Jowett, receiving his B.A. degree in 1893 and his M.A. in 1906. He read widely, produced a number of critical works, but his *Trivia* (1902–18), a collection of essays, established his reputation as a literary figure of wit and candour. He was a member of the Society for the Preservation of English. Among his other works are *The Youth of Parnassus* (1895), *Life and Letters of Sir Henry Wotton* (1907), *Songs and Sonnets* (1909), *The English Language* (1912), *More Trivia* (1921), *Words and Idioms* (1925), *On Reading Shakespeare* (1933), *Reperusals and Recollections* (1936), an autobiography *Unforgotten Years* (1938) and *Milton and His Modern Critics* (1940). He died in London on March 2.

Smith, Walter Bedell (1895–), U.S. army officer, was born on Oct. 5 in Indianapolis, Ind. After the U.S. entered World War I, he joined the army. He served overseas in 1918 and later returned to Washington for duty in military intelligence.

In the peace years, Smith held various assignments; he studied at the Infantry school in Ft. Benning, Ga., the Command and General Staff school and was graduated from the Army War college. He was with the war department general staff (1939–42), was promoted to brigadier general in 1942 and was made U.S. secretary of the combined chiefs of staff.

In Sept. 1942, Smith, then a major general, became chief of staff in the European theatre, with headquarters in England, and subsequently chief of staff to Gen. Dwight Eisenhower in North Africa. He remained with Eisenhower throughout World War II. He was promoted to a temporary lieutenant generalship in Jan. 1943 and given the rank of major general (permanent) in Oct. 1945.

On Feb. 14, 1946, Pres. Harry S. Truman named him ambassador to the soviet union. The president's request to congress for legislation permitting Smith to retain his military titles in his new post was approved by the senate military subcommittee on March 11, 1946.

Smith College. Smith college for women in Northampton, Mass., had for the year 1946–47 a total enrolment of 2,238. A revision of the curriculum was to go into effect in 1947. It would institute interdepartmental courses in the humanities, the natural and social sciences and emphasize a unified education with stress upon general culture.

The junior year in Mexico was continued during 1946 with an enrolment of 20 students and, for the first time, the college

sent a group of 37 students for international studies in Geneva, Switzerland, and 3 students spent the junior year in Zurich. The exchange of students with the University of Toronto continued. The intensive method of language instruction was carried on in German and Russian. The Smith college school for social work held its ten-week summer session on the campus with an enrolment of 137 students. The Smith college genetics experiment station started on its fifth year. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (E. Low.)

Smithsonian Institution. The institution was founded in the United States in 1846 through the bequest of James Smithson, an English scientist, "for the increase and diffusion of knowledge among men." The governing body is the board of regents, comprising the vice president, the chief justice of the United States, three senators, three representatives, and six eminent private citizens. The executive officer is the secretary. Dr. Alexander Wetmore was the secretary in 1946. The institution administers six government bureaus—the National museum, the National Collection of Fine Arts, the Bureau of American Ethnology, the International Exchanges, the National Zoological park and the Astrophysical observatory—that grew directly out of its early activities, and also the Freer Gallery of Art. The National Gallery of Art is a bureau of the institution, but is administered by a separate board of trustees. The purposes of the institution are carried out by research, exploration and publication.

On Aug. 10, 1946, the institution celebrated its 100th anniversary. On that date the first sheet of the Smithsonian three-cent commemorative postage stamps was presented to the institution on behalf of the postmaster general. A convocation and reception were held on Oct. 23, a public statement was issued by the president of the United States calling attention to the Smithsonian centennial, and a commemorative publication was issued by the institution under the title *The First Hundred Years of the Smithsonian Institution*.

On Aug. 12, 1946, the president approved an act to establish a national air museum as a bureau of the institution. The Public Buildings act of 1945 contained provision for several buildings for the Smithsonian institution, namely, a historical museum, a building for the engineering and industrial collections and additional buildings at the National Zoological park. Under the president's reorganization plan No. 3, the Canal Zone biological area was placed under the administration of the Smithsonian institution.

In 1946, the first year after World War II, the number of specimens accessioned and the number of visitors showed a marked increase, and field expeditions again were sent out, working in Colombia, Guatemala, Panamá and the vicinity of Bikini Atoll.

Archeological surveys and excavations of Indian sites to be flooded by dam construction in the Missouri and other river basins were started during the year; this project was to be administered by the Smithsonian institution in co-operation with the national park service, the corps of engineers, and the bureau of reclamation.

Under a contract with the Office of the Quartermaster General, the Astrophysical observatory was making a study of sun and sky radiation at Camp Lee, Va., to determine causes of tent-fabric deterioration. Instruments were developed and installed at Camp Lee, and a large amount of detailed information was accumulating regarding the daily quality and quantity of solar radiation.

The "diffusion of knowledge" is accomplished chiefly by several series of publications. At the end of 100 years of existence,

the Smithsonian institution had issued 7,500 individual publications, of which more than 12,000,000 copies had been distributed throughout the world. Outstanding publications of 1946 were volumes 1 and 2 of the *Handbook of South American Indians*, edited by Julian H. Steward, and *The Indians of the Southeastern United States*, by John R. Swanton.

The International Exchange service handled during the year 540,502 packages of publications weighing 472,229 lb. Shipments of governmental and scientific publications to most of the countries to which service had been suspended during the war were resumed. The Smithsonian library at the end of 1946 contained 928,353 volumes. (A. Wt.)

Snyder, John Wesley (1896–), U.S. government official, was born June 21 at Jonesboro, Ark. He attended Vanderbilt university, Nashville, Tenn., 1914–15, and in 1917 he joined the army and was promoted to artillery captain. While in France, he met Capt. Harry S. Truman and after the war the two became friends. Following the armistice, Snyder entered the banking profession, and in 1930 he became national bank receiver in the office of the comptroller of currency in Washington, D.C. He was appointed manager of the St. Louis loan agency of the Reconstruction Finance corporation in 1937 and executive vice-president and director of the Defense Plant corporation, a subsidiary of the RFC, in 1940. In early 1943, Snyder resigned from his various governmental posts to return to private banking. On April 17, 1945, President Truman appointed Snyder federal loan administrator, and three months later (July 16) Snyder was made director of the Office of War Mobilization and Reconversion. In his first report on the U.S. transition from a wartime to a peacetime economy on Sept. 6, he advocated retention of some controls and urged that the forces of deflation and inflation be checked by a "firm policy of economic stabilization." On June 6, 1946, Snyder was named secretary of the treasury by President Truman; he succeeded Fred Vinson who was appointed chief justice of the supreme court.

Soap, Perfumery and Cosmetics. Up to the Christmas season the total volume of trade in the United States was estimated for 1946 at about 10% over 1945; but all parties at interest were chary of predicting possible holiday business as for the first time in five years all kinds of competitive gift goods were in better supply. There were strong indications that the phenomenal rise of "men's toiletries"—essentially gift goods—had levelled off to something approaching normal growth long before the year's end. Relaxation of government price controls, begun in the spring and completed in late October, appeared to have no appreciable effect on the cosmetics market.

Throughout 1946 the supply position continued as difficult as during World War II. Glassware remained especially tight despite cancellation of government order L-103, which had prohibited the production and use of new moulds. The greatest difficulty was with fats and oils. Scarcity of these materials weighs heaviest on the soap industry, but also impinges on that part of the cosmetics industry which features bath preparations, and even on the perfumery trade (animal fats are essential to the production of natural attars). Annual prewar imports were about 2,000,000,000 lb. During the war this figure was halved. As late as mid-September there was no immediate prospect of a return to the prewar importation rate. The department of agriculture estimated that in 1946 the country would export up to 250,000,000 lb. more fats and oils than it imported, whereas before World War II the net favoured imports by about 1,500,000,000 lb. In June the department fore-

cast a 17% decline in the annual pig crop, and reckoned that annual per capita consumption of fats and oils would be down to 62 lb., the lowest from 1933. Preliminary estimates indicated annual per capita soap consumption—14 lb. in 1942—would not exceed 11 lb. in 1946.

In France these trades faced in a more aggravated form the same difficulties as in the United States. Nevertheless by the end of 1946 there were fair supplies of goods in the domestic market, while the effort to revive exports prompted one U.S. observer to remark that "it seems to me every Frenchman is now in the business and that most of the 50 million are calling at this office." French producers' prices, however, were of necessity so completely out of line with the U.S. market—France's biggest export market—as to make their cause almost hopeless. In this connection goods imported into the United States from France are not to be confused with goods made and sold in the United States under French names.

Great Britain started the year with high hopes that did not materialize. Contrary to expectation, wartime restrictions on manufacture for domestic consumption remained in full force. Additional quota for export was readily obtainable. But it was, in the first instance, permissive only; secondly, expressed in sterling. Producers found it impossible to procure all but insignificant portions of the materials needed to make the goods it represented. As elsewhere the great difficulty was with glassware, fats and oils.

(H. T.)

Soapstone: see TALC.

Soccer. The National Challenge cup returned to Chicago for the second time in its 32-yr.-old history on the triumph of the Vikings in the east-west play-off. Tied at 1-all by Ponta Del Gada in the first of a two-game series at Fall River, Mass., the Vikings defeated the Fall River team, 2 to 1, in Chicago for the title. The 1938 Spartas were the last Chicago team to win the National Challenge cup.

SOCCER PLAYERS at London, Eng., shown during a practice session in 1946



Fall River won the national amateur cup, while the Baltimore Americans topped the American league. The Lewis cup went to the Brooklyn Hispanos. The Chicago Spartas won the National league title.

Invasion of foreign soccer teams was resumed in the United States during 1946, with the British Liverpool Football club dominating its U.S. opposition. The Britishers twice defeated the American Soccer league all-stars in New York city, the second game by a 10-1 score. Soccer also boomed in England, Russia, France, Portugal and Germany. (M. P. W.)

Socialism. In the latter part of 1946, in the United States, the National Executive committee of the Social Democratic federation voted to accept the invitation of the Socialist party executive for a joint meeting to discuss steps for the creation of a unified Socialist party in the United States. The meeting of the committees was arranged for the first part of 1947.

Both the S.D.F. and the S.P. sent delegates to a conference in Chicago in Feb. 1946, which resulted in the organization of a National Educational Committee for a New Party. Other groups represented on the governing board of this committee were the Liberal party of New York state, the Michigan Commonwealth federation and various labour, educational, veteran and co-operative bodies. The N.E.C.N.P. declaration maintained that a new party alignment must "see to it that the citadels of power—the giant monopolies and other key industries—are controlled not by the few for the benefit of absentee owners but by the many for the benefit of the entire community. It must be opposed to totalitarianism in every form" and "must work toward the development of a world organization of free people."

The Socialist party during the year agitated for nationalization of the mines, for world disarmament under international control and for other domestic and international reforms.

Canada.—The Cooperative Commonwealth federation (C.C.F.) of Canada—a socialist-farmer-labour party, continued in power in Saskatchewan under Prime Minister Thomas Douglas during the year, and was represented in parliament by 28 members. M. J. Coldwell at the party convention in Regina was re-elected president of the C.C.F., Professor Frank Scott, chairman and David Lewis, secretary.

Latin America.—In Chile the Socialists, in the presidential elections, ran their own candidate, Bernardo Ibanez, but succeeded in securing for him only 12,000 votes, as against 190,000 for the winning Radical-Communist candidate, Gabriel Gonzalez Vidella. In Venezuela, the Socialists continued to support the Democratic Action government of Dr. Rómulo Betancourt, which was overwhelmingly victorious in the elections of Oct. 27, 1946, securing more than 100 out of 160 seats in parliament. The Communists in this election received 4% of the vote. In the congressional elections of March 1946, in Argentina, the Socialists, though receiving a considerable vote in many districts, failed for the first time in 34 years to win a single seat in the lower house. In Peru, the Aprista party—now the People's party, a socialistic party—continued during the year with the largest delegation of any party in the lower chamber and occupied several important posts in the José Bustamante Rivero cabinet.

Australia.—In the elections of Sept. 29, 1946, the Labour party won 44 seats out of 74. The senate results were: Labour, 33 (a gain of 12); and Opposition 3 (a loss of 12). Following the election, Joseph B. Chifley, leader of the Labour party, was re-elected prime minister and treasurer, and Dr. Herbert V. Evatt was appointed minister of external affairs and deputy labour party leader. The government during the year began to carry out the nationalization of all interstate civil air-line operations and extended the sphere of public banking.

New Zealand.—The New Zealand Labour party, which had been in power from 1935, was re-elected to office in Nov. 1946, winning 42 seats out of 80. The National party won 38. Peter Fraser was again chosen premier; and Walter Nash, deputy prime minister and minister of finance.

Great Britain.—During the year, the British Labour government nationalized the coal industry of Britain and certain allied activities, passed acts nationalizing the cable and wireless services and all civil air services and laid the foundation for the nationalization of inland transportation and the electrical services. It enacted laws to control new capital investment, social insurance and health service acts, repealed the restrictive Trades Disputes and Trade Unions act of 1927 and began an extensive housing program, while assisting in the rebuilding of cities, in the expansion of educational facilities and the more efficient operation of

private industry. The Labourites during the year won every by-election in the districts in which Labour won in 1945. In the municipal elections, Labour registered a net gain of 159 local council seats.

France.—Following the resignation of General Charles de Gaulle from the presidency in Jan. 1946, Felix Gouin, Socialist leader, was elected president of the provisional government. After the June 2 elections, which gave Socialists 122 seats, Communists 149 and Popular Republicans, 163, Gouin resigned and was succeeded by Georges Bidault. In the Nov. 10 elections, following the adoption of the constitution, Socialists elected 108 deputies; Communists 186; the Catholic Popular Republican movement (M.R.P.) 162. Leon Blum, Socialist leader, on Dec. 12 was elected prime minister of a temporary crisis government. In late December, the council of the republic was organized with 72 Communists, 70 M.R.P. and 47 Socialists out of 260.

During the year Socialists refused the appeal of Communists for organic unity. They supported the acts nationalizing gas, electricity and many insurance companies.

Belgium.—The year 1946 began with Achille Van Acker, Socialist, serving as premier in a four-party cabinet. On Feb. 17, the Socialists (Belgian Labour party) elected 69 representatives as compared with 92 Catholics and 23 Communists.

During the next month or so, Van Acker and Paul-Henri Spaak, Socialist, alternated as premiers. On March 31, Van Acker formed a government of Socialists, Liberals and Communists, with the Catholic party in the opposition. During the following months, the Socialists continued their vigorous opposition to the return of King Leopold, and the Van Acker government on July 26 received a vote of confidence in support of his abdication proposal. On Aug. 2, following a political crisis, the cabinet was reorganized with Camille Huysmans, veteran Socialist, as premier.

Netherlands.—Until the elections of May 1946, William Schermerhorn, leading member of the newly formed Labour party in which the Dutch Social Democratic Labour party was merged, served as premier of a coalition government.

In May, Labour won 29 seats, as compared with 32 for the Catholic party and 10 for Communists in a parliament of 100. Schermerhorn resigned and was succeeded by Louis J. M. Beel, liberal Catholic. Labour later joined the Beel government, following the Catholics' acceptance of a conciliatory Indonesian policy. Labour received 5 posts. In the municipal elections of July, Labour led the field in Rotterdam and the Hague; the Communists led in Amsterdam.

Austria.—Dr. Karl Renner, Socialist, continued as Austrian chancellor throughout the year, and Leopold Figl, of the Catholic People's party, as premier. The parliament was composed of 84 Catholic People's party members, 76 Socialists and 5 Communists.

At the initiation of the Socialists, the Austrian parliament passed a law in 1946 for the nationalization of the oil, shipping, electric power, metallurgy and banking industries. Several Austrians, however, were arrested by the soviet military authorities for attempting to carry out the nationalization decree, the Russians declaring that the property had been forcibly Germanized and belonged to the soviets as occupying forces.

Germany.—In the soviet zone in Germany, the occupying soviet brought powerful pressure to bear upon the Social Democrats to join with the Communists in a Socialist Unity party, and in April 1946 succeeded in effecting that unity. In the other German zones, the Social Democratic party, by an overwhelming majority, refused to merge with the Communists. During the year, the Socialist party and Christian Democratic union in the U.S., British and French zones received in the elections between 70% to 80% of the votes, and the Communist party around 8%.

In the soviet zone, the Socialist Unity party in the elections for the state and provincial diets on Oct. 20, received 47.7% of the votes and the Christian Democratic party received 24.3%. In the municipal elections in the four zones in Berlin in September, the Social Democrats were given 49% of the votes; the Christian Democratic party 22%, the Socialist Unity party 20% and the Liberal Democrats (conservatives) 9%.

	% of votes		
	Socialist party	Christian Democratic union	Communist party
U.S. zone, June 30, state constitutional assembly	33.6	47.9	7.9
British zone, Oct. 13, city and district councils	37.4	36.9	8.1
French zone, Oct. 13, city and district councils	26.8	55.6	7.1
Berlin, Oct. 20, city government	48.6	22.2	Socialist unity party 9.4

Italy.—The Socialists, in the beginning of 1946, were a part of the six-party cabinet presided over by Alcide de Gasperi, Christian Democrat.

In the general elections of June 2, 1946—the first democratic elections in more than 20 years—the Socialist party obtained second place, receiving more than one-fifth of the votes and electing 115 deputies. The Christian Democrats came first with 207 deputies and the Communists third with 104 out of a total of 556. Socialists later received 4 seats in the de Gasperi cabinet, including the ministry of foreign affairs, occupied by Pietro Nenni, leader of the Socialist party.

On Oct. 24, 1946, the Socialist party signed an agreement with the Communists in which both parties pledged themselves, while retaining their autonomy and individuality, to co-ordinate their respective activities in liquidating "fascist remnants," defending the republic and public freedom, providing, among other things, for the nationalization of monopolistic industries, large banks and public services, improving living conditions, abolishing large estates, strengthening co-operatives, maintaining peace, etc.

As the year progressed an increasing conflict developed within the Socialist party over the party's relations with the Communists. Nenni

favoured close collaboration, verging on organic unity, while Giuseppe Saragat, president of the constituent assembly, and Matteo Matteotti, son of the murdered Socialist leader, among others, condemned such collaboration as a "betrayal of socialism."

Czechoslovakia.—From the convening of the provisional national assembly on Oct. 28, 1945, until late May 1946, Zdenek Fierlinger, Socialist, served as premier of the Czech government in a cabinet composed of Social Democrats, National Socialists, Catholics and nonparty members.

On May 27, 1946, in the first postwar general election, Czech Communists won 93 seats, Czech (National) Socialists 55 and Czech Social Democrats 37 in a parliament of 300. On July 3, 1946, Klement Gottwald, chairman of the Communist party, was elected premier and Eduard Benes was elected president, following which a cabinet was constituted consisting of 9 Communists and 17 others distributed among Czech Socialists, Social Democrats and People's party adherents, Slovak Democrats and Independents. The government parties pledged themselves to adopt a foreign policy favourable to Russia. During the year, the Czech government began the operation of many nationalized industries.

Poland.—In Poland during the year the government was directed by a coalition cabinet containing representatives of the Workers', Socialist, Peasant and Democratic parties, headed by Premier Edward Osobka-Morawski, of the Polish Socialist party, and pledged to a foreign policy favoured by the soviet Communists. In late November, the Socialists and Communists entered into an agreement pledging both parties to cleanse themselves of elements opposed to the electorate accord made in connection with the Jan. 1947 elections. The government continued to refuse to legalize the Polish Social Democratic party, which claimed to represent the real socialist movement.

At the meeting of the deputies to the Polish provisional council in Feb. 1946, a motion was passed to nationalize all essential industries employing more than 50 workers. This decision was ratified in a referendum passed by the electorate on June 30, 1946. In the fall the U.S. protested against the activities of the Communist-dominated government departments, which it was alleged, were seeking to interfere with the holding of free elections in Jan. 1947.

Finland.—Social Democrats remained throughout the year the largest parliamentary party with a representation of 52 out of 200. On the resignation of Field Marshal Carl Mannerheim from the presidency and the election to that post of Premier Juko Paasikivi, Conservative, M. Pekkala, Social Democrat, became premier on March 24, 1946. After assuming the premiership, he formed a coalition cabinet containing 5 Social Democrats, 5 Popular Democrats, 5 Agrarians and 1 member of the Swedish party.

Hungary.—Social Democrats in Hungary supplied 4 members of the cabinet and held 76 in parliament against 246 for the Small Landholders, 67 for the Communists and 22 for the Peasants. The soviet military authorities, despite the parliamentary system, were the chief rulers of the country's policies.

Bulgaria.—During 1946, a coalition government, dominated by Communists, continued to rule the country. In Sept. 1946, Socialists joined with Communist and other groups in voting out the monarchy. The elections to select a national assembly, held on Oct. 27, 1946, resulted in the election of 277 Communists out of 465, and of 9 Social Democrats. The Allies, as a result of reports that the Communist-controlled government planned to prevent a free election, offered to supervise the elections, but their offer was refused.

In Rumania, Titel Petrescu, leader of the Socialist party, issued a demand in October for the cessation of illegal arrests on the part of the Communist-controlled government.

Far East.—The Social Democratic party, revived after the defeat of Japan, won in the April elections 94 seats in the diet out of a total of 466. The Liberals elected 142, the Co-operatives, 17 and the Communists, 5. In India, Pandit Jawaharlal Nehru, prominent Socialist, head of the Indian congress, was chosen during 1946 premier of the Indian Interim government.

International.—In November, the British Labour party was host to representatives of 18 Labour, Socialist and Social Democratic parties at a conference in Bournemouth, England, called to create a liaison between the democratic socialist parties in various countries for consultation and the exchange of facts and views.

After several days of discussion, those present agreed to hold another conference in Switzerland in the spring of 1947. (See also COMMUNISM; LABOUR PARTY, GREAT BRITAIN.)

FILMS.—*Despotism* (Encyclopædia Britannica Films Inc.).

(H. W. L.; N. T.)

Socialist Soviet Republics: see UNION OF SOVIET SOCIALIST REPUBLICS.

Social Security. In 1946 the international dimensions of social security objectives were outlined by the Social and Economic council of the United Nations. To deal with urgent and immediate social disorganization and distress, the council set up the International Refugee organization and other emergency bodies. In providing for a permanent Social commission, on the other hand, and for specialized organizations like the World Health organization, the council affirmed the concept that social policy must deal not only with the "socially wounded" but rather with the common needs of all.

United States.—Legislative activity and consolidation of additional health, welfare and educational activities within the

Federal Security agency were major developments in 1946. Hearings on social security problems and proposals were held by both the senate and house, from which came amending or new legislation in the closing days of the 79th congress.

The Social Security act amendments of 1946, signed Aug. 10, made changes in all programs but, unlike the 1939 amendments, made no comprehensive extension of the system. Despite the volume of testimony, the final proposals were limited in scope and made comparatively simple changes, to ensure speedy enactment. Contribution rates under old-age and survivors insurance were frozen at 1% each for employers and employees for 1947; the protection of the system was extended to survivors of veterans of World War II who die within three years of their discharge from military service; and certain other minor provisions were liberalized. Extension of coverage of the Federal Unemployment Tax act made possible permanent coverage of private maritime employment under state unemployment insurance laws, and a temporary program of unemployment insurance was set up (title XIII) for seamen whose maritime employment has been technically federal employment; provision was also made to permit states that have collected contributions from employees under state unemployment insurance laws to use them to finance disability benefits. The federal share in financing public assistance programs was increased; this provision became effective Oct. 1, 1946, and was to expire at the end of 1947. Federal grants to states for the three maternal and child health and welfare programs were also increased and were extended to the Virgin Islands.

Congress also amended the Railroad Retirement and Railroad Unemployment Insurance acts, in a bill signed July 31. Among other liberalizations, the amendments establish monthly survivor benefits and temporary disability and maternity benefits. A provision also amended the Social Security act by making service in the railroad industry creditable toward survivor benefits and provides for correlation of such benefits under the two systems.

Another law returned to the states on Nov. 15 the public employment offices which in Jan. 1942, at the request of the president, had been transferred by the states to the federal government to centralize and unify the mobilization of the labour force for war production.

The Hospital Survey and Construction act, signed Aug. 13, was the first step in legislation to implement the president's message to congress on a national health program; it authorizes grants to states toward the costs of surveying existing hospital facilities, developing programs for additional facilities, and constructing such facilities. Congress also approved an act on July 3 which included provision for a National Institute of Mental Health, and for increased federal grants to states for public health services, with special emphasis on mental health problems.

On Aug. 2 the senate directed its Finance committee to make a complete study of old-age and survivors insurance and all other aspects of social security.

Administrative developments during the year stemmed from the president's reorganization plan. As of July 16, the three-member Social Security board was abolished and most of its functions, as well as certain responsibilities in the field of health and welfare which were lodged in other governmental units, were transferred to the Federal Security administrator. On that same date the administrator announced the creation of the Social Security administration as one of four major units within the agency. The Social Security administration includes the bureaus which were formerly within the board and also the children's bureau, transferred from the department of labour with all functions except those relating to child labour.

Social Insurance and Related Programs.—Most of the people who were laid off or released during the reconversion were protected under federal-state unemployment insurance systems, the federal system for railroad workers, or the Servicemen's Readjustment act. The peak of insured unemployment, measured by continued claims filed under the three programs, came in the week ended March 2, for which 3,662,000 claims were filed. Though claims from unemployed veterans continued to mount, claims under the state systems declined gradually thereafter, and by the last months of the year the volume of unemployment was probably close to the irreducible minimum for peacetime. In October, benefit expenditures paid to an average of 1,919,000 persons under the three programs totalled \$169,000,000, of which 60% went to unemployed veterans.

Under federal old-age and survivors insurance, 1,606,000 persons received monthly benefit payments in Oct. 1946, at a monthly rate of \$30,400,000. About two-thirds went to aged retired workers and their wives and dependents; the rest went to surviving widows, children and parents of deceased wage earners. At the end of 1946, an estimated 43,200,000 workers were insured under the program, of whom 35,500,000 were fully insured and 7,700,000 currently insured only. Survivor benefits will be payable on the death of any of these workers, within a given period of time, and retirement benefits will be payable immediately to fully insured workers 65 years old or over if they retire from covered employment. Nearly one in every four of the fully insured workers was also permanently insured; regardless of their future covered employment, these workers, their dependents, and, when they die, their survivors will have the protection of the system.

Monthly retirement, disability, and survivor payments were also paid in October to beneficiaries under the railroad retirement program (189,000) and veterans' programs (3,093,000). Retirement or disability pensions went to some 104,000 former federal employees under programs administered by the Civil Service commission and to almost 190,000 persons protected by state and local government plans; in addition, survivors of more than 30,000 persons were receiving monthly payments under the latter plans.

Aside from the disability payments just mentioned, the only other government programs compensating for wage loss from disability were workmen's compensation, in effect in all states but Mississippi, and temporary disability payments linked to the Rhode Island unemployment insurance law and, effective Dec. 1, under the California unemployment insurance law.

Assistance and Welfare.—Supplementing the social insurance programs, public assistance was an important resource for persons who, because of age, extreme youth, blindness or other handicap, could not support themselves, and for families who met catastrophes with which they could not cope unaided. The number of persons receiving public assistance, which had declined continuously during the war, increased in 1946 as reconversion proceeded. The average payment also rose slowly, as states liberalized their legislative provisions or welfare policies to meet in some degree the rise in living costs. These factors, plus the greater federal funds which became available in October for payments under the Social Security act to the needy aged and blind and dependent children, brought to \$108,000,000 the total amount expended in that month under all public assistance programs including general assistance, which is financed by states and localities without federal sharing. Seven-tenths of this amount went to the needy aged.

Federal grants-in-aid to states for maternal and child health and welfare programs and the emergency maternity and infant care program for dependents of enlisted men totalled nearly \$50,000,000 in the fiscal year 1945-46, of which \$38,000,000

went for the emergency maternity and infant care program. (See also LAW; RELIEF.) (A. J. A.)

Great Britain.—Following the coming into operation, in Aug. 1946, of the Family Allowances scheme, by which it was estimated that about 2,000,000 families would receive weekly children's allowances at an annual cost to the exchequer of some £59,000,000, considerable legislative progress was made with the main insurance sections of the government's comprehensive social security measures based on the recommendations of the Beveridge report. The National Insurance act and the National Insurance (Industrial Injuries) act were passed by parliament in August, but their full provisions would not be implemented until dates to be fixed by the minister of national insurance, probably in 1948. The delay was due to the preliminary adjustments necessary in establishing the complete organization of the new ministry. Neither act deviated in principle nor in any important particular from the proposals which were put forward in the government's White Papers of 1944 (Cmd. 6,550), 1945 (Cmd. 6,651) and 1946 (Cmd. 6,729). Although it was necessary to postpone the operation of the full scheme until 1948, as an exceptional measure the government decided to bring into immediate operation, as from Oct. 1946, those parts of the general scheme of national insurance which related to old age pensioners, including blind persons and widows of 60 and over. The general effect of this decision was that such pensioners received payment at the higher rates provided for in the new act and during the interim, until the full scheme should be in force, the corresponding rates of contributions were also increased. For example, the joint pension of a man and wife insured in the husband's right was increased from 20s. to 42s. weekly, or where the wife was separately insured, to 52s.; pensions for single persons were increased from 10s. to 26s. Particulars of the changed rates of pensions and contributions were given in a White Paper in July 1946 (Cmd. 6,878), issued by the ministry of national insurance. The increased pensions could, if necessary, be supplemented under the existing scheme of supplementary pensions administered by the assistance board, but the number of those requiring such supplement would be considerably less after 1946. The new scheme of national assistance which was projected by the minister when introducing the new insurance scheme made need the sole qualification for state assistance from the assistance board and so marked the final elimination of the old Poor law.

The National Insurance (Industrial Injuries) act would apply without exception to all persons working under contract of service, and would transfer liability for the compensation of those injured in the course of their employment from the individual employer to a separate state insurance fund contributed to equally by employers and employed, with additions from the exchequer equal to one-fifth of the joint contributions. Compensation would be according to degree of disability and not related to previous earning capacity. The principal benefits are: injury allowances for first 26 weeks of incapacity, followed by disablement pensions if incapable of work or if permanent disability is suffered; dependent's allowances for wife, children or adult dependent; rates of benefit the same for men and women; pensions in fatal cases for widows or adult dependents, with allowances for children; the scheme was to be extended to certain industrial diseases to be prescribed by the minister.

The National Health Services bill which was introduced at the beginning of the year was under long consideration by parliament. The National Health Services act passed by parliament in October amended many details of the bill, but the general provisions of the act did not differ from the proposals in the White Papers of 1944 (Cmd. 6,502) and 1946 (Cmd. 6,761), except that all hospitals were to be brought under national ownership.

There was growing recognition that effective planning and co-ordination of the hospital services is inseparable from ownership, with the exception of the teaching hospitals attached to the universities, which have a separate and special function.

See the *Annual Report* of the assistance board for 1945 (Cmd. 6,883, 1946) for information on the administration of assistance during the war. (J. McAT.)

Social Service: see CHILD WELFARE; RELIEF; SOCIAL SECURITY.

Societies and Associations. The following is a selected list of U.S. societies and associations, with date of founding, membership, officers, and chief activities during 1946. See also the separate articles on AMERICAN LEGION; BOY SCOUTS; RED CROSS; YOUNG MEN'S CHRISTIAN ASSOCIATION; etc.

American Academy of Arts and Letters.—An organization founded in 1904 by the National Institute of Arts and Letters to improve the institute's efficiency in the protection and furtherance of literature and fine arts. Membership is limited to 50 persons chosen only from the institute. At the fifth joint public ceremonial in 1946, medals were awarded and twenty-three \$1,000 arts and letters grants were given. On Nov. 19 at the annual meeting three new members were elected: Archibald MacLeish, Charles Austin Beard and Gilmore D. Clarke. Officers (1946): president, Walter Damrosch; chancellor and treasurer, James Truslow Adams; secretary, Van Wyck Brooks. Publications: One art exhibition catalogue and the 25th edition of the *Yearbook*. Headquarters: 633 W. 155th St., New York city.

American Academy of Political and Social Science.—This academy is composed primarily of business and professional people interested in serious discussions of public questions. Membership in 1946 approximated 12,500. Special membership rates are allowed for students of whom there were nearly 600. In addition to publishing the bi-monthly journal *The Annals*, the academy distributes sundry informational documents provided by the U.S. department of state. Officers (1946): president, Ernest Minor Patterson; secretary, J. P. Lichtenberger; treasurer, Charles J. Rhoads. Headquarters: 3457 Walnut St., Philadelphia, Pa.

American Association for the Advancement of Science.—A scientific association whose membership in 1946 totalled 29,000. It publishes a non-technical science series; a technical series of which those on *Human Malaria* and *Relapsing Fever* were widely used by the medical corps of the U.S. army and navy in the tropics; and the serial publications, *A.A.A.S. Bulletin*, *The Scientific Monthly* and the weekly journal *Science*. Officers (1946): president, James B. Conant; administrative secretary, Forest Ray Moulton; treasurer, William E. Wraether; general secretary, Otis W. Caldwell. Headquarters, Smithsonian Institution building, Washington (25) D.C.

American Association of Law Libraries.—The association was founded in 1906 and incorporated in 1935 "to foster the development of law libraries in the United States and Canada, through establishing and maintaining standards for libraries and librarians; to publish in its official organs material of professional interest and value." The association in 1946 had a membership of 325 bar association, county, court, government, law school and state librarians, in addition to 42 associate members. Publications: *Index to Legal Periodicals* and *Law Library Journal*. President (1946-47): Laurie H. Riggs, Baltimore Bar library, Court house, Baltimore, Md.; president-elect, Arie Poldervaart, New Mexico Law library, Santa Fé, N.M.

American Bankers Association.—This national organization, founded in 1875, had a membership in 1946 of more than 15,000 banks, representing more than 99% of the banking resources of the United States. The Association's primary objective is the improvement of banking services in the interests of the public. Educational activities of the association include the American Institute of Banking, for bank personnel, and The Graduate School of Banking for bank officers. During the year 75,000 persons held membership in the A.I.B. and 30,000 had enrolled in courses given in many cities throughout the country. Publication: *Banking*, a magazine. Officers (1946): president, C. W. Bailey, First National bank, Clarksville, Tenn.; vice president, Joseph M. Dodge, The Detroit bank, Detroit, Mich.; treasurer, S. Albert Phillips, First National bank, Louisville, Ky. National headquarters: 12 E. 36th St., New York city.

American Bar Association.—The association was founded in 1878 to advance the science of jurisprudence and promote the administration of justice. Its membership, as of Sept. 1, 1946, was 37,303. The Ross prize of \$3,000 went to Eugene C. Gerhart for the essay on "Labor Disputes: Their Settlement by Judicial Process." The annual medal for conspicuous service to the cause of U.S. jurisprudence went to Carl McFarland. Publications: *The American Bar Association Journal*, a monthly; an annual volume of reports and proceedings and various pamphlets. Officers (1946): Carl B. Rix, president; Howard L. Barkdull, chairman to house of delegates; Joseph D. Stecher, secretary. Headquarters: 1140 N. Dearborn street, Chicago, Ill.

American Bible Society.—Founded in 1816 for the purpose of encouraging a wider circulation of the Holy Scriptures, without benefit of financial gain, the society had a membership in 1946 of 125,000. Activities during the year included the regular work of distributing the Scriptures throughout the U.S. and approximately 40 other countries, in more than 150 languages, and of furnishing New Testaments and Bibles to Japan and Germany. Publication: *The Bible Society Record*, issued ten times a year. President (1946): Daniel Burke. Headquarters, 450

Park avenue, New York city.

American Chemical Society.—Founded in 1876, the society's main purpose is to encourage the advancement of chemistry, to improve the qualifications and usefulness of chemists, increase chemical knowledge and promote scientific interests and inquiry. Membership in 1946 totalled 48,000. Two national meetings were held and 60 predoctoral and 7 postdoctoral fellowships in chemistry and chemical engineering were awarded during the year. Officers (1946): Chairman, Roger Adams; president, Bradley Dewey; president-elect, W. Albert Noyes, Jr.; treasurer, Robert T. Baldwin. Publications: *Chemical Abstracts*, *Journal of the American Chemical Society*, *Chemical and Engineering News*, *Industrial and Engineering Chemistry* and *Analytical Chemistry*. Headquarters, 1155 16th St., N.W. Washington, D.C.

American College of Life Underwriters.—Incorporated in 1927, the college grew out of the needs for efficient life underwriting. To obtain the C.L.U. designation candidates must pass five examinations and satisfactorily complete three years of business experience. During the year the college gave examinations at 115 universities and colleges. In 1946, 2,599 persons held the C.L.U. designation and 3,765 held partial credits. Publications: *Annual Announcement*, *C.L.U. Study Supplements* and *Refresher Monographs*. Officers (1946): President, S. S. Huebner; Dean, David McCahan; chairman of the board, Julian S. Myrick. Headquarters, northeast corner 36th and Walnut streets, Philadelphia, Pa.

American College of Surgeons.—The college was founded in 1913 for the purpose of elevating the standards of surgery and improving the hospitalization of the patients. Membership in 1946 totalled 15,000. Publications include: *Surgery, Gynecology, and Obstetrics*, the official monthly journal; *Medical Service in Industry and Workman's Compensation Laws* (1946); and a quarterly, *Bulletin of the American College of Surgeons*. Officers (1946): president and chairman of the board of regents, Irvin Abell, M.D.; secretary, Paul B. Magnuson, M.D.; treasurer, Dallas B. Phemister, M.D.; associate directors, Malcolm T. MacEachern, M.D. and Bowman C. Crowell, M.D. Headquarters, 40 E. Erie street, Chicago, Ill.

American Economic Association.—This professional association of economists was founded in 1885 to encourage economic research and stimulate thought and discussion of economic problems. It consisted of 4,662 members in 1946 and had 2,161 subscribers (universities, libraries, etc.). The 59th annual meeting for discussion of problems of 1946, was held at Atlantic City, N.J., Jan. 23-26, 1947. Among the topics discussed were the Employment act of 1946, the public debt, the social and economic significance of atomic energy, the economy of the U.S.S.R. and labour-management relations. Publications: *American Economic Review* (quarterly), and occasional monographs. Officers (1947): Paul H. Douglas, president. Headquarters: Northwestern university, Evanston, Ill.

American Geographical Society of New York.—Primarily a research institution, the society was founded in 1852 for the purpose of advancing geographical knowledge. In 1946 the society completed compilation of the two North American sheets of the *Map of the Americas* on the scale of 1:5,000,000. Work also was resumed on preparation of additions to the society's monograph series which had been curtailed by World War II. Membership in 1946 was 4,648. Publications: *The Geographical Review* (quarterly) and *Current Geographical Publications* (monthly). Officers (1946): Roland L. Redmond, president; Dr. John K. Wright, director. Headquarters: Broadway at 156th St., New York city.

American Historical Association.—This association was founded in 1884 for the purpose of promoting historical studies and for the collection and preservation of historical manuscripts in the interests of U.S. history and of history in the U.S. Membership in 1946 totalled 3,812. Activities during the year centred on the selection of manuscripts for publication and the preparation of discussion pamphlets on public questions for use by the armed forces. Publications: *The American Historical Review*, a quarterly, and an annual report in three volumes. Officers for 1946: president, Sidney B. Fay, Harvard university; executive secretary, Dr. Guy Stanton Ford, Library of Congress Annex. Headquarters, Library of Congress Annex, Washington, D.C.

American Institute for Property and Liability Underwriters, Inc.—The institute was incorporated in 1942 for the purpose of establishing educational standards for qualified property and casualty underwriters with the view toward their recognition as professional Chartered Property Casualty Underwriters; 89 persons held the C.P.C.U. designation in 1946. To obtain the award candidates must pass five examinations and satisfactorily complete three years of business experience. During 1946, 271 candidates took 573 examinations throughout 23 states. Officers (1946): chairman of the board, S. S. Huebner; president, H. P. Stellwagen; dean, Harry J. Loman. Headquarters, Hamilton court, 39th and Chestnut streets, Philadelphia, Pa.

American Institute of Accountants.—This national society of certified public accountants was founded in 1887 to maintain high standards of education and practice for the profession and to develop the technique of accounting in the public interest. With more than 10,000 members in 1946, it continued its activities in the improvement of federal income taxation, the preparation of the official Certified Public Accountant examinations for 44 states, the District of Columbia and the four territories. Officers (1946-47): president, Edward B. Wilcox; vice-presidents, Parry Barnes and Percival F. Brundage; treasurer, Maurice E. Peloubet; secretary, John L. Carey. Publications, *The Journal of Accountancy*, *The Certified Public Accountant*, both monthly. Headquarters, 13 E. 41st St., New York city.

American Institute of Chemical Engineers.—This organization was founded in 1908 for the advancement of chemical engineering in theory and practice and for the maintenance of a high professional standard amongst its members. Three regional meetings and the 39th annual meeting were held in 1946. Membership as of August exceeded 6,400. Officers (1946): president, James G. Vail; vice-president, Charles M. A. Stine; treasurer, C. R. DeLong; secretary, Stephen L. Tyler. Publications, *Transactions of the American Institute of Chemical Engineers*. Headquarters, 50 E. 41st St., New York city.

American Institute of Electrical Engineers.—The society, founded in 1884

for the advancement of the theory and practice of electrical engineering, had 75 local sections and 125 student branches in educational institutions in 1946. Activities during the year centred on the development of standards and the advancement of technical developments. Three national and four district meetings were held. Membership in 1946 exceeded 26,000. Officers (1946): president, J. Elmer Housley; secretary, H. H. Henline. Publications: monthly, *Electrical Engineering*; annual, *Transactions and Yearbook*. Headquarters, 33 W. 39th St., New York city.

American Institute of Mining and Metallurgical Engineers.—An organization founded in 1871 for the purpose of promoting the arts and sciences connected with the economic and scientific search for, production of and use of, minerals, including metals, coal, petroleum and other nonmetallic minerals. Its membership in 1946 was 15,000. An annual meeting of the institute was held in February at which time more than 200 technical papers were read and discussed. Publications for the year included five volumes of *Transactions*; monthly issues of the magazine *Mining and Metallurgy* and regular issues of the periodicals *Petroleum Technology*, *Metals Technology*, *Mining Technology* and *Coal Technology*. Officers (1946): president, Louis S. Cates; secretary, A. B. Parsons. Headquarters, 29 W. 39th St., New York city.

American Iron and Steel Institute.—This organization was incorporated in 1908 to promote the interests of the iron and steel industry. Membership in 1946 included 1,400 active and 500 associate members. The institute continued its research projects in 1946 and initiated new research on reinforced concrete and many other items. Publications included six issues of *Steel Facts*, five issues of *Steelways*, the *Annual Statistical Report*, *Steel Products Manuals* and others. Officers (1946): president, Walter S. Tower; vice-presidents, B. F. Fairless and Frank Purnell; secretary, George S. Rose. Headquarters: 350 Fifth Ave., New York city.

American Law Institute.—From its organization in 1923 to early 1944, the principal work of the organization was the *Restatement of the Law*, an orderly statement of the common law of the states of the U.S. The last two volumes were published in 1945. The *Restatement* was in general use by the courts. The chief work of the institute in 1946 was on a model code of commercial law, expected to be completed in 1949 or 1950. There were in 1946, aside from the official membership of persons holding leading judicial bar and law school faculty positions, 860 life members. The president in 1946 was George Wharton Pepper; William Draper Lewis was director and chief of editorial staff. Executive offices, 3400 Chestnut St., Philadelphia, Pa.

American Mathematical Society.—This society was founded in 1888 for the purpose of encouraging and maintaining an active interest in mathematical science. Membership in 1946 was 3,100. Publications: *Bulletin of the American Mathematical Society*, *Transactions of the American Mathematical Society*, *Mathematical Reviews*, *Colloquium Publications* and *Mathematical Surveys*. Officers (1946): President, T. H. Hildebrandt, University of Michigan; secretary, J. R. Kline, University of Pennsylvania. Headquarters: 531 W. 116th St., New York city.

American Society of Civil Engineers.—A society founded in 1852 for the purpose of advancing the sciences of engineering and architecture. Membership in 1946 exceeded 21,000. The professional activities of the society were directed through the society's headquarters; its professional committees; its technical divisions; and its student chapters in 123 engineering colleges. Publications: *Proceedings* (monthly); *Transactions*, a yearly volume; *Civil Engineering* (monthly); and the *Yearbook*. President (1946) Wesley W. Horner, St. Louis, Mo. Principal office: 33 W. 39th St., New York city.

American Society of Mechanical Engineers.—A national organization whose membership of more than 21,000 in 1946 was grouped into 17 professional divisions covering all phases of mechanical engineering. The society's work during the year was carried on by 71 sections including one in Canada. Student branches were also maintained in about 122 engineering schools. The society holds four national meetings annually. Officers (1946): President, Eugene W. O'Brien; secretary, Colonel C. E. Davies; treasurer, K. W. Jappe. Chief publications, *Mechanical Engineering*, a monthly periodical, and *Transactions*, including the *Journal of Applied Mechanics*. Headquarters, 29 W. 39th St., New York city.

American Society of Tool Engineers.—An educational body, the society was founded in 1932 for the purpose of advancing scientific knowledge in the field of tool engineering. In 1946 the society sponsored scholarships in educational institutes and began the organization of student chapters. Membership exceeded 18,000. Publications: *The Tool Engineer*, *A.S.T.E. data sheets*, *A.S.T.E. directory* and *Tool Engineer's Handbook*. The president in 1946 was A. M. Sargent, Detroit, Mich.; vice-presidents, W. B. Peirce, Pittsburgh, Pa., I. F. Holland, W. Hartford, Conn., R. B. Douglas, Montreal, Canada; secretary, George Johnson, Rockford, Ill. Headquarters, 1666 Penobscot building, Detroit, Mich.

Anti-Saloon League of America.—Organized in 1895, interdenominational and nonpartisan in character, this national federation of state temperance organizations had affiliations in 1946 with 31 states and one territory. Activities during the year centred on the development of new methods of temperance education and the adoption of an eight-point program, including collaboration with church leaders and temperance agencies, designed to further the cause of alcoholic temperance. The national publication is *The American Issue*. Officers (1946): president, Bishop Ralph S. Cushman; general superintendent, George W. Crabbe; attorney, Edward B. Dunford; research secretary, Laura Lindley. National headquarters, 131 B St., S.E., Washington, D.C.

Brookings Institution.—This nonprofit organization is devoted to research and training in the field of economics and government. It is supported by grants from foundations, its own endowment and income from the sale of publications. Publications in 1946 included: *Relief and Social Security*, by Lewis Meriam; *Americans in Persia*, by A. C. Millspaugh; *The Regulation of the Security Markets*, by H. G. Moulton, Willard E. Atkins and George W. Edwards; *China's National Income*, by Ta-Chung Liu; and *Depreciation Policy and Postwar Expansion*, by Lewis H. Kimmel. Officers (1946): Harold G. Moulton, president; Lewis Meriam, vice president; Henry P. Seidemann, treasurer and Elizabeth H. Wilson

secretary. Headquarters: 722 Jackson Place, N.W., Washington, 6, D.C.

Carnegie Trusts.—*Carnegie Corporation of New York*, established in 1911, with an endowment of \$135,000,000, makes grants to institutions and agencies whose activities aim at the advancement and diffusion of knowledge among people in the U.S. and the British empire. During 1945-46, grants totalling \$3,086,385 were made among colleges and universities and various agencies. The other five separately administered Carnegie organizations in the U.S., founded before the corporation for specific purposes, are:

Carnegie Institute of Pittsburgh (1896), comprising a museum of fine arts, a music hall, a museum of natural history and a public library.

Carnegie Institution of Washington (1902), devoted to scientific research; by 1946 it had expended some \$50,000,000 in its program.

Carnegie Hero Fund Commission (1904), established to recognize heroic acts performed throughout the U.S., Canada and Newfoundland; from 1904 it had awarded 3,442 medals and a total of \$6,837,051 in pecuniary awards.

Carnegie Foundation for the Advancement of Teaching (1905), established to provide retiring pensions for teachers and to advance higher education, paid \$1,879,686 in 1946 in such allowances, raising the cumulative expended total to \$50,977,418.

Carnegie Endowment for International Peace (1910), established to serve the purpose indicated by its name, continued in 1946 to promote international understanding and further the general cause of peace.

Catholic Community Service, National.—An agency, founded in 1940, to promote the spiritual, recreational, social and educational welfare of men and women in the armed forces, war production workers and the families of both groups. Activities in 1946 centred on the guidance of returned veterans and the younger men who were entering the service. The agency was the recipient in 1946 of the army and navy award for meritorious service during World War II. Publications include *NCCS* (monthly magazine), *Planning Ahead* (book), and the following pamphlets: *Yesterday and Now Tomorrow*, *At Home in Housing Projects*, *Community Aids for Patients and Side by Side on the Long Road Home*. Headquarters: 1312 Massachusetts Ave., N.W., Washington, D.C.

Catholic Library Association.—An international organization of librarians, educators and others interested in the promotion of Catholic literature and Catholic library work. The association's membership in 1946 was 1,351. The compilation and publication of book lists were the principal activities during the year. Publications include: *Catholic Library World*, the official publication, *Catholic Booklist* and *Catholic Supplement to Standard Catalog for High School Libraries*. Officers (1946): president, Richard James Hurley, University of Nebraska; vice-president, Brother Thomas, F.S.C., Manhattan college, New York city; executive secretary, Laurence A. Leavey, Manhattan college. Headquarters: Cardinal Hayes library, Manhattan college, New York city.

Commonwealth Fund, The.—An endowment, established in 1918 by Mrs. Stephen V. Harkness "to do something for the welfare of mankind." In 1946 appropriations totalled \$2,121,917.69. Activities tending to promote or maintain physical and mental health accounted for more than 85% of this total. Fellowships for British graduate students at U.S. universities, suspended during World War II, were resumed with the appointment of 20 fellows for 1946-47. Directors of the fund (1946): Malcolm P. Aldrich (president), David P. Barr, William E. Birdsall, Phil W. Bunnell, Robert A. Lovett, Lewis Perry, Barry C. Smith, William E. Stevenson and Thomas D. Thacher. Offices: 41 E. 57th St., New York city.

Daughters of the American Revolution, National Society of.—An historical, educational and patriotic society whose activities are conducted by 24 national committees, and whose membership in 1946 approximated 150,000 in 2,600 chapters. Two schools are maintained and operated by the society and support is tendered to 18 approved schools. During the year more than \$152,000 was contributed to schools by the various chapters and more than \$339,000 was circulated through the D.A.R. Student Loan fund to deserving students. The society had distributed more than 100,000 D.A.R. Manuals for citizenship to aliens and children; 7,290 clubs, comprising 241,000 junior U.S. citizens, had been taught the ways of "better citizenship and right use of leisure." A genealogical library of more than 25,000 volumes is maintained by the society. President general in 1946 was Mrs. Julius Y. Talmadge. National headquarters, 1720 D street, N.W., Washington, D.C.

Elks, Benevolent and Protective Order of.—This fraternal order was organized in 1868 for the purpose of practising charity, justice, brotherly love and fidelity; promoting the welfare and enhancing the happiness of its members; and to quicken the spirit of U.S. patriotism and cultivate good fellowship. Membership in 1946 totalled 850,000. Charitable expenditures for the year amounted to \$4,200,000. The Elks National Veterans Service commission worked on plans for the rehabilitation of veterans. Publication: the *Elks Magazine*, a monthly periodical. Officers (1946): grand exalted ruler, Charles E. Broughton, Sheboygan, Wis.; grand secretary, J. E. Masters, Chicago, Ill. Headquarters: 2750 Lakeview avenue, Chicago, Ill.

Falk Foundation, The Maurice and Laura, of Pittsburgh, Pa., was founded in 1929 for the purpose of bettering the lot of mankind. During 1946 it devoted part of its funds for research investigation of specific economic problems involved in postwar economic conversion and reconstruction. In practice the foundation attempts to enlarge and refine the economic knowledge of the country. Publications, issued by the Brookings institution in 1946: *Depreciation Policy and Postwar Expansion*, *The Regulation of the Security Markets and Relief and Social Security*. A further publication, *Domestic Servants in the United States*, was issued by the National Bureau of Economic Research. Officers (1946): chairman, Leon Falk, Jr.; vice-chairmen, E. T. Weir and Frank B. Bell; secretary, I. A. Simon; treasurer, Arthur E. Braun; executive director, J. Steele Gow. Headquarters: 1911 Farmers Bank Bldg., Pittsburgh, Pa.

Guggenheim Memorial Foundation.—The John Simon Guggenheim Memorial foundation was established in 1925 for the advancement of research in all fields of knowledge and for creative work in the arts. The founda-

tion in 1946 had an endowment of \$20,268,324.22. A total of 157 post-service fellowships were awarded in 1946 with total grants of \$400,000. Countries added to the Latin American Fellowship program were: Bolivia, Colombia, Ecuador, Paraguay and Venezuela. Officers (1946): president, Mrs. Simon Guggenheim; vice-president, Francis H. Brownell; treasurer, Otto L. Myers; secretary, Henry Allen Moe. Headquarters: 551 Fifth Ave., New York city.

Kiwanis International.—An organization, founded in 1915, which consisted in 1946 of 170,000 business and professional leaders in 2,550 clubs throughout the United States, Canada and Alaska. Community betterment is its principal objective. Its program includes participation in public affairs, aid to youth, promotion of closer rural-urban relations, maintenance of democracy and preservation of the free enterprise system. Publications include *The Kiwanis Magazine*, *The Monthly Club Bulletin* and *The Weekly Club Bulletin*. Officers (1946): president, J. N. Emerson, Pullman, Wash.; secretary, O. E. Peterson, Chicago, Ill. Headquarters, 520 N. Michigan Ave., Chicago, Ill.

Knights of Columbus.—A fraternal order organized in 1882, dedicated to the preservation and championship of Catholic and U.S. principles. Its membership as of June 30, 1946, was 615,280. The organization, which held its 64th annual convention in Miami Beach, Fla. (Aug. 20-22), continued its fund-raising campaign for the educational trust fund for Catholic college training for sons and daughters of members left fatherless as a result of service in World War II. The fund, begun in 1944, totalled more than \$500,000 in 1946. Publications: *Columbia*, a monthly with a circulation of more than 500,000, and *News*, a weekly. John E. Swift was supreme knight in 1946. National headquarters: 45 Wall street, New Haven, 7, Conn.

League of Women Voters of the United States.—The league was founded in 1920 for the purpose of promoting political responsibility through informed and active participation of citizens in government, without supporting or opposing any particular party or candidate. Membership in 1946 totalled 62,000. During 1946 the 525 leagues of this organization were active in promoting a continuous campaign to encourage a large and informed vote. Publications: *Trends in Government*, a biweekly sheet; *Action*, a bimonthly members' magazine. Officers (1946): president, Miss Anna Lord Strauss; vice-presidents, Mrs. Harold A. Stone and Mrs. Marc A. Law; secretary, Mrs. James G. Scarborough; treasurer, Mrs. Leonard Haas. Headquarters, 726 Jackson Place, Washington, D.C.

Lions Clubs, International Association of.—Founded in 1917 as a non-political, nonsectarian association of service clubs whose purpose is to recognize and meet the needs of the community, its activities cover eight classifications: boys and girls; citizenship and patriotism; civic improvements; community betterment; education; health and welfare; safety; sight conservation and aid to the blind. Membership in 1946 totalled 300,000 in 5,700 clubs in 18 different countries. Officers (1946): International president, Clifford D. Pierce, Memphis, Tenn.; secretary general, Melvin Jones, Chicago, Ill. Publications: *The Lion*; *El León* (the Spanish edition) and the *Lions International Monthly Letter*. Headquarters, 332 S. Michigan Ave., Chicago, Ill.

Music Library Association.—This association was founded in 1931 for the purpose of promoting the establishment, growth and use of music libraries and collections of music. Membership in 1946 comprised some 400 individuals and 150 institutional members. Publications: *Notes*, a quarterly journal; *Music and Libraries*, a volume of selected papers presented at the 1942 meetings, and a *Code for Cataloging Music*. Officers (1946): president, H. Dorothy Tilly, Detroit Public library; vice-president, Lowell P. Beveridge, Columbia university; secretary-treasurer, Mary R. Rogers, Library of Congress. Headquarters: Music Division, Library of Congress, Washington, D.C.

National Academy of Sciences.—A scientific body incorporated by an act of congress in 1863 for the purpose of investigating and reporting upon scientific subjects as called for by any department of the U.S. government. As of July 1946 the academy had 390 U.S. members, 44 foreign associates and 6 members emeriti. In 1946 many problems of a confidential nature were undertaken at the request of the government. Officers (1946): president, Frank B. Jewett; vice-president, L. P. Eisenhart; home secretary, F. E. Wright; foreign secretary, Detlev W. Bronk; treasurer, J. C. Hunsaker. Headquarters: 2101 Constitution avenue, N.W., Washington, D.C.

National Association of Manufacturers.—The association was founded in 1895 for the purpose of perfecting an organization of manufacturers for manufacturers. It is the spokesman of industry before the national government and its congressional and administrative agencies. Its findings are imparted to members through publications and bulletins. Membership in 1946 totalled 15,500 manufacturers distributed throughout 48 states. Publications include the weekly *NAM* news and a supplement analyzing and digesting labour rulings and decisions. A number of economic booklets devoted to a wide variety of national topics are also published. President (1946): Robert R. Wason. Headquarters, 14 West 49th St., New York city.

National Association of State Libraries.—The association was founded in 1889 for the purpose of providing, through the medium of the association, the information and data necessary for the better organization and functioning of state libraries. Membership in 1946: institutions, 43; individual, 7; associate, 4; honorary life, 1. The 1946 annual convention was held in Buffalo, N.Y.; problems common to state libraries throughout the country were discussed. Twenty-four state libraries were represented. Publications include *Proceedings and papers*, 46th Annual. Officers (1946): president, Dennis A. Dooley; secretary-treasurer, Alfred D. Keator.

National Lawyers Guild.—Founded in 1936, this organization is dedicated to the aim that human rights shall be regarded as more sacred than property rights. Its membership in 1946 was more than 5,000. It participated in organizing the International Association of Democratic Lawyers in Paris in October and the guild was represented as an official observer at the Nuernberg trials. It campaigned in 1946 to unite democratic lawyers throughout the world to the ideal that international law should be developed as an instrumentality for maintaining peace. Na-

tional officers (1946): Robert W. Kenny, president; Martin Popper, executive secretary. Headquarters: 902 20th street, N.W., Washington, D.C.

Performing Right Societies.—A world-wide confederation of composers, authors and publishers of musical works whose chief purpose is the licensing to commercial interests of the right to perform publicly the copyrighted work of their members. The International Confederation of Societies of Authors and Composers met in Oct. 1946 in Washington, D.C., for the purpose of preparing the agenda for the work of the plenary session scheduled to be held in London in 1947. The conferees unanimously adopted a resolution criticizing and urging abolition of the provision in the U.S. copyright act that prevents payment of royalties for performances played in coin-operated mechanical instruments (juke-boxes). Largest and most influential member of the confederation is the American Society of Composers, Authors and Publishers (A.S.C.A.P.), whose membership in 1946 included about 1,800 writers and 280 publishers. In 1946, A.S.C.A.P. issued licences to 152 symphony orchestras and 200 concert halls and to telecasters in the television field. It also renewed contracts with many European and Latin-American societies. Officers (1945-46): Deems Taylor, president. A.S.C.A.P. headquarters: 30 Rockefeller Plaza, New York city.

Research Libraries, The Association of.—This association of 45 of the largest research libraries in the U.S. and Canada was founded in 1942. It held two meetings in 1946 at which the primary topic was the problem of securing books and periodicals published in axis and occupied countries during World War II. A printed book catalogue of Library of Congress cards, in 164 volumes, was completed in 1946 and plans were made for publishing a photo-offset reprint of the British museum catalogue in 40 volumes. Officers: Paul North Rice, executive secretary. Headquarters, New York Public library, New York (18), N.Y.

Rockefeller Foundation.—The foundation was chartered in 1913 and is concerned with problems in the medical, natural and social sciences, the humanities and public health. In 1946 the foundation centred its interest on research in the field of nervous and mental diseases, experimental biology and the study of international relations in regard to postwar problems. Publications: *The President's Review* and the *Annual Report*. Officers (1946): president, Raymond B. Fosdick; secretary, Norma S. Thompson. Headquarters, 49 W. 49th St., New York city.

Rosenwald Fund, The Julius.—The fund was founded in 1917 for the purpose of improving the conditions of Negroes with the view toward their full participation in U.S. life. Fifty-four fellowships were awarded to Negroes in 1946 and 32 to white southerners. Total funds expended during the year amounted to \$716,000. As of June 30, 1946, assets of the fund totalled \$1,772,000. A biennial review is published every two years. Officers (1946): Edwin R. Embree, president; Will W. Alexander, vice-president; Charles S. Johnson, director for race relations; Fred G. Hale, director for rural education; William C. Haygood, director for fellowships; Dorothy A. Elvidge, secretary and comptroller. Headquarters: 4901 Ellis avenue, Chicago, Ill.

Rotary International.—A world-wide organization of Rotary clubs made up of groups of representative men, for the purpose of furthering co-operation and goodwill in business and community life. In 1946 there were 6,000 clubs in 75 countries with a membership of nearly 300,000. In 1946, clubs in the U.S. and Canada sponsored 297 Institutes of International Understanding, and Rotarians throughout the world devoted their programs during the month of November to the United Nations Educational, Scientific and Cultural organization. Official magazine is *The Rotarian*. Officers (1946): president, Richard C. Hedke, Detroit, Mich; vice-presidents, Charles Jourdan-Gassin, Nice, France; B. T. Thakur, Calcutta, India; and Carl E. Bolte, Kansas City, Mo. Headquarters: 35 E. Wacker drive, Chicago, Ill.

Russell Sage Foundation.—Established in 1907 for the purpose of improving social and living conditions in the U.S., it has an endowment of \$15,000,000. About 75% of its income in 1946 was devoted to work carried on by its own staff; the remainder to work by other organizations. Its later publications included the *Social Work Year Book, 1947*, edited by Russell H. Kurtz; *American Foundations for Social Welfare*, by Shelby M. Harrison and F. Emerson Andrews; and *Music in Hospitals*, by Willem van de Wall. Officers (1946): president of board of trustees, Morris Hadley; general director, Shelby M. Harrison. Offices, 130 E. 22nd St., New York city.

Special Libraries Association.—Founded in 1909 this association is an international organization of librarians and information experts who serve manufacturing concerns, banks, corporations, law firms, newspapers, advertising and insurance agencies, museums, hospitals and many other organizations. In 1946 the membership approximated 4,500. The official journal, *Special Libraries*, was published monthly, September to April, with bimonthly issues from May to August. Among the many other publications are *Index to American Petroleum Statistics*, *Handbook of Commercial Financial and Information Services* and *Source List of Selected Labor Statistics*. Officers (1946): president, Betty Joy Cole; executive secretary, Mrs. Kathleen B. Stebbins. Headquarters, 31 E. 10th St., New York city.

Spelman Fund of New York.—Chartered in 1928 for charitable, scientific and educational purposes, including the advancement and diffusion of knowledge concerning child life and the improvement of interracial relations, the fund continued its program designed to improve techniques in the field of public administration in 1946.

Theatre Library Association.—This association was founded in 1937 for the purpose of preserving and making accessible to the public the records of the drama and kindred fields of entertainment. The membership in 1946 was 161. Publications of the association are the *Broadside*, issued six times in 1946, and the *Theatre Annual*, issued in January. Officers (1946): president, George Freedley, Theatre collection, New York public library; secretary, Mrs. Sarah Chokla Gross, McCord Theatre museum of Dallas, Tex.; treasurer, Mrs. Elizabeth P. Barrett, Theatre collection, New York public library.

Twentieth Century Fund.—Organized in 1919 by Edward A. Filene, the foundation serves a threefold purpose: research; policy formulation; and

public education on current economic questions. During 1946 the fund completed a comprehensive report on *America's Needs and Resources (1950-1960)*. It also completed a survey on the foreign economic relations of the U.S. and issued a report of its Committee on Foreign Economic Policy. The final volume in the series of six reports on *When the War Ends* was published under the title *For This We Fought*. Other publications included: *American Housing: Problems and Prospects and Cartels in Action*. Officers (1946): John H. Fahey, president; Henry S. Dennison, chairman, executive committee; Morris E. Leeds, treasurer; Evans Clark, executive director; J. Frederic Dewhurst, economist. Headquarters, 330 W. 42d St., New York city.

Woman's Christian Temperance Union, National.—During 1946 membership had increased over the preceding year in the amount of approximately 400,000. Activities during the year included two summer schools of alcohol education, held under the National Director of Scientific Temperance Instruction department. An organization school was held at national headquarters for the purpose of training workers, and thousands of pages of literature were sold and distributed in addition to the usual departmental work. Publications: *Union Signal* (weekly); *The Young Crusader* (monthly). Officers (1946): president, Mrs. D. Leigh Colvin; vice-president, Miss Mary B. Ervin; corresponding secretary, Miss Lily Grace Matheson; recording secretary, Mrs. Glen G. Hays; treasurer, Miss Violet Black. Headquarters, 1730 Chicago Ave., Evanston, Ill.

Women's Clubs, General Federation of.—Founded in 1890 for the purpose of uniting women's clubs throughout the world for the promotion of education, philanthropy, public welfare, moral values, civics and fine arts. The federation in 1946 was composed of 3,000,000 members in 17,000 clubs. Activities during the year centred on a program to provide better educational opportunities and adequate health, welfare and recreational services for the youth of today. Other activities included a goodwill program designed to promote better understanding among the peoples of the world. Officers (1946): Mrs. LaFell Dickinson, president; Mrs. J. L. Blair Buck, first vice-president; Mrs. Hiram C. Houghton, Jr., second vice-president; Mrs. Oscar Ahlgren, recording secretary; Mrs. Volney Taylor, treasurer. Headquarters: 1734 N Street, N.W., Washington, D.C.

Sociology. Tendencies long apparent in U.S. sociology became very obvious in 1946. These tendencies were toward the merging of sociology, social and cultural anthropology, social psychology and social psychiatry in what was coming to be called the science of social relations. Harvard brought the trend into the open by establishing a department of social relations, but essentially the same state of affairs existed at Chicago, Wisconsin, Yale, Columbia and a number of other universities.

Clear theoretical formulation of the *de facto* merger was not forthcoming. Earlier systematic works in the various fields named were all lacking in sufficient appreciation of closely related approaches. In some cases, indeed, the lack was not only appreciation but also substantive knowledge. Those trained in a rigidly sociological tradition ignored social psychology; anthropologists overlooked sociology; psychiatrists too directly transferred clinical formulations to everyday but little-known social relations; social psychologists oriented themselves toward the individual "psyche" rather than toward social actions. A renewed interest in far-flung and close-knit theory was badly needed.

Unfortunately, many of the theorists active in the 1930s either passed their peak or had their energies drained off by preoccupation with the *ad hoc* application of theory to research. Such application put the cart before the horse. Scientific research worthy of the name was undertaken with the sole end of proving or disproving a given body of theory; all else was technology, highly useful but promising little for basic advance. The remarks by Franklin Frazier, Herbert Blumer and Alfred McClung Lee at the Dec. 1946 meeting of the American Sociological society bore melancholy witness to this fact, as their critics, Melvin Tumin and William L. Kolb, were quick to point out.

The lagging of strictly theoretical interest was made worse, in a day of rising public appreciation of the importance of a potential science of human relations, by the great number of commercial opportunities awaiting the trained social scientist. Polling agencies, personnel departments, governmental bureaus, military government and many other organizations competed for the services of social scientists, and the low rate of pay in the academic field, where theory as such was most cultivated, lured many of them into positions of lucrative but, where theory is concerned, blind-alley character.

At the same time, it cannot be denied that immediate problems loomed so terrifyingly large that many social scientists felt called by duty to aid in their solution. For example, W. F. Ogburn contributed a significant although disheartening article, "Sociology and the Atom," to the *American Journal of Sociology* (*Am. J. Sociol.*). He also published a volume on the *Social Effects of Aviation*. The preoccupation with atomic problems also resulted in an attempt to discover just how the scientists directly concerned view their responsibilities; Margaret Smith Stahl's "Splits and Schisms: An Analysis of Atomic Energy Factions" (unpublished dissertation, University of Wisconsin) undertook this task. Using sociology of knowledge as a guide, she showed that there was a basic cleavage between pure and applied scientists working on atomic energy projects, and that the resulting factions could be interpreted as following their special interests quite as much as their announced ideals. A somewhat similar analysis, but focusing on sociologists rather than physical scientists, was provided by Kurt H. Wolff, "Toward a Sociocultural Interpretation of American Sociology," in the *American Sociological Review* (*Am. Sociol. R.*). Wolff's contentions, which ran to the effect that marked class biases and sentimental attachments distort the findings of many prominent U.S. sociologists, were somewhat sweeping, and it was to be doubted whether he got much beyond the familiar *argumentum ad hominem*. Research comparable to Stahl's in its thoroughness would be necessary if Wolff hoped to be taken seriously.

Other attempts to deal with contemporary social changes focused on less specific problems and groups, although the significant article by Rudolf Heberle, "A Sociological Interpretation of Social Change in the South" in *Social Forces* (*Soc. F.*) at least concentrated on a region. Joseph Needham, English biologist who was active in the United Nations Educational, Scientific and Cultural organization, felt no necessity for such concentration, and his "On Science and Social Change," in *Science and Society* (*Sc. and Soc.*) took the whole world for its parish. Once a rigid mechanist who succeeded in reconciling his scientific creed with his Catholic faith, Needham became a devotee of the Marxian dialectic, and hence is not now afflicted by uncertainty.

Studies of a German thinker, Max Weber, who opposed the vulgar Marxism of his day, became increasingly numerous. Among the most important were Reinhard Bendix's "Max Weber's Interpretation of Conduct and History," in the *Am. J. Sociol.*, and Paul Honigsheim's "Max Weber as Rural Sociologist" in *Rural Sociology*. The vogue of Weber was furthered by the appearance of H. H. Gerth and C. Wright Mills' *From Max Weber*. This was a collection of important excerpts and articles prefaced by an excellent introduction. This book makes it abundantly clear that Weber was never an exponent of religious determinism *versus* economic, but rather an analyst stressing the interdependence of these and several other aspects of man's institutional conduct. An attempt to uphold economic determinism in the interpretation of history was made by Meyer Reinhold, whose article, "A Critique of Rostovtzeff," in *Sc. and Soc.*, followed the orthodox Marxian line with reference to the Greeks and Romans.

Coming from a quarter quite different from that represented by Weber, an implicit demonstration of the futility of rigid determinism of any sort in the interpreting of human conduct was offered by the anthropologist Morris Edward Opler, in "An Application of the Theory of Themes in Culture," in the *Journal of the Washington Academy of Science*. Opler showed how the "themes" or ideological patterns evident among even a primitive people, the Lipan Apache, divide into at least 20 main strands, among which no single one is dominant in all aspects of life.

Nowhere, however, did Opler or any other responsible social scientist deny the very great importance of economic activity. Indeed, the preoccupation with immediate problems already noted brought forth a new specialty drawing upon economics, sociology, social anthropology and social psychology. It has come to bear the label "industrial sociology," but there are several other terms which could have been used just as well. It does, however, lay marked and justifiable stress upon the importance of social groups and their interrelations within large factory organizations presumably modelled along strictly economic lines. Past efforts to deal with the worker either as a purely individual entity, as has so frequently been the case among industrial psychologists, or as a mere member of a collective bargaining unit, as has so frequently been the case among industrial relations specialists of economic derivation, almost wholly obscured the role of small cliques, factions, congeniality groupings and the like in influencing workers' morale and, incidentally, output. Important articles in this field were: Delbert C. Miller, "The Social Factors of the Work Situation"; Carlo L. Lastrucci, "The Status and Significance of Occupational Research"; and F. Howard Forsyth, "Relevance and Academic Bias," a plea for industrial sociology—all in the *Am. Sociol. R.*

Centring on a somewhat different problem but indirectly throwing much light on industrial sociology, was Mirra Komarovsky's "The Voluntary Associations of Urban Dwellers," in the *Am. Sociol. R.* Here she showed that the working classes, in particular, had relatively few affiliations of "joining" character. Formally named clubs, lodges, churches, unions, and so on were shown to be much less significant than

small informal clusters related to family, friendship and similar "natural" groupings.

Testimony to the same effect was provided by the anthropologist Carleton S. Coon's "The Universality of Natural Groupings in Human Societies" in the *Journal of Educational Sociology*. Coon's evidence made it abundantly clear that social scientists have generally disparaged or ignored the influence of smaller clusters, from the pair or couple upward, in favor of larger but frequently less powerful modes of association. Among the influential small clusters are those set by the succession of generations: parent-child, grandparent-grandchild and similar kinship dyads, as well as other small units in which age difference rather than kinship as such is significant. Many striking and hitherto out-of-the-way data were presented by Leo W. Simmons, in "Attitudes Toward Aging and the Aged: Primitive Societies," in the *Journal of Gerontology*.

The kind of sociological research and therapy rather inaptly christened "sociometry" from the very beginning emphasized the part played by small groupings in social life, and currently has provided many studies, among the most interesting of which are: Reva Potashin, "A Sociometric Study of Children's Groups," Mary L. Northway, "Sociometry and Some Challenging Problems of Social Relationships" and "Personality and Sociometric Status: A Review of the Toronto Studies"—all in *Sociometry* (*Socio.*).

Sociometry, the vehicle of publication for these articles, produced an offshoot entitled *Sociatry*, which, as its etymology indicates, is devoted to "social healing." The founder and editor of both of these journals, J. L. Moreno, became famous through his "psychodrama" which he was beginning, in order to avoid misunderstanding, to call "sociodrama." This is a method of dealing with certain functional varieties of mental ill-health by means of a role-taking therapy involving the deliberate staging of social situations designed to facilitate the curative process. Evidence seemed to show that Moreno achieved a degree of success in his "socioanalysis" at least as great as that claimed by practitioners of psychoanalysis. Several flourishing sociodramatic centres were established, and therapists trained by Moreno had an extensive practice in many parts of the United States. Sociometry or, better, sociatry, devoted much attention to mental difficulties attributable to family complications, in particular, and was gaining widespread acceptance among family counsellors.

More orthodox studies of family problems appearing in 1946 were: James H. S. Bossard and Eleanor S. Boll, "The Immediate Family and the Kinship Group," in *Soc. F.*, Margaret Park Redfield, "The American Family: Consensus and Freedom," in the *Am. J. Sociol.*, and Austin H. Porterfield and H. Allison Salley, "Current Folkways of Sexual Behavior," in the *Am. J. Sociol.*

The article by Mrs. Redfield is interesting, not only in its own right but also because of its bearing on what Philip Wylie, followed by Edward Strecker, called "Momism." If it is true that the larger part of the mental difficulties in the U.S. armed forces were attributable to maternal overprotection and under-discipline, Mrs. Redfield's article helped to set the matter in its proper perspective. She pointed out that U.S. children have not suffered repression in any degree which would make psychoanalytic assumptions applicable, but on the contrary have been deprived of adequate parental oversight and advice. These conclusions run counter to those of Porterfield and Salley who, finding that premarital chastity among U.S. youth in Texas is actually less frequent than is enjoined by prevailing norms or ideals, argued that the latter should be relaxed. This argument is a *non sequitur*; the precise reverse could just as readily be maintained.

The Porterfield and Salley contentions perhaps derived from absorption of popularized psychoanalysis—although, in fairness to psychoanalysis be it said, its more circumspect advocates would champion no such egregious conclusions. This is particularly true of the neo-Freudians: Abraham Kardiner, Karen Horney and Erich Fromm. But these too have been sharply criticized of late; articles evidencing such a trend are: Judson F. Stone, "The Theory and Practice of Psychoanalysis," in *Sc. and Soc.*; Arnold W. Green, "Social Values and Psychotherapy," in *Socio.*; "The Middle Class Male Child and Neurosis," in the *Am. Sociol. R.*; "Sociological Analysis of Horney and Fromm," in the *Am. J. Sociol.*

A searching application of psychoanalytic insights reinterpreted from the standpoint of sociatry and social psychology, was Gustav Ichheiser's "The Jews and Anti-Semitism," in *Socio*. This author broke new ground by advancing the well-attested hypothesis that frontal attacks on anti-Semitism have been, are, and will be fruitless, essentially because the Jews themselves are afflicted by socially acquired attitudes which help the anti-Semite to rationalize his prejudices. Another intertwining of psychoanalysis and social sciences was the book, documented with amazing thoroughness, by Gilberto Freyre, *The Masters and the Slaves: A Study of Brazilian Civilization*. Freyre made a radical break with the traditional geographic interpretations of Brazilian life, but he came dangerously close to espousing an equally fallacious sexual determinism. Nevertheless, the book is of great importance, if only for its documentation.

Studies of major civilizational entities along lines less questionable than those followed by Freyre were provided by: Dinko Tomašić, "The Structure of Balkan Society," and Hsiao-tung Fei, "Peasantry and Gentry: An Interpretation of Chinese Social Structure and Its Changes,"—both in the *Am. J. Sociol.* Tomašić's article was a follow-up of earlier analyses of personality types published in *Psychiatry*.

Shifting from considerations of structure to the more orthodox quantitative presentations, it can be said that the year witnessed the publication of the first full-length treatment of an aggregate much talked about but little known, Ta Chen's *Population in Modern China*, book-size supplement of the *Am. J. Sociol.* This marked a great step in advance; reasonably precise analysis supplanted guesswork. A similar advance was apparently manifested in John H. Burma's "The Measurement of Negro Passing," in the *Am. J. Sociol.* The old estimates of passing provided by Hornell Hart almost two decades before were attacked as

considerably too high. If Burma's conclusions were corroborated by other researchers, drastic revisions of prophecies about Negro-white intermixture would have to be made.

Race problems are of course not confined to the United States; World War II was sufficient demonstration of that. The way in which many persons, otherwise kindly, can think of another race as virtually non-human, and therefore suffer no pangs of conscience in committing or tolerating acts of the utmost cruelty, was set forth by Morris Janowitz, "German Reactions to Nazi Atrocities," in the *Am. J. Sociol.* That these phenomena cannot be regarded as peculiarly German was shown, by implication, in the exceptionally careful and thorough study by C. P. Loomis and J. Allen Beegle, "The Spread of German Nazism in Rural Areas," in the *Am. Sociol. R.* These authors produced evidence going far to prove that any group of comparable background subject to similar influences would have behaved in much the same way as did the German peasantry. Like conclusions were reached in Clifford Kirkpatrick's "Sociological Principles and Occupied Germany," in the *Am. Sociol. R.*, but over and above these he pointed out that many of the difficulties experienced in bringing Germans to appreciate democratic values have been and will be attributable to the fact that the U.S. military should never have been assigned other than essentially police functions.

Government and all related matters should have been handled by U.S. civilians from almost the very beginning of the occupation of Germany. The army and navy were called upon to do a job for which they were never designed—a conclusion amply borne out by the special issue of the *Am. J. Sociol.* for March, devoted exclusively to analysis of military process and structure in combat and non-combat periods and places. Most of the contributors to this issue were returned officers and enlisted men, and while doing full justice to the U.S. army and navy, unshrinkingly maintained their inability to attain other than strictly military objectives.

Of course, any large, hastily improvised organization (and the army, in particular, was so huge, and its responsibilities so heavy, that many of its parts had to be called into being overnight) encounters serious trouble, particularly when dealing with a people as little accustomed to discipline as U.S. people are. Confirmation of this more or less common-sense proposition was afforded by Marshall B. Clinard's "Criminological Theories of Violation of Wartime Regulations," in the *Am. Sociol. R.* He was dealing chiefly with masses of evidence garnered by the Office of Price Administration, but the War Labor board and many other alphabetical agencies could have been drawn upon for further proof.

The postwar revival of the social sciences did not clearly manifest itself outside the United States until 1946, but it then became strikingly evident. The Belgian, J. Haesaert, professor at the University of Ghent, published a large theoretical treatise, *Essai de Sociologie*. In France, Georges Gurvitch and his co-workers established a new journal, *Cahiers de Sociologie*. A new Latin-American journal, edited by Laszlo Rodvanyi, with headquarters at Mexico City, undertook the ambitious task of using English as its medium of communication, thus supplementing the long-established *Revista di Sociologia Mexicana*. In Switzerland, René König of the University of Zürich began the editing of an important series of monographs on sociological topics, one by Klara Vontobel on the work ethic of German Protestantism, and another by König himself on various aspects of the family, having already appeared. In Britain, Howard Becker's *German Youth: Bond or Free* and other new volumes came out in the International Library of Sociology and Social Reconstruction, and mass observation, plus several British polling agencies, got into peacetime swing. The German Sociological society held its first postwar meeting in September, and, although feeble, showed some promise; publication up to the end of 1946 was sharply limited, although a volume of social-philosophical and sociological essays by Marianne Weber was published.

In the United States the American Sociological society sponsored two 1946 meetings; one, postponed from 1945, was held in Cleveland in March; the other, back on regular schedule, took place in Chicago in late December. Carl Taylor of the U.S. bureau of agriculture was the 1946 president; Louis Wirth of the University of Chicago was elected for 1947. (H. BEC.)

Sodality of Our Lady. During 1946 the American central office of this world-wide religious society of Catholics (founded 1563) resumed intensive training of leaders with six one-week summer schools of Catholic Action, with more than 10,000 participating. The theme for the S.S.C.A. was "The Answer to the Atom."

Communications were resumed with the international secretariate in Rome, Italy. During 1946, 363 new sodalities in the U.S. were affiliated with the Mother Sodality in Rome, bringing the total number in the U.S. to 14,093.

Sodality was represented at the first postwar gathering of national leaders of Catholic women's youth organizations in Ghent, Belgium, by Dorothy J. Willmann who was named U.S. representative on the executive council of the Union Internationale des Ligues Femines Catholiques, Section de Jeunesse.

Returning servicemen gave new impetus to men's sodalities. Parish programming was geared to mixed youth groups, with the inclusion of a staff rural sociologist and a recreation department. Collegiate and high school programming, prepared by Rev. J.

Roger Lyons, S.J., was expanded and solidified along spiritual and social-economic lines. Through nation-wide teachers' institutes, Rev. Aloysius Heeg, S.J., intensified elementary school direction.

A League of Shut-in Sodalists, headed by shut-in Mary Ellen Kelly of Marcus, Ia., spread to 26 states and 2 Canadian provinces.

New headquarters, a six-story office building at 3115 So. Grand Blvd., St. Louis (18), Mo., houses the Institute of Social Order and serves as the centre for the Eucharistic Crusade of the Knights and Handmaids of the Blessed Sacrament. These distinct organizations were associated with sodality under the general direction of Rev. Daniel A. Lord, S.J., who was also editor of *The Queen's Work*, official sodality organ.

(D. J. W.)

Sodium Carbonate. Production of natural sodium carbonate in the United States increased from 184,826 short tons in 1944 to 194,045 tons in 1945. The output from natural sources was small as compared with that of the manufactured product, which was 4,693,000 tons in 1944, declining to 4,513,000 tons in 1945. Canada had a small output, 44 tons in 1944 and 239 tons in 1945. (G. A. Ro.)

Sodium Sulphate. The output of natural sodium sulphate in the United States increased from 168,923 short tons in 1944 to 178,196 tons in 1945. These figures compare with a total output of 875,078 tons in 1944 and 838,598 tons in 1945, the bulk of the output being manufactured from common salt. Canadian production dropped from 102,421 tons in 1944 to 86,643 tons in 1945. (G. A. Ro.)

Softball. The world's amateur softball championships brought a repeat in both men's and women's divisions. The Fort Wayne, Ind., Zollners made it two in a row in the men's class, while the Jax Maids of New Orleans won their fourth women's title in five years. The two champions defeated teams representing the Match Corp. of America, Chicago, in each final. The All-America Girls' Professional Ball league was dominated by Racine, Wis., which won the regular league play and defeated Rockford, Ill., in the playoff final. The Chicago Blue Birds defeated the Chicago Chicks, four games out of five, to win the National Girls' Baseball league play-off. (M. P. W.)

Soil Erosion and Soil Conservation. In 1946 many nations were able to give special attention to the practical aspects of soil and water conservation. In 1946, the first year after the end of World War II, erosion-control experiments and demonstrations were begun, or were greatly expanded, in most of the agricultural countries of the world. Complete land surveys, including studies of soils, vegetation, water and climate as related to land use and erosion, were started in such widely separated regions as Australia, Mexico, India, South Africa and various South and Central American countries having a distinctly tropical agriculture. In many instances, the pattern for land studies was similar to that used in the United States where the large volume of information and data already collected and analyzed was being used in practical conservation farming plans by hundreds of thousands of farmers.

As more facts were accumulated, the problem of soil damage resulting from misuse of semi-arid lands was brought to light as responsible in large degree for food crop failures and livestock losses in many parts of the world during the war. Cultivation of steep lands was reported as a serious problem facing newly organized soil conservation agencies and farmers in tropical countries such as Venezuela, Guatemala, Peru and Mexico.

Also in many parts of the tropics and subtropics, land surveys disclosed serious damage to valuable food-producing areas through alkali formations. Recently formed alkali lands were reported to be common in central Asia, India, Iraq, Egypt, North Africa and parts of the United States. Important experiments were being carried out in the United States and India to determine conservation methods of farming reclaimed alkali lands to prevent recurrence of such damage.

In 1946, the governments of 21 nations sent nearly 100 of their leading agricultural specialists to the United States for training with the soil conservation service of the U.S. department of agriculture. Some of the countries represented were India, Burma, Korea, Belgian Congo, China, Palestine, Iran, Mexico, Canada and several South and Central American countries needing additional trained soil conservation technicians and scientists to staff programs which were well under way before the end of World War II.

United States.—An important development of 1946 was the greatly increased demand of farmers for complete soil conservation plans for their farms. Many had learned during the war period that single soil conservation practices, applied without supporting practices and needed land-use adjustments, were inadequate for land protection necessary to sustained yields. On the other hand, thousands of farms under complete conservation plans had steadily improved in productive capacity throughout the period of high production. The trend was therefore strongly in favour of conservation farm planning based on land-capability surveys made and analyzed for the specific purpose of fitting the cropping system and farming practices to different types of land.

During the year, complete soil conservation was applied to an additional 18,000,000 ac. This brought the total amount of land under complete and permanent conservation methods to approximately 100,000,000 ac. At the same time, new plans had been made for an additional 30,000,000 ac. by technicians of the soil conservation service working with farmers and ranchers in soil conservation districts.

Organization of farmers for such complete land conservation went forward in all 48 states. As of Dec. 15, 1946, 1,756 conservation districts had been established throughout the country. They included 945,821,578 ac. in 4,188,213 farms. Five states (Alabama, South Carolina, New Hampshire, Rhode Island and Delaware) were completely covered by districts, and 21 others were more than half covered. A soil conservation districts law was enacted in Puerto Rico early in the year, and districts were being organized in several parts of the island.

Actual work of applying complete soil and water conservation plans to the land was done chiefly in soil conservation districts, where work units of the soil conservation service were assisting farmers directly on their farms. Nearly 60 practices, scientifically designed to control erosion, conserve rainfall and maintain soil fertility and productiveness, were in use, in combinations suited to individual farms and ranches in all parts of the country.

Some of the individual practices incorporated in complete conservation plans and applied to land in soil conservation districts by the close of 1946 were:

Contour cultivation	11,400,000 ac.
Cover crops	3,500,000 ac.
Crop residue management	11,000,000 ac.
Strip cropping	3,000,000 ac.
Range stocked to conserve grazing	27,000,000 ac.
Range and pasture seeded	5,000,000 ac.
Farm and ranch ponds constructed	58,000 (number)
Field and gully plantings for erosion control	252,000 ac.
Farm woodland improvement for sustained yield	4,000,000 ac.
Terracing of cropland	8,000,000 ac.
Water diversions	9,000 mi.
Farm drainage	1,300,000 ac.
Farm irrigation:—	
Land preparation	300,000 ac.
Irrigation water applied	900,000 ac.
Irrigation systems installed or improved	11,200 (number)
Tree windbreak plantings	39,400 ac.
Conservation crop rotations established	7,120,000 ac.

Highly significant land-use changes, resulting directly from soil conservation, were indicated by reports from different parts of the country. For example, in the western gulf region (Texas, Louisiana, Arkansas and Oklahoma) thousands of farmers had adopted vegetative methods of protecting their land and improving fertility conditions. Farmers in soil conservation districts in this region had used crop-residue management on nearly 5,000,000 ac., had seeded 1,500,000 ac. to grasses, were preserving range and pasture grasses by proper stocking on 9,000,000 ac. and were using winter cover crops on approximately 2,500,000 ac. In the southeastern states, the planting of 3,500,000 ac. of severely eroded fields to grasses and legumes for pasture indicated a strong trend toward a more diversified agriculture, including dairying and livestock farming on lands formerly used exclusively for row crops such as cotton and corn.

In the southwestern region (New Mexico, Colorado, Utah and Arizona) the soil conservation program more than doubled during the year. At the close of 1946 there were 183 soil conservation districts, including approximately 99,000,000 ac. of farm and range land, in the region. Faced by a serious wind erosion problem on extensive acreages of grasslands plowed during World War II in the eastern part of the region, farmers and ranchers pooled their resources and facilities to purchase grass seed, mineral supplements, trees and shrubs and fertilizers so that conservation measures could be applied without delay. Some districts were able to buy equipment such as bulldozers, tractors, grass seed drills, harvesters and brush-clearing and land-levelling equipment for use in preparing land for irrigation. The problems of the region were defined as most complex because of three types of farming—irrigation farming, dry-land farming and permanent grazing. At the end of 1946, approximately 4,600 irrigation systems had been improved or installed in soil conservation districts. Contour planting, strip cropping, terracing, contour furrowing of grazing lands and crop residue management had been established on more than 1,000,000 ac. of nonirrigated crop land; and 6,000,000 ac. of range land were placed under grass-conservation stocking. Some farmers in the region also were beginning to adopt cover cropping for wind-erosion control and to plant green manure crops as a means to better fertility of their soils.

Authorized by congress, the soil conservation service resumed flood-control activities on 36 watersheds of the U.S. at the beginning of 1946. The work consisted of (1) surveys of flood control requirements, (2) the preparation of work plans for flood-control operations and (3) upstream operations on farms to stabilize channels, control gullies and construct runoff retardation structures where needed. Work plans were completed for 11 watersheds during the year.

Mexico.—Outstanding progress was made in Mexico in organizing a nation-wide soil conservation program during the year. The Soil Conservation act, approved as a federal law early in the year, authorized a long-time program to apply conservation land-use methods and practices to all lands—public grants, private agricultural lands and national lands. The law provided that the program be financed by annual federal appropriations, and a special fund was set up for the training of soil conservation technicians. Under the new law, the soil conservation department was elevated to the status of a division of the National Irrigation commission, with authority to maintain a staff of experts in soils and erosion, cultivation, revegetation and soil and water saving methods, organized to serve as guides or advisers to farmers directly on the land. Ten soil conservation districts had been established by the government and designated as priority regions for action programs to save seriously eroded lands. The ten districts included most of Central Mexico.

The soil conservation work program developed under Mexico's

Soil Conservation act consisted of five types of operation to be carried out simultaneously by work groups located in soil conservation districts. They were:

Detailed studies of land types, water supplies and erosion conditions. The making of a national work plan, by sections, to show the total needs for land-use changes and soil and water conservation practices.

Application of soil conservation methods as work plans for farms, groups of farms, and watersheds are completed.

Construction of water storage ponds to supplement the work of irrigation districts.

Establishment of experiment stations and demonstration areas, for investigation of soil and water losses and development or adaptation of conservation systems of cultivation.

An educational program to extend to all schools, farm homes, and to city and village residents.

Preliminary surveys showed that 12% of Mexico's plains and 30% of the steep lands had been made unproductive by erosion. About half of the country is semiarid, requiring carefully planned irrigation with soil and water conservation methods of cultivation or scientifically designed dry farming or grazing methods to improve and maintain production. Complete reforestation of steep slopes was deemed essential in many parts of the highlands.

In the states of Michoacan and Jalisco, bordering the Pacific ocean, three soil conservation districts were well on the way to completion of plans for more adequate and safe use of vast areas of range, forest and cropland. In this region, the Morelia-Querendaro soil conservation district includes the irrigation district of the same name, plus the drainage area of the dams of the project. As water for irrigation was being made available for farming and ranching, conservation land use and practices were being applied to the whole drainage area to save water and soil and protect costly structures. Bench and ridge terraces had proved excellent for erosion control and for increasing yields on cultivated land in this district.

Central and South America.—Soil conservation activities were continued in most Central and South American countries during the year. A national soil conservation law was enacted in Venezuela, and the ministry of agriculture and animal husbandry was reorganized to provide for expansion of the service of conservation and utilization of soils throughout the country. Soil conservation agencies were set up in Peru, Chile and Guatemala. In the last-named country, soil conservation demonstrations and experiments were well advanced, and practices shown by demonstrations were spreading to farm lands. Through soil conservation studies in El Salvador, Costa Rica, Venezuela and parts of Brazil, much new knowledge was acquired about erosion control methods and production capacities of tropical soils in the western hemisphere. In Brazil, where soil conservation programs were in operation in four states, there was increasing emphasis on development of soil conservation methods for use on virgin lands being cleared for agriculture and grazing. There was urgent need for controlled stocking of grazing lands in many parts of Brazil where sudden expansion of the livestock industry had caused exploitation and serious erosion of grasslands.

Great Britain.—Remarkable progress was made in reconditioning hill lands in Great Britain. New techniques in grassland management had made it possible to develop excellent pasture on hill tops 1,600 ft. above sea level. Where the soil was so thin that no grass could take root, a crop such as rape was grown and eaten off by cattle, and the operation repeated a second season. After plowing, the land was then seeded to grasses and grazed by bullocks, with distinct evidence of steadily rising fertility of soil. Such technique was increasing stock-carrying capacity in the hill lands from five to ten times. At the same time, with close vegetative cover, there was no soil erosion on lands so protected. During the year, range specialists and livestock farmers from many countries visited Britain to study grass farming as developed for steep uplands.

Australia.—A Standing Committee for Soil Conservation

was established in Jan. 1946. Representatives of the commonwealth and of each state soil conservation department were appointed to serve on the committee. As a co-ordinating body, the committee was charged with over-all plans for proper distribution of demonstrations, research stations, equipment essential to farmer-group projects, planting materials and land studies necessary for carrying out the national program. Plans approved during the year dealt with watershed erosion control by reforestation, restoration of grasslands and use of soil conservation practices on cultivated upland areas in order that water might be available for piping to dry inland regions subject to severe wind erosion. Recommendations for nation-wide methods of bushfire control were adopted during the year.

Work of establishing ten new soil conservation demonstrations was begun on groups of private farms and ranches and construction of the soil conservation experiment station at Gunnedah, New South Wales, was completed. Land surveys, continued during the year, showed that the productive capacity of thousands of farms had been damaged by erosion. In the eastern and central divisions of New South Wales alone, approximately 60,000,000 ac. were found to be eroded and in need of immediate attention.

Africa.—A national soil conservation act was passed by the 1946 session of the parliament of the Union of South Africa. The new law binds the state to support a program to apply soil conservation methods and practices to all lands, whether state- or privately-owned. It set up a Soil Conservation board composed of representatives of the departments of agriculture, lands, native affairs, irrigation and forestry, the division of soil conservation and extension and the farmers of the union. Five members must be bona fide farmers. Formation of soil conservation districts, by application of a majority of owners of land in a defined area, was authorized by the law.

Recommendations of the Soil Conservation committee for the Anglo-Egyptian Sudan were approved during the year. The committee's survey of land conditions in the Sudan showed many serious examples of soil deterioration. Sheet erosion was found in the hill country of southern Kordofan and of Equatoria and near the gullied land of the Blue Nile. Gully erosion was noted as common in Equatoria, along the banks of the Blue Nile, the Dinder and Atbara rivers and in the coastal range of Red Sea hills. Silt dune formation was taking place in the delta of the Khor Baraka, and spoliation of cultivated land by fires was common on the clay plains of Kassala, Blue Nile, Upper Nile and Kordofan. Finally, lands around towns and villages were found to be seriously eroded all over the country owing to overcultivation, overgrazing and excessive cutting of trees for firewood.

India.—At the request of the government of India, a preliminary examination of that country's land was made by soil conservation specialists from the U.S. Regions studied were the Punjab, Central provinces, Bombay presidency, Hyderabad state, Madras presidency, Orissa, Bihar, United provinces, Gwalior state, Bengal and Assam. Erosion in all stages and of all types was observed throughout India, with overgrazing a chief cause in all provinces except Assam. In addition to erosion on cultivated fields, pastures and even woodlands, a large amount of roadside gullying was causing damage to adjacent fields. In Gwalior state, about 800 sq.mi. of formerly good land had been rendered useless for any purpose by erosion induced by overgrazing and improper cultivation methods.

Work in the Punjab to control the silting of waterways was continued and had served to reclaim large areas of stream valleys to production. Sand was still descending from the Siwalik hill lands and from the Salt range, however, and it was apparent that complete revegetation of the tops of the watersheds would be necessary for permanent reclamation of the level areas. In the

province of Bombay, some 700,000 ac. of crop land had been placed under soil and water conservation practices by the end of 1946.

U.S.S.R.—Important large-scale experiments to develop safe methods for using vast areas of arid southeastern European U.S.S.R. were reported in 1946. Many tests were carried out on more than 8,000 ac. to adapt combinations of practices such as tree shelterbelts, crop rotations, irrigation and grassland farming to control wind erosion, conserve soil moisture and increase crop and livestock yields. (See also AGRICULTURE; AQUEDUCTS; DAMS; IRRIGATION; METEOROLOGY.) (H. H. BE.)

Solar System: see ASTRONOMY.

Somaliland, British: see BRITISH EAST AFRICA.

Somaliland, French: see FRENCH COLONIAL EMPIRE.

Somaliland, Italian: see ITALIAN COLONIAL EMPIRE.

Sorghum: see SYRUP, SORGO AND CANE.

South Africa, British: see BRITISH SOUTH AFRICAN PROTECTORATES.

South Africa, The Union of. A self-governing dominion of the British commonwealth of nations. The four provinces of which it consists, the Cape of Good Hope, Natal, the Transvaal and the Orange Free State, extend from the southernmost point of the African continent to the Limpopo in the north. The former German colony of South-West Africa (pop. est. 1941: European 33,600; Bantu and coloured [mixed] 287,700) is administered under mandate as an integral part of the union, but this territory had not been incorporated as a province; the United Nations invited South Africa to prepare a trusteeship agreement in respect to it. Area, 472,494 sq.mi. (incl. Walvis bay, 374 sq.mi.); pop. (Aug. 1946) 11,258,858 (Europeans 2,335,460; Bantu 7,735,809; coloured 905,050; Asiatic 282,539). Chief towns (pop. census 1946): Capetown (seat of legislature, 454,052); Pretoria (seat of government, 236,367); Johannesburg (727,743); Durban (357,304); Port Elizabeth (146,231). Languages: English, Afrikaans. Religion: European population: Christian 95.5% (Dutch Reformed Church 55%; Anglican 19%; Methodist 6%; Presbyterian 5%; Roman Catholic 5%, etc.); non-European population: 51.5% Christian, the remainder Hindu, Mohammedan and Buddhist). Governor-general in 1946: Maj. Gideon Brand van Zyl; premier: Field Marshal Jan C. Smuts.

History.—Demobilization was completed and £SA14,360,000 was spent in reinstating former volunteers, half in grants and half in loans repayable on easy terms; the men were readily absorbed by industry, which was experiencing acute manpower shortage. The policy of industrial development, which the government placed in the forefront of its postwar program, received a strong impetus from further gold discoveries in the Orange Free State. In April a borehole in the Odendaalsrust district intersected a reef at 3,922 ft. which assayed 1,252 dwt. of gold to the ton of rock, a value far higher than any previously registered by South Africa. Exploratory work over the whole O.F.S. goldfield indicated that 10 or 12 large gold mines would ultimately be formed. Favourable developments on the far west Rand indicated that six additional mines would be established there. These events opened up a new vista of general economic expansion and at the same time led to mass speculation which evoked official warnings. Rising costs of production on the Rand, leading to lower rentability, caused anxiety in the gold mining industry, and two strikes, one by European miners and the other by African labourers, produced a setback. The latter dispute was settled only after violence and bloodshed.

Race relations were strained by the opposition which the Indian community (living mainly in Natal) offered to the new

legislation passed by parliament attempting to confine the ownership or occupation of property by Indians to specific areas. The legislation at the same time conferred communal franchise on the Indians and for the first time gave them indirect representation in the union parliament and direct representation in Natal provincial council. In Durban the Indians began a campaign of passive resistance and appealed to the government of India which, after Field Marshal Smuts had rejected a proposal for a round-table conference, recalled its high commissioner, broke off trade relations and carried the dispute to the United Nations. Against South Africa's contention that this was a domestic issue between the union government and a section of South African nationals the United Nations called upon both governments to report at the next session what steps had been taken to give effect to the agreements entered into between them. This decision, coupled with the United Nations' rejection of South Africa's application for the incorporation of the mandated territory of South-West Africa, left the European people smarting.

The housing program made slow progress mainly because of shortage of materials and skilled labour. The European trade unions, standing for the industrial colour bar, opposed the training of African artisans for the building of native houses, of which there was an acute shortage, and challenged the government's policy in this respect. With industry clamouring for skilled workers, and with the new census figures showing a growing disparity between the European and native populations, Field Marshal Smuts announced a policy of encouraging large-scale immigration from Europe. A European influx, he stated, was needed to re-create the country. In order to check the drift of Africans from the reserves to the overcrowded towns, restrictions were placed on their movement to Capetown and its neighbourhood.

Financially, the country was sound and flourishing. J. H. Hofmeyr, minister of finance, who again acted as premier for several months during Field Marshal Smuts's absence at international conferences in Europe and the United States, stated in his budget speech that the union had ceased to be a foreign borrower. Although the public debt had risen during World War II by £SA272,500,000, the external debt had been reduced to £SA13,700,000. In this, the first peacetime budget, wartime taxation was repealed or reduced to the extent of £SA16,000,000 although expenditure on social services was substantially increased. New plans were announced to revitalize the farming industry, and it was stated that on soil conservation alone a sum of £SA100,000,000 would be spent in the next 25 yr.

Parliament authorized the iron and steel industrial corporation (Iscor) to increase its capital by £SA15,000,000 with the object of raising its steel output by stages from 418,000 to 1,100,000 short tons.

Food shortages appeared during the year. The failure of the local wheat crop was accentuated by the shortage of maize, on which the natives largely depended. Emergency supplies had to be imported and a rationing scheme adopted in the principal towns.

Education.—In 1941: state and state-aided primary and secondary European schools 33,662, scholars 388,925; non-European schools 5,229, scholars 678,161; universities, average number of students, 11,801.

Banking and Finance.—Revenue (est. 1946-47) £SA120,415,000; expenditure (est. 1945-46) £SA120,510,150; public debt (March 31, 1946) £SA582,924,000; notes in circulation (March 31, 1946) £SA66,000,000; gold reserve (March 31, 1946) £SA123,000,000; exchange rate (1946) £SA1=£1 sterling=403 U.S. cents.

Trade and Communication.—External trade (1944): exports (excluding government stores, specie, gold bullion, wool, exported bunker coal and ships' stores) £SA68,552,894; re-exports £SA3,071,142 plus £SA1,263,947 (to South-West Africa and Northern Rhodesia); imports £SA84,825,271 (including £SA4,262,184 South African produce imported from South-West Africa and Northern Rhodesia). Communication and transport: roads fit for motor traffic (1938-39) 87,495 mi.; railways, including South-West Africa (March 31, 1945), 13,479 mi.; airways, including

South-West Africa (Dec. 1945–May 1946): passengers carried 7,936; mileage flown 285,559; shipping (March 31, 1945): tonnage cargo landed 3,162,632, shipped 4,213,575, trans-shipped 207,667. Motor vehicles licensed (Dec. 31, 1940): cars and taxis 317,958; vans and trucks 51,215; tractors 1,044; cycles 21,725; wireless receiving sets, effective licences (end of 1945) 373,411; telephones, instruments in use (1940) 202,753.

Agriculture, Manufacture and Mineral Production.—In 1944–45: maize 17,870,000 bags of 200 lb. each; wheat 3,373,430 bags of 200 lb.; potatoes 2,500,000 bags of 150 lb.; oats (purchased) 96,236 bags of 150 lb.; barley (purchased) 448,913 bags of 150 lb.; groundnuts 120,000 bags; deciduous fruit 67,634 short tons; dried fruit (1945) 19,000 short tons; tobacco (1944) 23,500,000 lb. Virginian, 533,000 lb. Turkish; cane sugar, refined (1945–46) 553,174 bags of 200 lb.; sheep (1943) 37,888,043; cattle (1943) 13,068,414; wool (1945–46 est.) 650,000 bales. Industry and labour (1942–43): establishments 9,965; employees: European 148,248, others 278,263; gross value of output £5A289,240,786; employment index (average, 1929=100), average 1941, 164; 1942, 172. Mineral production, 1945: gold 12,213,545 fine oz.; diamonds 1,222,945 metric carats; silver (1940) 1,292,284 fine oz.; in short tons, coal 25,964,285; iron ore 954,814; manganese ore 126,266; chrome ore 109,229; asbestos 28,216; limestone 3,078,206; pig iron (1940) 297,764; steel (1940) 326,816; copper smelter (1940) 14,991; benzol (1939) 1,874. (J. A. Gv.)

South America: see ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; CHILE; COLOMBIA; ECUADOR; PARAGUAY; PERU; URUGUAY; VENEZUELA.

South Australia. A state of the Australian commonwealth. 380,070 sq.mi. in area, bounded by longitudes 129° E. and 141° E., and by latitude 26° S. and the southern coast of the continent. Pop. (est. June 30, 1945): 628,940. Cap. (Dec. 31, 1943) Adelaide (362,500). Governor in 1946: Lieut. General Sir Charles Willoughby Moke Norrie.

History.—The Liberal-Country party administration under the premiership of Thomas Playford remained in office throughout 1946 and had the distinction of being the only non-Labour government in Australia. Legislation introduced covered the ratification of the intergovernmental agreement on uniform rail gauges, including the completion of the North-South railway; a bill to raise the school-leaving age and a bill to authorize the construction of sewerage in country towns. The government also announced a vigorous policy to combat the increasing menace of soil erosion. Primary production was at a high level and 3,500,000 gal. more wine were produced than in the record year 1926–27. Fortified beverage wines were expected to total 6,750,000 gal.; unfortified 1,300,000; and distillation 11,250,000.

Shipbuilding at Whyalla continued at a high level and the immediate program included four 12,500-ton vessels and four of 6,000 tons. The larger vessels were to be used to carry iron ore from Yampi sound in Western Australia to steelworks at Newcastle, New South Wales.

Education.—In 1941: number of schools (state) 989 (private) 157; teachers (state) 3,078 (private) 831; scholars (state) 72,156 (private) 13,502; average attendance (state) 62,051 (private) 12,002.

Finance.—In 1944–45: revenue £A15,560,000; expenditure £A16,113,125; debt outstanding (June 30, 1945) £A108,870,938. (£A1=\$3.2 U.S.)

Communication.—Roads (1941) 54,412 mi.; railways (1945), government 2,547 mi. Motor vehicles licensed (Dec. 31, 1945): cars 61,372; commercial vehicles 26,959; cycles 8,793. Wireless receiving set licences (Dec. 1945) 150,881.

Agriculture and Manufacturing.—In 1944–45 (in short tons): wheat 277,320; barley 74,660; currants 7,720; raisins 13,800; wool 52,500; butter 8,624; wine 10,593,000 gal. Industry (1944–45): factories 2,195; employees 65,887; gross value of output £A64,123,125; unemployment (trade union returns) (Feb. 1946) 1.6%. (W. D. MA.)

South Carolina. A south Atlantic state of the United States, 8th of original 13 to ratify the constitution, 1788; known as the "Palmetto state." Area: 31,-



J. STROM THURMOND, Democrat, was elected governor of South Carolina Nov. 5, 1946

055 sq.mi., 461 being inland water; pop. (1940) 1,899,804; white 1,084,308; Negro 814,164; others 1,332; 75.5% rural; 0.3% foreign-born. Capital, Columbia (62,396). Other cities: Charleston (71,275); Greenville (34,734); Spartanburg (32,249). The estimated population of the state on July 1, 1944, was 1,923,354.

History.—J. Strom Thurmond was elected governor in Nov. 1946 to begin a four-year term in Jan. 1947. Voting by Negroes in the Democratic primary

(the effective election) was not attempted. A bill abolishing the \$1 poll tax voting qualification failed. Gov. Ransome J. Williams failed in his attempt to induce the legislature to substitute state for private liquor stores and to create state police. Teachers' salaries and the sum for educating adult illiterates were increased during the year.

The navy department estimated that on June 30, 1946, there were on active duty in the navy 12,009 males and 95 females from the state.

Education.—Greater than usual appropriations for education continued in 1946. Retirement benefits for teachers and other state employees went into effect. State superintendent of education, J. H. Hope, continuously elected by the people from 1922, declined further election and was succeeded by Jesse T. Anderson. For the year ending June 30, 1946, enrolment in white elementary schools was 177,871 (decrease of 2,572); in Negro elementary schools 176,026 (decrease of 2,308); in white high schools 69,353 (increase of 1,901); in Negro high schools 24,994 (increase of 995); total white and Negro teachers, respectively, were 9,528 and 6,223; expenditures (omitting about \$1,500,000 for central and county administration) for white schools \$21,988,627; for Negro schools \$6,083,104. Teachers were divided into seven classes according to preparation and length of service with corresponding salary ranges. In Charleston in 1944 and in Columbia in 1945 federal courts ordered equal pay for teachers irrespective of race. On Jan. 7, 1947, a Negro (sponsored by the National Association for the Advancement of Colored People) filed suit against the University of South Carolina for having been denied enrolment because of his race. The legislature ordered graduate law and medical courses installed at the N.C. College for Negroes in Durham, but during 1946 this provision had not yet been carried out. A sum of \$6,000 was appropriated for sending Negro medical students to institutions outside the state.

Social Insurance and Assistance, Public Welfare and Related Programs.—In the year ending June 30, 1946, federal allocation for needy persons equalled \$2,983,400, to which the state added \$3,850,116. A total of \$4,174,427 went to 22,115 aged; \$1,093,612 to 11,536 dependent children; \$243,888 to 979 blind. Some counties maintained poor houses, sparsely inhabited. The state unemployment trust fund, supplied entirely by employers, totalled on June 30, 1946, \$41,738,860. Payments to 9,065 unemployed during the year were \$1,121,297. Patients in the state hospital (for the mentally diseased) June 30, 1946,

were 4,836; in the school for feeble-minded 971; prisoners in the state penitentiary and on state farms 978; reformatory for white boys 176; reformatory for Negro boys 155; white girls' reformatory 93; legal executions during the year 8.

Communications.—Paved highways, June 30, 1946, totalled 7,801 mi.; total under highway department 13,770 mi.; funded highway debt \$48,500,496 (being steadily reduced); railroads 3,563 mi.

Eastern, Delta, National and Southeastern Air Lines crossed the state.

Banking and Finance.—On June 30, 1946, there were 23 national banks (plus 23 branches), 89 state banks (plus 5 branches), 33 cash depositories and 1 private bank with capital account, deposits and resources, respectively, as follows: national \$16,263,052, \$399,639,000 and \$417,043,770; state \$12,439,036, \$222,137,725 and \$234,948,687. Resources of federal building and loan associations amounted to \$40,359,585; state associations \$15,865,689. The state debt was \$48,936,648, almost all for highways. During the year the state debt was reduced \$6,024,907. State tax collections for the year ending June 30, 1946, totalled \$60,687,311, of which \$15,505,260 was from the gasoline tax and \$2,346,354 from auto licence fees. A surplus of \$6,012,546 remained.

Federal income taxes for the year ending June 30, 1946, were \$162,415,350; other federal internal revenues were \$18,763,576. Duties on imports were \$492,953; imports \$7,297,322; exports \$12,635,268. Farm real estate mortgage debt on Jan. 1, 1946, totalled \$39,636,000 as compared with \$45,948,000 on Jan. 1, 1940.

Agriculture.—The value of the 36 leading field and truck crops in 1946 was \$362,951,000, an increase of almost \$100,000,000 over 1945. Improved fertilization and cultivation resulted in larger yields per acre and total yields than ever, reaching a greater total value. Total acreage for all crops was 4,239,000, a slight reduction.

Table I.—Leading Agricultural Products of South Carolina, 1946 and 1945

	1946	1945.
Corn, bu.	27,493,000	24,123,000
Wheat, bu.	2,706,000	2,972,000
Oats, bu.	20,097,000	18,921,000
Hay, tons	450,000	473,000
Irish potatoes, bu.	3,696,000	2,562,000
Sweet potatoes, bu.	6,090,000	5,510,000
Tobacco, lb.	168,200,000	139,520,000
Cotton, bales	695,000	664,000
Cotton seed, tons.	285,000	263,000
Peaches, bu.	5,670,000	5,760,000
Pecans, lb.	1,520,000	3,404,000
Peanuts, lb.	18,270,000	22,500,000

The value of the 13 leading vegetable and melon crops was \$13,168,000, or 5% less than the record high for 1945.

Manufacturing.—Total value of manufactures for the year ending June 30, 1946, was \$1,111,493,397 as against \$1,106,912,578 for the previous year. Employees numbered 156,560 as against the previous year's 154,384.

Table II.—Products of Principal Industries of South Carolina, 1946 and 1945

	Value 1946	Value 1945
Textiles	\$799,525,720	\$787,171,222
Lumber and products (barrels, boxes, baskets, veneering, paper and pulp, furniture, etc.)	70,951,519	81,832,929
Electricity	26,249,958	25,223,573
Clothing, including knitted	30,932,240	24,981,840
Fertilizers	21,005,869	...

Mineral Production.—Production for the year ending June 30, 1946, chiefly stone and clays, especially kaolin, totalled \$4,570,778; previous year \$3,562,613. (D. D. W.)

South Dakota.

A north-central state of the United States, admitted as the 40th state on Nov. 2, 1889, popularly known as the "Coyote state." Area 77,047 sq.mi., of which 511 sq.mi. are water; population (1940) 642,961, with



GOV. GEORGE T. MICKELSON of South Dakota, elected Nov. 5, 1946, on the Republican ticket

158,087 listed as urban and 484,874 as rural; Indian population 23,347. The federal census bureau estimated the civilian population on July 1, 1944, at 558,629. The state census taken during 1945 revealed a population of 589,802. Capital, Pierre (4,322 in 1940). Principal cities: Sioux Falls (40,832), Aberdeen (17,015), Rapid City (13,844), Huron (10,843) and Mitchell (10,633).

History.—The Republican party won all state offices in Nov. 1946, polling 108,998 against 53,294 votes in the contest for governor.

Three constitutional amendments were adopted by the voters, including one outlawing the closed shop and another providing for the removal of a constitutional limitation on salaries of the governor and other constitutional officers.

State officials elected included: George T. Mickelson, governor; Sioux K. Grigsby, lieutenant governor; Sigurd Anderson, attorney-general; Miss Annamae Riff, secretary of state; Clarence Buehler, treasurer. J. F. Hines was re-elected on nonpartisan ballot as superintendent of public instruction.

Education.—The school census, ages 6-21, was 154,928 in 1945-46 as compared with 155,420 in 1944-45. The enrolment was 84,826 in elementary schools and 29,005 in high schools. Total expenditures were \$15,926,980.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the calendar year 1945 the state department of social security distributed \$3,836,849 among 12,712 persons in old-age assistance; \$644,329 among 1,453 families, including 3,445 children; and \$57,840 for the needs of 221 blind persons. Unemployment benefit payments were allotted during 1945 to 3,325 claimants for a total of \$35,170 at an average weekly rate of \$10.58. Eight penal and charitable institutions were in operation during 1946 on a legislative appropriation of \$1,375,000.

Communications.—The state maintained a highway system of 6,077 mi. which in 1945 included 2,850 mi. of pavement and 2,471 mi. of gravel surface maintained at a cost of \$3,453,536. There were 3,966 mi. of railroad in operation during 1945.

Banking and Finance.—There were 35 national banks in operation on Dec. 31, 1945, with total assets of \$223,358,000 and deposits of \$213,399,000. The 133 state banks and trust companies on June 29, 1946, had resources of \$204,493,000 and deposits of \$194,314,000. Nine building and loan associations on June 29, 1946, reported total resources of \$3,769,135.

Total receipts for the state treasury for the fiscal year ending June 30, 1946, were \$47,196,244; disbursements were \$40,233,043. The bonded indebtedness was \$23,174,000. Federal internal revenue collections for the same period totalled \$44,821,091, of which amount \$37,604,628 was derived from the income tax.

Agriculture.—The cash income from farm crops and livestock in 1945 was \$426,710,000. Favourable weather conditions and the sustained high price level accounted for above average production in 1946.

Principal Agricultural Products of South Dakota, 1946 and 1945

Crop	1946 (est.)	1945	Crop	1946 (est.)	1945
Corn, bu. .	120,300,000	110,484,000	Flaxseed, bu. .	3,440,000	4,630,000
Wheat, bu. .	53,197,000	49,656,000	Potatoes, bu. .	2,842,000	2,945,000
Oats, bu. .	100,398,000	143,377,000	Hay, (tame and wild), short tons	2,563,000	3,312,000
Barley, bu. .	30,294,000	31,826,000			

Mining.—The total value of mineral substances produced in 1945 was \$7,146,305. The state ranked first in the production of beryl, second in bentonite and ground feldspar and third in sheet mica. Production of precious metals increased with the reopening of two gold mines, including the Homestake, in July 1945.

(H. S. S.)

Southern California, University of. This municipal university on private foundation, founded in Los Angeles, Calif., in 1879, comprised in 1946 26 schools and colleges.

The 1946 enrolment far exceeded all previous records, numbering approximately 20,000 students, one-half of them being returned war veterans. Virtually all departments were overcrowded. The alumni numbered approximately 50,000, with 7,000 members of the general alumni association. The trustees were studying the problem of student limitation, giving serious thought to the correct basis of selection. The housing situation reached an acute stage, and an adequate program was in active contemplation.

Among new faculty appointments were: Albert S. Raubenheimer, vice-president, in charge of the educational program; Daniel S. Robinson, director of the school of philosophy; Osman R. Hull, dean of the school of education; Max T. Krone, dean of the Institute of Fine Arts; Carl Hancey, dean of University college; Robert B. Pettengill, director of the Alfred P. Sloan Foundation seminar; William H. Sener, head of the newly-established radio department, with station KUSC, over which special programs are broadcast. Chancellor Rufus B. von Klein-Smidt continued as acting president pending the appointment of a new administrative head. The college of dentistry, hitherto an affiliated institution, was made an integral division of the university.

Plans were adopted for a commodious Y.W.C.A. building on the campus, to be erected early in 1947. Major building projects were delayed by inflated costs and difficulty in obtaining necessary materials.

Graduate departments were authorized for the school of medicine and the Allan Hancock Foundation for Scientific Research. Numerous research projects in varied fields received special financial aid from foundations. The university library and departmental libraries showed rapid development. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(R. D. HU.)

Southern Rhodesia: see RHODESIA, SOUTHERN.

South Tirol. Tirol, south of the Brenner pass, was ceded after World War I by Austria to Italy. In spite of almost 25 years of violent Italian efforts to Italianize the population and in spite of ferocious oppression of the Austrian minority, the latter has retained its language and its desire to be re-united with Austria. In Nov. 1945 the Austrian government demanded the return of southern Tirol to Austria. It expressed its willingness in a note to the great powers in Jan. 1946 to let Italy keep title to Italian hydroelectric plants in that territory and share in the development of new power sources. It proposed a plebiscite of the population to decide its wishes.

On April 22 a Tirolese meeting was held in Innsbruck to which a petition with 155,000 signatures from South Tirol was presented for the union of that part of the country with Austria in accordance with the principles of the Atlantic charter. The

Austrian chancellor stressed in his address that Austria wished to settle the South Tirol problem in full co-operation and friendship with the Italian people.

The foreign ministers of the Big Four powers decided, however, tentatively in the meeting in Paris on May 1, 1946, to leave the region inside the Italian border, and this decision was later confirmed in the peace treaty negotiations with Italy.

On Sept. 7 the Austrian and the Italian governments submitted an agreed proposal according to which the territory would remain within Italy but its German-speaking population would enjoy regional autonomy, minority privileges and the right to trade with Austria. The German-speaking population would receive elementary and secondary instruction in their mother tongue, which had been suppressed under fascist laws; they would be entitled to positions in the administration according to their number; their families would have the right to resume their former names which had to be Italianized under the former administration; and German would be accepted, jointly with Italian, as a legal language for place names and official documents. The German-speaking elements were to be consulted when the autonomy statute was drafted. The Austrian north and east Tirol, which had been separated completely by the Italian South Tirol, was to receive free passage and freight transit by rail and as far as possible by road.

Of the 80,000 South Tiroleans who elected German citizenship as a result of the agreement between Chancellor Adolf Hitler and Benito Mussolini and accordingly left the South Tirol, 40,000 declared they wished to return. The Italian government pledged itself to review within a year after the signing of the treaty in consultation with Austria the question of optional German citizenship arranged in the above-mentioned Hitler-Mussolini agreement of 1939.

(H. KO.)

South-West Africa: see MANDATES; SOUTH AFRICA, THE UNION OF.

Southwood, Julius Salter Elias, VISCOUNT (1873-1946), British newspaper publisher, was born on Jan. 5 in Birmingham, England. He had little formal education and as a boy delivered newspapers in London's West End. Becoming a junior clerk with a firm known as Odham Brothers, he worked his way up in the company to become chairman and managing director. Largely through his efforts, the organization, later known as Odhams Press, Ltd., became one of Britain's largest publishing combines. It publishes the *Daily Herald*, organ of the British Labour party; the *People*, a Sunday newspaper; many popular magazines and also *Debrett's Peerage*. In 1929 the Trades Union congress decided to transfer 51 percent of the stock of the *Daily Herald*, which suffered from low circulation, to Odhams. Lord Southwood devoted much of his time to building up the Labourite organ and under his guidance the paper reached a circulation of 2,000,000. Elevated to the peerage in 1937 as 1st baron of Southwood, he was made a viscount in Jan. 1946. Lord Southwood, who became a Labour whip in the house of lords in Nov. 1944, died in London on April 10.

Sovereigns, Presidents and Rulers: see PRESIDENTS, SOVEREIGNS AND RULERS.

Soviet Republics: see UNION OF SOVIET SOCIALIST REPUBLICS.

Soviet Union: see UNION OF SOVIET SOCIALIST REPUBLICS.

Soybeans. The record 1946 crop of soybeans in the United States was estimated by the United States department of agriculture at 196,725,000 bu. compared with 192,-

076,000 bu. raised in 1945 and the ten-year average of 103,457,000 bu. 1935-44. Early estimates were for a crop below that of 1945 but rapid improvement in October because of favourable weather raised the output. The harvested acreage turned out to be 9,606,000 ac. compared with 10,661,000 ac. in 1945 and an average of 5,698,000 ac. 1935-44. The yield turned out to be higher than expected, averaging 20.5 bu. per acre compared with

U.S. Soybean Production by Leading States, 1946 and 1945
(In bushels)

State	1946	1945	State	1946	1945
Ill.	75,036,000	75,200,000	N.C.	2,862,000	2,700,000
Iowa	34,960,000	35,335,000	Kan.	2,178,000	2,350,000
Ind.	25,346,000	28,587,000	Ky.	1,566,000	960,000
Ohio	19,254,000	19,254,000	Mich.	1,290,000	2,135,000
Mo.	14,360,000	9,360,000	Va.	1,106,000	1,264,000
Minn. . . .	10,675,000	6,554,000	Miss.	1,050,000	806,000
Ark.	5,458,000	3,344,000	Tenn.	810,000	710,000

18 bu. in 1945 and a ten-year average of 18 bu. About 11,500,000 ac. were planted for all purposes in 1946 and 78% was harvested for beans, the highest proportion on record. Unusually high yields in the big producing states greatly enlarged the total output. Illinois led with an average of 23.5 bu. per acre and Iowa had 23 bu. The quality of the crop was unusually good as a result of fine fall weather. Late planted areas had time to mature.

Stocks of previous soybean crops were the lowest of record on Oct. 1 amounting to about 2,000,000 bu. The strong demand for feeds led to early marketing of the 1946 crop. The supply of soybean cake and meal was expected to be nearly equal to that of 1945 or about 3,500,000 tons. This amounted to about twice that of prewar years.

Prices of soybeans to producers were steady through 1945 at \$2.06 to \$2.09 per bushel and in 1946 until August when the average price advanced to \$2.35 per bushel and then declined as the new crop began to be harvested. The prewar average price for soybeans was less than \$1 per bushel. The war demand was for oil rather than stock feed. The output of oil in 1946 was above 1945. The need for oils was expected to continue through 1947 and the United States department of agriculture set the goal for the 1947 crop at 11,300,000 ac., 4% above the previous record. The price of soybean oil rose from about 10 cents per pound in June to over 18 cents in October. (J. C. Ms.)

Spaak, Paul-Henri (1899—), Belgian statesman, was born on Jan. 25, in Brussels. He received his law degree at the Université Libre de Bruxelles, and practised law in Brussels. He was elected as Socialist member from Brussels to the chamber of deputies. In 1935, he was named minister of posts, telegraph and transport in the Van Zeeland cabinet, and the following year he was named foreign minister. At the time, Spaak, who supported the view that Belgium could stay out of a war by remaining strictly neutral, conducted negotiations releasing Belgium from its commitments under the Locarno pact and the Anglo-French-Belgian agreements. He was premier of a short-lived government (May 1938-Feb. 1939) and again became foreign minister at the outbreak of World War II in Sept. 1939. He fled to England after the German invasion in 1940 and became foreign minister and minister of labour in the Belgian government-in-exile. In Feb. 1945, he was retained as foreign minister and deputy prime minister in the Van Acker government established on Belgian soil; the following April he headed the Belgian delegation to the U.N. conference at San Francisco. At the opening session of the U.N. general assembly meeting in London, Spaak was elected (Jan. 10, 1946) president of the general assembly by a 28 to 23 vote. He retained his post as Belgian foreign minister. In opening the general assembly sessions at Flushing, New York city, Oct. 21, Spaak warned "either we succeed or the world falls back into disorder, chaos and, finally, war. . . ."

Spaatz, Carl A. (1891—), U.S. army air officer, was born June 28 in Boyertown, Pa. He was graduated from West Point in 1914. During World War I he commanded a pursuit squadron in the St. Mihiel offensive. He was chief of staff to Gen. Henry H. Arnold in 1941, and in July 1942 he was named U.S. air commander in Europe. Early in 1943 he was shifted to the Mediterranean theatre as commander of the 12th U.S. air force and of the Allies' Northwest Africa air forces. On Dec. 24, 1943, Pres. Roosevelt announced the appointment of Gen. Spaatz as commander of "the entire American strategic bombing force operating against Germany" from all directions. During 1944 and 1945, under his command, U.S. air forces brought all points in Europe within range of Allied bombers.

Spaatz was named for promotion to the temporary rank of full general, March 13, 1945. He represented the U.S. at the German surrender ceremonies in Berlin, May 8. The war department announced his appointment July 5 to commander of the newly created U.S. strategic air force in the Pacific to direct Superfortress blows against Japan.

Gen. Spaatz, who succeeded Gen. Arnold as commander of all army air forces (Jan. 24, 1946), urged the following April that all rocket and guided-missile research be put in charge of the air forces. The successful Honolulu to Cairo, Egypt, flight (via the Polar regions) by the B-29 "Pacusan Dreamboat" was hailed as an "epochal" achievement by Gen. Spaatz, who declared Oct. 6, that it demonstrated the "feasibility of a flight across the polar wastes by properly equipped aircraft."

Spain. A southwestern European state, comprising about 84% of the Iberian peninsula. Area (including the Balearic and Canary Islands), 195,550 sq.mi.; pop. (est. 1946) 27,246,208. Capital, Madrid. Chief cities: Madrid (1,141,000); Barcelona (1,109,000); Valencia (508,000); Seville (348,000); Zaragoza (266,000); Málaga (259,000); Bilbao (208,000). Religion: Roman Catholic. Caudillo, or chief of state, Gen. Francisco Franco. The chief executive and his council of ministers govern without responsibility to the parliament (cortes). All political parties except the Falange are proscribed.

Foreign Relations.—Spain's exclusion from the United Nations (Feb. 9, 1946) initiated a series of diplomatic moves which ended with the 34-6 vote of the general assembly (Dec. 12) to recommend that the member nations break off relations with the Franco government.

The three-power talks proposed by France in Dec. 1945 led to the joint declaration (March 4) that England, France and the U.S. hoped "leading patriotic and liberal-minded Spaniards may soon find means to bring about a peaceful withdrawal of Franco, the abolition of the Falange, and the establishment of an interim or caretaker government under which the Spanish people may have an opportunity freely to determine the type of government they wish to have and to choose their leaders." In April, Poland, after recognizing the government-in-exile, brought before the Security council a proposal for severing relations with Spain, on the grounds that the existing regime was endangering international peace. A subcommittee of the council, created to investigate the Polish charges, made its report on May 31.

The committee's report condemned the Franco government as "a Fascist regime patterned on, and established largely as a result of aid received from Hitler's Nazi Germany and Mussolini's Fascist Italy"; reviewed the "very substantial aid" received by the axis from Spain; cited the "incontrovertible documentary evidence" of Franco's conspiracy with the axis to wage

¹All direct quotations, unless otherwise noted, are from the "Report of the Subcommittee on the Spanish Question."

war on the Allied nations; and showed that following the war Spain had "failed, and in some cases refused, to co-operate in removing the vestiges of Fascism and Nazism in Europe." Though Spanish armed forces (estimated at 600,000-700,000 men, including army, navy, civil guards and police, and requiring 40.9% of all national revenues in 1946) were declared to be "far larger than might be expected in any peace-loving and non-aggressive country," the quality of their training and equipment precluded a finding that "Spain was at the present time preparing for an act of aggression." Furthermore, no evidence was discovered to support allegations of atomic research in Spain or unusual activity in the munitions industry. In conclusion, the committee argued that the absence of "an existing threat to the peace" prevented the council from employing sanctions, as prescribed in the charter; but it could advise the general assembly to recommend "that diplomatic relations with Franco regime be terminated forthwith by each Member of the United Nations."

The report evoked bitter debate in the June sessions of the Security council. Motions to accept the subcommittee's report were lost, as was the demand of Poland, backed by the U.S.S.R., for immediate severance of relations with Spain. No decision was reached, except to keep the Spanish question on the agenda; but in November the matter was removed from the agenda of the council and brought before the general assembly. After prolonged discussion, which underscored the divergent policies of Britain, the U.S. and the soviet union, the assembly agreed to recommend to the member nations the withdrawal of their ambassadors and ministers from Spain and to request the Security council to reconsider the question if Franco did not give way to a democratic government "within a reasonable time." (See also UNITED NATIONS.)

While foreign countries were struggling, often at cross purposes, to find a solution to the Spanish question, the Franco government seized every occasion to reassert its internal stability and to challenge the competence of the United Nations to

sit in judgment. When France, stirred by the trial and execution of Spanish Republicans, decided to close the frontier (Feb. 28), Spain immediately followed suit. At the opening of the cortes (May) Franco declared that the law-making processes of the parliament disproved charges that his government was dictatorial and undemocratic: against the conventional type of democracy, he said, "we present a Catholic and organic democracy, which dignifies and elevates man. . . ." The journey of Don Juan to Portugal for talks with Franco's representatives raised the hopes of those who espoused the cause of restoration, but before the year's end a number of the pretender's sympathizers were fined or removed from office for monarchist activities. Press censorship was imperceptibly lightened by a decree which *inter alia* forbade criticism of high officials, Catholic dogma and foreign policy. Sporadic acts of violence indicated the existence of an underground opposition movement; somewhat surprising, at this late date, was the ability of the secret police to round up hundreds of "communists." By September the jail population had dropped to 37,994, only 6,114 of whom were held for crimes committed during the Civil War.

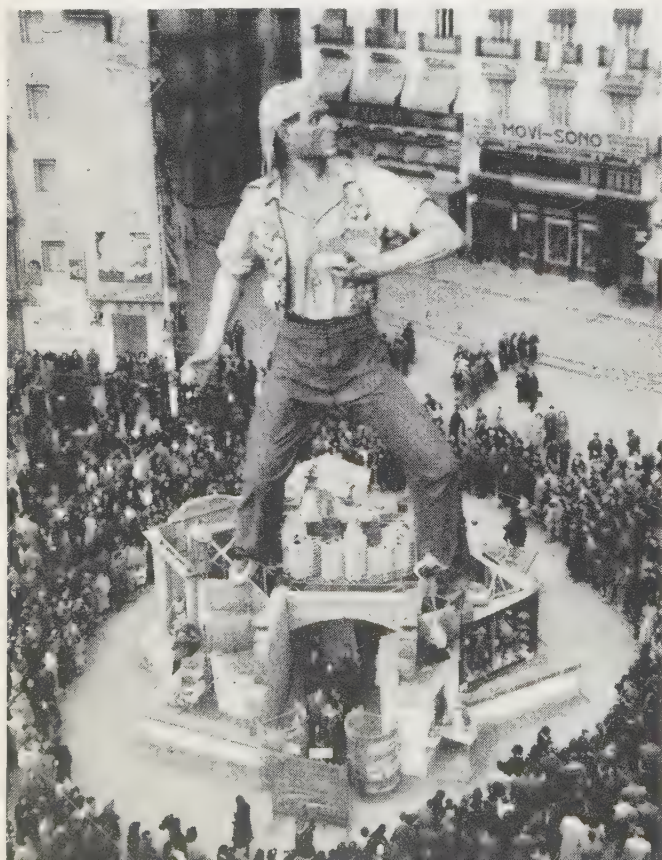
The Allied governments pressed Spain for the repatriation of German officials and agents, and from January to May 1,659 were forced to leave; but the U.S. complained of the obstructionist tactics of Spanish officials with respect to 2,205 nazis still wanted for questioning. In August the Belgian quisling Leon Dégrelle was formally expelled, but as late as October Belgium insisted that Dégrelle remained in safe hiding in Spain. The Allied Control commission was hampered in its efforts to discover and seize German property, though in October the government finally recognized the commission's right to take over German assets on account of reparations.

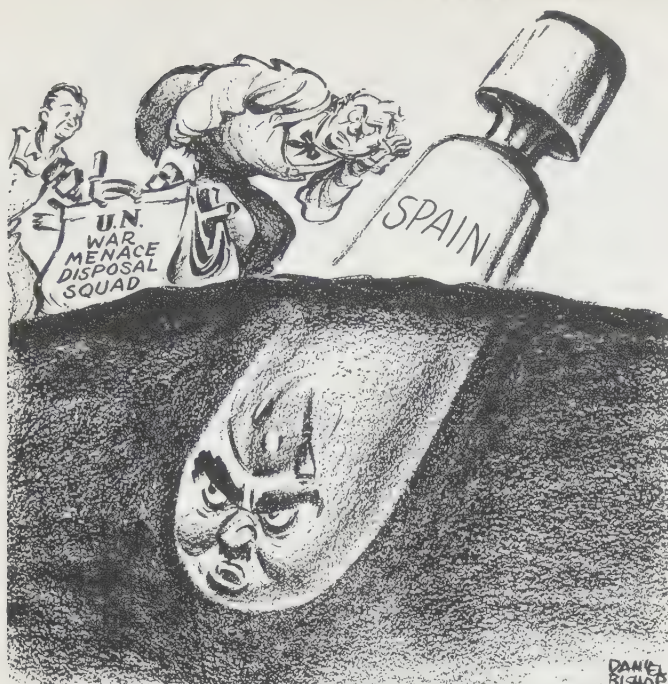
Relations with the Vatican were perfected by the concordat of July, which provided for the joint participation of the government and the church in the appointment of priests. A census of heads of family for the purpose of determining voting rights (referred to as "organic suffrage") was completed, but the municipal elections promised for March failed to materialize. The Falange youth front was strengthened in August by the organization of weekly classes, with compulsory attendance, for political, religious and cultural indoctrination.

On the economic front Spain continued to suffer from low production, food shortages, rising prices and widespread black markets. On the tenth anniversary of his rise to power (October) Franco declared: "we have saved the soul of Spain . . . but we have not yet won the economic battle nor destroyed the effect of 50 years of neglect" (*Keesing's Contemporary Archives*, p. 8261). Particularly acute was the dearth of housing, widely recognized as a deterrent to the nationalist aim of rapid population growth.

Finance and Trade.—The peseta held its official value of 9.13 cents (U.S.) but in August the Foreign Exchange institute introduced tourist exchange at 16.4 pesetas per dollar. The ordinary revenues for 1946 were placed at 11,100,000,000 pesetas (10,500,000,000 in 1945), with expenditures calling for 11,300,000,000 (10,600,000,000 in 1945). Additional outlays of 1,900,000,000 (2,600,000,000 in 1945) were provided for in the extraordinary budget. As of Dec. 1944 the public debt stood at 38,300,000,000 pesetas. The note circulation of the Bank of Spain rose to 19,700,000,000 in August (19,000,000,000 in Dec. 1945), while prices and the cost of living moved slowly upward. Reserves of the central bank (August) were reported as follows: gold 339,000,000 pesetas; silver 574,000,000; foreign exchange 92,000,000. Despite the shortage of foreign credits the government planned to pay \$10,300,000 on account of the external debt arising from the purchase of shares in the Spanish Telephone Co.

PAPIER MACHE FIGURE depicting Spain's housing shortage in 1946 was part of the festivities in Valencia for the carnival celebrating the Feast of St. Joseph





In "IS IT STILL TICKING?" Daniel Bishop of the *St. Louis Star-Times* referred to the action of the United Nations Security Council in appointing a subcommittee on April 29, 1946, to investigate whether the activities of the Franco government were a cause of international friction and a threat to world peace

A trade-agreements program was vigorously pushed in an effort to counteract the deficiencies of the domestic economy. The treaty with Italy (January) provided for reciprocal trade of 200,000,000 pesetas yearly, though 75% of Spain's exports were to be applied to the (civil) war debt. But the most important trade and loan agreements were those negotiated with Argentina, the latter country having used the occasion of the United Nations debates over Spain to strengthen its diplomatic and economic relations with the Franco government. The trade agreement of June was followed by an economic and communications agreement in October, in which Spain pledged itself to buy from Argentina up to 90% of its import requirements of wheat and corn over a five-year period. Simultaneously, Argentina extended long- and short-term credits totalling more than \$180,000,000.

Production.—In an effort to stimulate agricultural production the government, early in 1946, made available 1,000,000,000 pesetas in low-interest loans to farmers; and the cortes approved a new agrarian law, renewing the perennial hope of breaking up large estates and appropriating idle lands for the benefit of small-scale farmers. Reflecting some improvement over the low output of grain in the previous year, in July the bread ration was increased by 100 grams, raising the daily ration to 200–250 grams per person. Latest statistics on grain production refer to 1945: wheat 1,687,180 tons; rye 526,930 tons; barley 797,510 tons; corn 719,800 tons; oats 283,150 tons.

Steel production averaged 60,625 tons monthly in the first half of 1946 (51,800 tons in 1945). Latest figures available for other minerals report total output for 1945: coal (including lignite) 13,161,460 tons; pig iron 515,875 tons; copper 7,935 tons; lead 27,780 tons.

The newly electrified Madrid-Segovia railroad was inaugurated in February. On this occasion a 12-year plan for the electrification of 40% of the railway system was announced. (See also FASCISM.)

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Spanish-American Literature. Few of the Spanish-American novels published in 1946 attained real literary merit. The Argentinean Enrique Amorim, however, managed to awake special interest with his novel *Nueve lunas sobre Neuquén* mainly because of the fact that he seemed much more concerned with social problems than in his previous books. Amorim, although writing for the movies, kept his artistry intact and for this reason he should be specially commended. In Mexico Mariano Azuela wrote 'one more book to add to a series which some critics believe the author should have interrupted long ago. *La mujer domada*, although well written and constructed, is a story that has been told much too often. Azuela's heroine, coming to the big city from a provincial town, is an easy prey for disappointment and disappointment may also be the reaction of the reader who patiently waits for another masterwork by the author of *Los de Abajo*. José R. Romero, on the other hand, is like the Argentinean Amorim, a novelist who has already proved his skill, but might still have something to say which will surprise the critics. His latest book, *Rosenda*, is a love story, powerfully written and, according to the Mexican critics, of autobiographical value. In Bolivia Augusto Céspedes—the author of *Sangre de Mestizos*, a memorable collection of short stories dealing with the Chaco War—published a book that has the making of a best seller. *Metal del Diablo* tells the story of a not very scrupulous miner who becomes the king of tin leaving behind a trail of blood, exploitation and abuse. The author succeeds in depicting different milieus and characterizes very convincingly a number of adventurers, politicians, financiers, Indian leaders and European noblemen. Two other novels might be mentioned to prove that, although literary quality among Spanish-American novelists may leave something to be desired, variety, at least, is never lacking. The Chilean Marta Brunet—serving a diplomatic post in Argentina—abandoned the field of her first adventures in fiction, the mountains of Chile, and reached a rather unexpected degree of sophistication in *La Mampara*, a very short novel dealing with social life in Buenos Aires. Miss Brunet's characters are on the verge of being caricatures; the narration is dull; the author has not rid herself entirely of the "criollista" technique which indulges heavily in digression and description. The second novel deserving mention is the joint product of the Argentinean S. Ocampo and A. B. Casares: their book is called *Los que Aman, odian* and becomes a fine example of a detective story written by Spanish-Americans with a Spanish-American background.

In the field of historical biographies perhaps the most important item is M. Picón Salas' *Miranda*; it is a well-documented account of a life that has already become a legend. The Uruguayan J. Zavala Muñoz in *Batlle, héroe civil* deals with one of the most fascinating periods of his country's history. *Bulnes* by Alfonso Bulnes is a biography of a Chilean general and president of the republic that should interest the Argentinean public as well, since it was during Bulnes' time that Argentinean and Chilean writers engaged in the so-called "polemic of romanticism," Domingo Sarmiento defending the cause of romanticism and Andrés Bello's disciples the cause of neoclassicism. The famous painter J. C. Orozco published his *Autobiografía* and by telling his life with sincerity has produced a book of real importance. Alberto María Carreño wrote an interesting biography of *Bernal Díaz del Castillo*. *El Marqués de Sobre-Monte* by José Torre Revello is a historical essay on the personality of the viceroy of Río de la Plata. In R. Rodríguez Celada's *Alberdi el Indoamericano* the liberal ideas of Juan Alberdi, eminent Argentinean writer and political leader, are specially emphasized. The Colombian essayist Germán Arciniegas, who seems to be competing with L. A. Sánchez in pro-

ductivity, edited among other things an anthology of Andrés Bello's writings under the title of *El Pensamiento vivo de Andrés Bello*, a volume in the popular Losada series.

Augusto D'Halmar had his short stories collected in a volume *Cristián y yo* which may be the most outstanding book published in Spanish-America in 1946. This Chilean writer is a great stylist, has imagination and, what is stranger in Spanish-American letters, has a philosophy of life which is profoundly inspiring.

In Chile also the *Sociedad de Escritores* edited two short stories by Francisco Contreras, the poet and critic who for a number of years acquainted Parisian readers with the latest news of the Spanish American *modernismo*; the little volume is called *El Huallipén y La Aojada*. Those who knew Luis J. Urbina as a poet only—and "the most Mexican of Mexican poets"—will be surprised to find out that he was also a short story writer of distinction; his *Cuentos vividos y crónicas soñadas* is a romantic document of prerevolutionary days in Mexico. From Mexico comes too *Cuentos Indígenas* by P. Gonzalez Casanova, a bilingual edition in Nahuatl and Spanish of short stories that will interest the students of folklore. Three other books containing short stories should be mentioned: Lourdes Morales' *Delta en la Soledad* (Venezuela); J. P. Ramos' *La Novela de la Vocación* (Argentina); and E. Anderson Imbert's *Las pruebas del caos* (Argentina).

A. Gomez Robledo's *La filosofía en el Brasil* will serve as a fine introduction to Brazilian philosophers; the author shows a great deal of understanding and presents his subject with clearness. Another essay of significance is G. Aguirre Beltrán's *La población negra en México*, a work that opens the field for the study of Negro influence upon the life of Mexico. *Nueva grandeza Mexicana* is a brilliant eulogy of Mexico City by the well-known writer Salvador Lovo. C. García Prada gathered under the title of *Estudios Hispanoamericanos* his articles and reviews which had appeared in *Revista Iberoamericana*.

Two books on Spanish-American music deserve special men-

works published: Ramón Galvez, *Las Personas*; M. Durán Gili, *Puente*; T. Rico Cano, *Esta niebla encendida*. Argentina had an abundant crop of new poets; here are some of them: B. Caraffa, *Raíces de Eternidad*; A. Medina, *Hojas Perdidas*; J. Caraballo, *Prudencio Luna*—a "gauchesco" poem in the tradition of *Martín Fierro*; Raúl J. Aguirre, *El tiempo de la rosa* and A. Blasetti, *Turno del Hombre*. Chile has one more poetess in the person of Mila Oyarzún, author of *Estancias de Soledad*. The outstanding books of poetry in 1946 were three anthologies: Alfonsina Storni's *Obra poética*, published to collect funds for a monument to the great Uruguayan poetess; R. Lopez Velarde's *Antología*, on occasion of the 25th anniversary of the poet's death; and A. Cruchaga Santa María's *Antología*, which will make the Chilean poet known to a broader audience.

The dramatic output for the year 1946 was again negligible. The Mexican E. Abreu Gómez published a comedy, *Un loro y tres golondrinas*; F. Perez Estrada made a collection of popular plays, *Teatro Folklórico Nicaragüense*; and Luis E. Osorio continued the series known as *El Teatro*, plays of modern Colombia. (F. AA.)

Spanish Colonial Empire. Total area (approx.): 135,206 sq.mi.; population excluding Spain (est. July 31, 1944) 1,380,000.

The accompanying table lists the colonies, protectorates, etc., of Spain (*q.v.*) with certain essential statistics appropriate to each of them.

History.—There was a further increase in the economic resources of the Spanish protectorates and colonies in 1946. In Spanish Morocco the total acreage sown with corn was 50% higher than in 1936, and the harvest far surpassed that of 1945, when a severe drought had been experienced. The production of iron ore in the Riff mines (exported mainly to Great Britain and Spain) reached important figures. All the territories maintained substantial exports of cocoa, coffee beans, timber and other products to Spain.

Spanish Colonial Empire

Country and Area sq. mi. (approx.)	Population Estimated July 31, 1944 (000's omitted)	Capital Status, etc.	Principal Products (in short tons)	Imports and Exports (in pesetas)	Road, Rail and Shipping	Revenue and Expenditure (in pesetas)
Ceuta, Melilla, Alhucemas, Chafarines and Peñon Velez	82	145	Madrid, administered as part of Spain	exports (1942) raw materials 610,900 manufactures 7,370	[1942] imp. 169,769,990 exp. 54,764,500	
Spanish Morocco	8,024	992	Tetuan, protectorate High commissioner: General Juan Varela	(1943) wheat 25,445 barley 154,739 maize 6,086 sorghum 39,364 iron ore 780,000 antimony ore 220	(1944) imp. 495,597,000 exp. 108,182,000	rds. c 500 mi. rly. 80 mi. shipping (1943) entered 307,379 tons, cleared 307,299 tons
Spanish Guinea including Fernando Po, Rio Muni and four small islands	10,900	171	Santa Isabel, colony	exports (1943) coffee 4,305 cocoa 14,133 timber 83,696 (final figures)	(1943) exp. 99,014,240 (imp., in short tons, 23,870)	(est. 1943) rev. 22,266,400 pes. exp. 23,631,100 pes.
Western Sahara, including Ifni, Rio de Oro and Spanish Sahara	116,200	72*	Villa Cisneros, colonies	fish and dates		(1929) rev. and exp. 5,892,857 pes. 1929: 1 peseta = 22 U.S. cents (approx.)

*Ifni = 35, Rio de Oro, etc. = 37. Rates of exchange, 1946: 1 peseta = 9.15 U.S. cents.

tion: Carlos Vega's *Música Sud-Americana*, a collection of articles, and Alejo Carpentier's *La música en Cuba*. Near the end of 1945 José G. Navarro published his *Artes Plásticas en el Ecuador*, a book of great importance and written in a style that will appeal not only to the experts but also to the general reader.

Spanish-American young poets produced enthusiastically in 1946 and it is a difficult task to choose the ones worthy of mention. *Sonrisa del Alba*, an anthology of young Mexican poets, gathers compositions which have appeared in different magazines. In Mexico also the following young poets saw their

Spanish Literature. No new literary talent appeared on the horizon in 1946. The period was characterized by a scarcity in fiction and, most particularly, in poetry, and a slight revival in the theatre. Several historical and biographical works of merit and many excellent articles and books of a critical nature were published.

Jacinto Benavente of Argentina gave a lecture in the Madrid Athenaeum on life and the theatre in South America; this lecture was later published in Buenos Aires. His play *Titania*, a fine comedy of manners in the typical Benavente style, was

staged in Barcelona by the Argentine actress Lola Membrives. Casas Brício's *Angustias la Faraona*, produced for the first time on Holy Saturday, has Andalusia for its setting. *Lolita Dolores* and *Mambrú va a la guerra*, two musical plays also presented on Holy Saturday, had great success. Critics praised the score and two parts called symphonic poems in the musical play *De orden del rey* by Angel Barrios. Enrique Suárez de Deza's *Miedo* seems to be his best dramatic effort up to now. José María Pemán, president of the Spanish academy, received the unanimous praise of the critics with *La casa*, a comedy of ideas, characters and manners. *Las horas inolvidables*, by Enrique Gutiérrez Roig, is an amusing comedy. *Manolita Quintero*, a posthumous work of the Alvarez Quintero brothers, was given in the Fontalba theater in Madrid. Volume XI in the *Teatro completo* of the brothers contains: *La escondida senda*; *El último capítulo*; *Las de Caín*; *Sin Palabras*. Ismael Sanchez Estevan published *María Guerrero*, a book on one of Spain's greatest actresses.

Pío Baroja published the third volume of his *Memorias*, entitled *Final del siglo XIX y principios del XX*. His personal experiences, books, travels, acquaintances and opinions—all very unheroic—pass in review, expressed in a language ever rambling but completely frank. His latest novel *El hotel del cisne* has for its background the Paris of 1940; the characters are the wretches who occupied the sixth floor of a poor hotel, beset by fears of bombings and rises in the cost of living. Dreams with fantastic adventures and visions make up a good part of the book. Full of details, as all of his writings, it possesses much that is unusual and morbid. Gaspar Gómez de la Serna's small volume *Después del desenlace* consists of three tragic love letters, supposedly from a young Italian soldier who saw action in the Spanish Civil War and World War II. Aguilar published in the *Crisol* series *Cuentistas españoles contemporáneos*, a collection of short stories by contemporary writers.

The philologist and historian Menéndez Pidal published in Argentina *Castilla, la tradición, el idioma*, a book which develops such topics as the language and literature of Castille, the nature of traditional poetry, Spanish epics, the Spanish language in the old and new worlds, euphuistic style and thought in 17th century Spain. The Aragón Medieval Studies club, connected with the University of Saragossa, brought out the first volume of its studies on the Middle Ages under the Crown of Aragón. *La mujer, la casa y la moda* (En la España del rey poeta), by José Deleito y Piñuela, deals with feminine activities, the house, dress, vehicles, etc., during the reign of Philip IV. Natalio Rivas in *El siglo XIX* assembled anecdotal narratives about the politicians and literary figures of the past century. The first volume of the *Diccionario enciclopédico ilustrado de los hombres de España*, by Esperabe de Arteaga, is a useful tool for people interested in any phase of Spanish life.

Literary criticism revealing high calibre and unqualified interpretative value flourished. "Azorín," awarded the Gran Cruz de Alfonso X el Sabio, gathered in *Ante Baroja* various articles concerned with his colleague of the generation of 1898. He also published numerous articles in newspapers and magazines. Dámaso Alonso, elected to membership in the Spanish academy in 1945, studied in *La poesía de San Juan de la Cruz* the saint's indebtedness to Garcilaso, traditional and popular elements in his poetry, the biblical sources, style and structure. In *Estilos del pensar* the art critic Eugenio d'Ors wrote about Menéndez y Pelayo, Luis Vives, San Juan de la Cruz, etc. Carlos Clavería in *Cinco estudios de literatura española moderna* developed with clear elucidation essays on Flaubert and *La Regenta*, "Clarín" and Renan, the theme of time in "Azorín," etc. Benito y Durán published a study entitled *Filosofía del Arcipreste de Hita: Sentido filosófico del "Libro de buen amor"*. As a consequence of inter-

est created by the third centenary of Quevedo y Villegas, Luis Astrana Marín brought out an *Epistolario completo de don Francisco de Quevedo y Villegas*. Max Aub, now living in Mexico, wrote *Discurso de la novela española contemporánea*, a series of lectures evaluating the contributions of writers embraced in the more recent literary generations. Another refugee, Moreno Villa, discovered some interesting stylistic peculiarities of various authors in *Leyendo a San Juan de la Cruz, Garcilaso, Fray Luis de León, etc.*

(H. L. JN.)

Spanish Possessions in Africa: see SPANISH COLONIAL EMPIRE.

Special Libraries Association: see SOCIETIES AND ASSOCIATIONS.

Speer, Albert (1905—), German politician and architect, was educated at the Karlsruhe Technical academy and at universities in Berlin and Munich. In 1931 he joined the nazi party and after Hitler took power, Speer rebuilt the reich chancellery in Berlin and was the architect for the party building in Nuernberg. He became inspector-general of buildings in Berlin in 1937, and worked with Fritz Todt, builder of Germany's Westwall and superhighways. He was made minister of munitions and armaments in 1942. He joined the Doenitz government after the death of Hitler. Arrested May 23, 1945, he was held for trial before the International Military Tribunal at Nuernberg. In his testimony Speer asserted (June 20, 1946) that he plotted in March 1945 to kill Hitler with poison gas. He also insisted that he was a businessman, not a nazi. Although the court held there was mitigating evidence in his favour, he was found guilty of war crimes and crimes against humanity and was sentenced Oct. 1, 1946, to 20 years' imprisonment.

Spelman Fund of New York: see SOCIETIES AND ASSOCIATIONS.

Spices. The year 1946 was notable in the history of spices. Of the war-blacked-out regions, Hong Kong was first to resume shipping. To a world weary of makeshift imitations, China sent a large tonnage of its genuine, extra selected, Saigon and Honan cinnamons (cassia), and still many grocery shelves were bare. As the year closed, further good quantities were en route. Next to resume was the Netherlands with many bags, 110 lb. each, of Dutch blue poppy and caraway seeds, a boon to bakers who could again offer poppy and caraway rolls and bread. Then Denmark and Sweden made their fancy mustard seeds available, forestalling a threatened shortage.

For a pepper-starved world, Singapore had many tons immediately available. Again the U.S. Office of Price Administration prevented imports to the United States by maintaining its arbitrary ceiling of 15 cents per lb. against world markets of more than 50 cents. But the act under which OPA operated expired June 30, and spices were not mentioned in the new law enacted July 28. Later the U.S. department of agriculture relinquished import licensing and spice trading at last was free in the United States. Other countries were still hobbled by controls, such as quotas for each part of the world, the licensing of shipments, etc.

Nutmegs and mace from the Netherlands Indies, still held back by civil strife, were now and then to be found in Singapore and a few lots of each were shipped to the western world during December.

Resumption of trade resulted in a large number of detentions under the Food, Drug and Cosmetic law by the U.S. Federal Security agency. New tests for defects in quality excluded red peppers, nutmegs, mace, and such aromatic seeds as cumin,

anise, fennel and coriander and cassia, to the extent of many tons. There are three alternatives of disposing of excluded imports: re-export, destruction or reconditioning. The last, a privilege, is usually effective under government supervision to bring detained products into conformity with the law.

The demand for mustard increased. On Aug. 28, 1946, the department of agriculture estimated at 46,990,000 lb. the total crops of Montana, Washington, California and the Dakotas. Canada, too, contributed a good many carloads. It was expected that by the autumn of 1947 ample supplies of spices were almost sure to be available everywhere at reasonable prices.

Worthy of recognition as a supplier during the war years is the island of Cyprus which sent frequent shipments of sage, until cultivation in the United States increased in Washington, California and Kentucky. Anise seed and red peppers (chilies) came in good quantities from Mexico. Spain increased its cultivation of a variety of thyme and held that business until France was again able to export its genuine, rich-flavoured leaves. In 1946 England was shipping some of its fancy mustard seeds, and Hungary was negotiating sales of the famous paprika grown in the Szeged area. This was fortunate, since the 1946 crop in Spain was much decreased by unfavourable growing conditions. Spanish prices were high. Real allspice, the one spice discovered by Columbus, was still controlled by the government of Jamaica. The new government of India was more strictly rationing exports of its much-needed spice seeds, gingers and turmeric.

(C. A. T.)

Spirits: see LIQUORS, ALCOHOLIC.

Sports and Games: see ANGLING; ARCHERY; BADMINTON; BASEBALL; BASKETBALL; BILLIARDS; BOWLING; BOXING; CHESS; CRICKET; CURLING; CYCLING; FENCING; FOOTBALL; GLIDING; GOLF; GYMNASTICS; HAND-BALL; HORSE RACING; ICE HOCKEY; ICE SKATING; LACROSSE; MOTOR-BOAT RACING; POLO; ROWING; SHOWS; SKIING; SOCCER; SOFTBALL; SQUASH RACQUETS; SWIMMING; TABLE TENNIS; TENNIS; TRACK AND FIELD SPORTS; TRAP-SHOOTING; WRESTLING; YACHTING.

Squash Racquets. Charles W. Brinton of Philadelphia, Pa., picked up where he left off four years before in winning the 1946 squash racquets singles. He was duration champion, having won the last national tournament in 1942. Brinton teamed with Donald Scratchan to defeat Hunter Lott and William Slack in their all-Philadelphia doubles final. The Lapham International trophy was won by the United States for the 16th time in the 25-year series, the U.S. team defeating Canada, 13 to 2. The United States won the Grant trophy, taking 7 out of 11 games from Canada, but the Canadians defeated England, 8 to 1. Jack Leibel of Toronto and Lou Schaefer of Buffalo, N.Y., won the dominion doubles, while Walter F. Pettit of New York annexed the New York state title. Lester Cummings of Greenwich, Conn., won the national professional title with a 15-6, 15-7, 15-8 victory over Al Ramsay of Cleveland, O. Cummings was champion in 1942, Ramsay in 1940 and 1941.

Frank R. Hanson of New York captured the national squash tennis championship, defeating the 1942 winner, Robert Reeves of New York, 7-15, 15-4, 15-7. Hanson also won the New York A.C. and Yale club titles.

(M. P. W.)

Stabilization Administrator, Office of: see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

Stainless Steel: see METALLURGY.

Stalin, Joseph Vissarionovich (1879-), soviet statesman, was born



"JOE'S IDEA OF TEAMWORK" pictured in 1946 by Shoemaker of the Chicago Daily News

in Georgia in Transcaucasia and succeeded Lenin as virtual dictator of the soviet union in 1924 (see *Encyclopædia Britannica*). On May 6, 1941, shortly before the German invasion, Stalin assumed the premiership of the U.S.S.R.

Throughout 1942 and 1943, Marshal Stalin repeatedly appealed to the Allies to open a second front and asserted on several occasions that Allied aid was not commensurate with the soviet contribution in engaging the greater bulk of the nazi army. At the historic Tehran conference in Nov. 1943, Stalin, Roosevelt and Churchill agreed on a master plan to destroy German military power. At Yalta (Feb. 4-11, 1945) they agreed on final measures for the defeat of Germany and on policy regarding liberated countries. At the Berlin conference the Big Three made public their agreement on the final decisions for the rule of Germany and settlement of other European problems (Aug. 2), and seven days later (Aug. 9), the soviet union entered the war against Japan.

Of all Stalin's statements in 1946, perhaps the most important was his electoral speech of Feb. 9, in Moscow, in which he characterized World War II as the "inevitable result of the development of world economic and political forces on the basis of modern monopoly capitalism" and called for substantial increases in heavy industries to "guarantee the homeland against all possible accidents."

At the time that the Iran crisis was at its peak, Stalin in a written interview with a U.S. correspondent (March 22) expressed his belief that neither the nations of the world nor their armies were seeking another war, adding that the fear of war was "being brought about by the actions of certain political groups engaged in the propaganda of a new war." In another series of written answers to a correspondent's questions (Oct. 28), Stalin disputed Secretary of State James F. Byrnes' contention that U.S.-soviet tension had increased, but added that "the most serious threats to peace" were the "incendiaries of a new war," naming Churchill as the foremost "incendiary." He then declared that the U.S.S.R. did not possess the secret of the atomic bomb. Nine days later (Nov. 6), Stalin urged the soviet army to remain in constant "battle-readiness" despite "the

present absence of a direct military threat." (See also UNION OF SOVIET SOCIALIST REPUBLICS.)

Stamp Collecting: see PHILATELY.

Standards, National Bureau of. Established by act of congress March 3, 1901, this bureau is the principal agency of the federal government for fundamental research in physics, chemistry and engineering. During 1946 it consisted of 11 scientific and technical divisions, three concerned with commercial standardization, and four concerned with administration of internal affairs. The technical divisions were electricity, metrology (formerly weights and measures), heat and power, optics, chemistry, mechanics and sound, organic and fibrous materials, metallurgy, mineral products (formerly clay and silicate products), ordnance development (including electronics) and radio propagation; the standardization divisions were simplified practice, trade standards and codes and specifications.

Dr. E. U. Condon, director of the bureau, served as scientific advisor to the Special Senate Committee on Atomic Energy and was a member of the president's Evaluation commission at the atomic bomb tests conducted by the army and navy at Bikini Atoll.

The bureau's direct appropriation for 1946 was \$3,588,000; this was supplemented by approximately \$8,500,000 transferred by the army, navy, National Defense Research committee and other government agencies. The staff numbered approximately 2,300 during the year. In addition, 65 persons were engaged under the Research and Industrial Fellowship plan.

Many of the war research projects of the bureau were continued during the year, in particular those involving fundamental research and peacetime applicability. Representative of these were the development of special batteries, interior ballistics, lightning hazards to aircraft, optical range finders, chemical analysis of secret materials, jet propulsion studies, aviation fuel research, radar homing missiles, aerodynamics of bombs and rockets, oxygen equipment for high altitude aircraft and synthetic rubber.

Three typical contributions to the war effort, secreted during World War II and on which advancements were still being made during 1946, may be mentioned. The bureau was responsible for the invention, development and engineering of the radio proximity fuse for bombs, rockets and mortar shells. The guided missile BAT, the only fully automatic guided missile used successfully in combat, was also developed, and work on advanced models was continued during the year. Much work was done in nuclear physics, an extension of several decades of activity in the field of radioactivity. The wartime atomic energy project originated at the bureau when President Roosevelt turned to the director of the bureau for its initiation. Work in this field included investigation and development of methods of isotope separation, calorimetric measurements of secret materials, mass spectrometer measurements of isotope ratios, studies in neutron absorption, analysis of ores of uranium and other heavy elements, research in beta and gamma ray spectra of radioactive isotopes and in alpha ray emission of such isotopes, the development of new methods of test, and the development of beta and alpha ray standards in laboratory form. Related projects included the designing of a 100,000,000-volt betatron, tests of Geiger-Mueller counters and associated electronic equipment, testing of more than 3,000 radium samples, preparation of safety codes for X-ray and radium protection, and the construction and operation of a 1,500,000-volt X-ray tube.

Extensive studies were made in the field of radio propagation. During World War II the ionospheric group at the bureau be-

came the centralizing unit in the United States for ionospheric data taken all over the world. This group was given division status on May 1, 1946, with the formation of the Central Radio Propagation laboratory, Division XIV of the bureau. Activity of the division included ionospheric research, propagation, and measurement; microwave research and measurement; and frequency utilization services. Ionospheric data, received from 55 ionospheric stations scattered throughout the world, were gathered and analyzed and the results were disseminated to the armed services, commercial users, scientists and laboratories. Techniques were developed for solving high-frequency radio propagation problems. Methods of predicting radio transmission conditions were improved through special experiments, the study of world-wide observations, and the analysis of radio traffic data and radio disturbances.

Projects representative of the broad scope of the bureau's work in physics, chemistry and engineering included underground corrosion of metals, high voltage research, dental materials, thermal expansivity, automotive antifreeze compounds, lubricating greases, optical glass, porcelains and refractories, ceramic coatings for aircraft exhaust stacks, basic elements for electronic computing machines, electronic measurement instruments, sugar research, photometry of phosphorescent materials, hydrocarbons research, extraction of alumina from clays, lateral contraction of some structural alloys, properties of sound wave fields, fundamental investigations of air flow, high polymer research (including natural and synthetic rubbers), fatigue in metals, and building materials and structures.

Spectrographic investigations included structural analyses of the spectra characteristics of chromium, molybdenum, tantalum, ytterbium, and uranium; the valence electrons of uranium, determined from analysis of the atomic spectrum, were announced; a compilation of atomic energy levels as derived from optical spectra was begun for 450 spectra of 84 elements; approximately 40,000 determinations were made spectrographically on more than 3,000 samples, most of which were uranium.

The test work of the bureau during the year totaled approximately 250,000 tests and calibrations (including the furnishing of standard samples) valued at \$1,200,000. Representative activities of this nature included the calibration of approximately 77,000 thermometers of various kinds, more than 60,000 hours of performance and life tests on engines, the testing of 200 refrigerators, preparation and distribution of 21,000 standard samples of chemicals, approximately 40,000 tests of some 6,000 chemical samples, calibration of about 900 water current meters, examination of 5,300,000 barrels of portland cement for various government agencies, factory inspection of about 4,000,000 lamps purchased by the government and life-test of more than 3,000 at the bureau, almost 19,000 tests on miscellaneous materials (such as concrete and concrete aggregates, soils, paints, textiles, water, soaps, oils and metals) and others.

During the year, 145 papers were published in the bureau's series of publications, and 79 articles by members of the staff were approved for publication in scientific and technical journals. Nine new mathematical tables were made available to the public, bringing the total to 75. The bureau's publications are available in the leading libraries throughout the country. An indexed list of publications (Circular C24 and supplements) is obtainable from the superintendent of documents, Government Printing office, Washington 25, D.C. (H. Od.)

Stanford University (THE LELAND STANFORD JUNIOR UNIVERSITY), an institution of higher education near Palo Alto, Calif.

During the summer of 1946, the war department released Dibble General hospital which by autumn was converted into

Stanford village, a housing project located two miles from the campus for veteran students. A program was inaugurated to remodel some of the hospital buildings into 300 apartment units. The village housed a total of approximately 1,500 students. On the campus, classroom, laboratory and library facilities were crowded with a total enrolment of about 70% above the prewar peak.

With a grant from the Rockefeller foundation, the school of humanities developed a program in the Pacific-Asiatic-Russian studies. In the school of social sciences, the faculty revised and extended the program in international relations. The Hoover library and institute with \$200,000 from the Rockefeller foundation was enabled to employ scholars in the Slavic studies. With a \$300,000 grant from the same foundation, the Food Research institute began work on a five-year international history of food and agriculture during World War II. Judge George E. Crothers made a gift for the purpose of erecting a dormitory for law schools. Gifts and bequests for the year totalled \$1,648,000. In order to provide students with full medical and surgical services and hospital care without charge in addition to tuition fees, the health service was reorganized with the appointment of Dr. George H. Houck as director.

Near the end of 1946, the trustees organized, in co-operation with leading industrialists of the west, the Stanford Research institute, a separate corporation set up to conduct research for industry. President Donald B. Tresidder was appointed chairman of the institute's board of directors. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (A. C. EV.)

Stanley, Wendell Meredith (1904–), U.S. biochemist, was born on Aug. 16 in Ridgeville, Ind. After receiving his Ph.D. from the University of Illinois in 1929, he became research associate and instructor in chemistry at that school. The following year, he went to Munich as National Research fellow and upon his return in 1931 entered the Rockefeller Institute for Medical Research, becoming a member in 1940. He was Hitchcock professor at the University of California, 1941, and Vanuxem lecturer at Princeton, 1942. Prof. Stanley in research on the virus which caused the "mosaic disease" in tobacco plants, came upon the discovery that while it appeared to act like an inanimate chemical, it presented evidence of being a living and growing organism; but its method of reproduction still remained a mystery. He also worked on vaccines, during World War II, for use against influenza and Japanese encephalitis. For his work in the biochemistry of virus proteins he won the Nobel prize in chemistry, Nov. 14, 1946. He and Prof. John H. Northrop received one-quarter each and Prof. James B. Sumner, one-half, of the 1946 Nobel chemistry award.

Stars: see ASTRONOMY.

Stassen, Harold Edward (1907–), U.S. politician and naval officer, was born April 13 in West St. Paul, Minn. He studied at Minnesota university and law school, Minneapolis, Minn., 1923–29, and was admitted to the Minnesota bar in 1929. He first ran for political office in 1930 when he was elected county attorney, a post he held for eight years. He was elected governor of Minnesota on the Republican party ticket in 1938 and was inaugurated in Jan. 1939, one of the youngest governors in the U.S. He was re-elected governor for the 1941–43 term. Stassen was temporary chairman and keynoter of the Republican National convention in 1940 and was national chairman of the Governors' conference and of the Council of State governments,

1940–41. He resigned as governor in 1943 to join the U.S. navy. A commander and flag officer to Adm. Halsey, Stassen saw action in four battles. On Feb. 20, 1945, he accepted Pres. Roosevelt's appointment as delegate to the San Francisco conference of the United Nations. Stassen, who was promoted to the rank of captain in October, was released from the navy on Nov. 15, at which time he said that he intended to return to public life in an endeavour "to strengthen the liberal and progressive elements in the Republican party." In later 1945, he was frequently mentioned as one of the ranking G.O.P. candidates for the 1948 presidential nomination. However, the overwhelming victory of the "regular" Republican candidates in the November elections of 1946 were believed to have reduced considerably Stassen's chances for the nomination.

State, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

State Guard: see NATIONAL GUARD.

Steel: see IRON AND STEEL.

Steelman, John Roy (1900–), U.S. economist and government official, was born on June 23 in Thornton, Ark. He was graduated in 1922 with an A.B. degree from Henderson Brown college (Arkadelphia, Ark.), received his master's degree from Vanderbilt university in 1924, and took his Ph.D. degree from the University of North Carolina, 1928. He became an economics professor at Alabama State college in 1928, but left the academic world in 1934 to become a member of the U.S. conciliation service. He was special assistant to Mrs. Frances Perkins (then secretary of labour), 1936–37, and was appointed director of the conciliation service in 1937. He resigned in 1944 to set up an industrial relations bureau in New York city, but returned to government service the following year as special assistant to Secretary of Labour Lewis Schwellenbach.

Acting as Truman's aide, Steelman was a central figure in settlement of the railway strike, May 25, 1946, and on June 14 the president appointed him director of the Office of War Mobilization and Reconversion; Steelman also assumed temporary control of the Office of Economic Stabilization.

His initial report (Aug. 13, 1946) on the economic condition of the nation, stressed that "substantially full employment" and higher individual incomes marked the first postwar year. In his second quarterly report, Oct. 3, he warned that continuance of rising prices might result in an "early and severe crash." During the United Mine Workers' coal strike staged in Nov. 1946, it was reported that Pres. Truman rejected Steelman's advice on procedure; thereafter, Steelman was said to have lost favour with the president.

Stein, Gertrude (1874–1946), U.S. author, was born on Feb. 3 in Allegheny, Pa., and was educated at Radcliffe college, Cambridge, Mass., (1893–97), where she studied psychology under Prof. William James. She later attended Johns Hopkins university, Baltimore, Md., and specialized in anatomy, but declined to sit for a degree because "tests bored her." She then journeyed to London and for a year studied Elizabethan literature, moving to Paris in 1903 with her friend and secretary, Alice B. Toklas. There she became the associate and patron of such artists as Henri Matisse, Pablo Picasso, Georges Braque and Juan Gris, and subsequently laid claim to having introduced them to the French and U.S. publics. It was during this period that Miss Stein met Ernest Hemingway and Sherwood Anderson, then aspiring authors, whom she encouraged and influenced. Miss Stein was famed for her unorthodox literary style which emphasized the sound rather

than the meaning of words, as exemplified by one of her more famous phrases, "A rose is a rose is a rose." However, she could, and did, write with remarkable fluency and clarity when occasion demanded. Her first book, *Three Lives* (1909), was free from the type of phraseology that made her later writings unintelligible to all but devotees of her cult. Two other books, *The Autobiography of Alice B. Toklas* (1933) and *Everybody's Autobiography* (1937), were also written in lucid style. A successful lecturer, she generally limited her audiences to 500 persons, because, as she said, she "did not want to be stared at as a marvel." An unquestioned connoisseur of art, her collection of paintings was worth ten times the price she originally paid for it. Her publications include *Making of Americans* (1925), *How to Write* (1931), *Matisse, Picasso and Gertrude Stein* (1932), *Four Saints in Three Acts* and *Portraits and Prayers* (1934), *Wars I Have Seen* (1945) and *Brewsie and Willie* (1946). She died at Neuilly, France, on July 27.

Stellar System: see ASTRONOMY.

Sterner, Albert (1863-1946), U.S. artist, was born March 8 in London and educated at King Edward's school in Birmingham. In 1879, he journeyed to the United States, worked for a time for a lithographic firm and several years later started drawing for magazines. Shortly afterward, he went to Paris where he studied at Julian's academy and the Beaux Arts school. In 1891, he won honourable mention at his first exhibition in the Paris salon for his painting, "The Bachelor." Although he subsequently excelled in several art media, including etchings as exemplified by his work "Neuras-thenic," Sterner was best known as a portraitist. Opposed to many phases of modernistic art, he was himself called by many critics "a progressive conservative." Sterner wrote for several publications and was a successful teacher and lecturer. A National Academician, his works hang in the Carnegie institute, Pittsburgh; the Metropolitan museum, New York city; the Toronto (Ont.) Museum of Art and the South Kensington museum, London. His biography, *Albert Sterner, His Life and His Art*, was published by Ralph Flint in 1927. Sterner died in New York city on Dec. 16.

Stilwell, Joseph W. (1883-1946), U.S. army officer, was born on March 19 at Palatka, Fla. He was graduated from West Point, 1904, and served with the A.E.F. in World War I. After the Pearl Harbor disaster, he was promoted to lieutenant general (Feb. 1942) and served a month as chief of staff to Generalissimo Chiang Kai-shek. In March 1942, Chiang gave Stilwell command of the 5th and 6th Chinese armies in the Burma theatre. Beaten by the Japanese, Stilwell and his forces retreated toward India. After the fall of Burma in May 1942, he candidly confessed: "I claim we got a hell of a beating. We got run out of Burma and . . . I think we ought to find out what caused it, go back and retake it." During 1943, as U.S. commander in southeastern Asia under Lord Louis Mountbatten, he was busy preparing to do so.

Stilwell's efforts were abruptly interrupted Oct. 28, 1944, when he was relieved of his command of the C.B.I. (China-Burma-India) theatre and recalled to Washington. His removal was attributed to growing friction between himself and Chiang Kai-shek over disposition of Chinese troops as well as over strategic and political problems. Prior to his recall, Stilwell had been named (Aug. 1944) a full general. It was announced on Jan. 25, 1945, that Stilwell had been appointed commander of army ground forces in the U.S. On June 22, he was named commander of the U.S. 10th army in Okinawa. He took over command on June 28 and on Sept. 7 accepted the surrender of

some 105,000 Japanese troops scattered throughout the Ryukyus. He was named (Nov. 14, 1945) president of an army board studying postwar equipment for the ground forces and on Feb. 23, 1946, he was appointed commander of the reactivated 6th army on the Pacific coast. He died at Letterman General hospital in San Francisco on Oct. 12.

Stirbey, Barbu, PRINCE (1873-1946), Rumanian statesman, was educated in Paris. He appeared on the national political scene in the last years of the reign of King Ferdinand I. During that period the king had been in precarious health and his power was vested in a regency on which Prince Stirbey served for a time with Queen Marie and Ion Bratianu. Stirbey was appointed premier on June 5, 1927, replacing Gen. Alexandre Averescu, but he showed little independence; and real authority was retained by Bratianu, who was determined to continue the regency to prevent the return of Carol, Ferdinand's eldest son, to the throne. Stirbey's government lasted only 16 days and on June 21 Bratianu took over as premier. When Carol returned to the throne, Stirbey hastily left the country. His return to political prominence in Rumania came in 1944, when the country's leaders, realizing that Germany was losing the war, selected Stirbey as Rumania's chief emissary to negotiate peace with the Allies. In March 1945, King Michael asked Stirbey to become premier of the new government, but soviet objections to Stirbey led to Michael's selection of Petru Groza for that post. Prince Stirbey died in Bucharest on March 24.

Stock Exchanges: see STOCKS AND BONDS.

Stocks and Bonds. The 1946 U.S. market, during the first five or six months, saw but a slight improvement over the Dec. 1945 price level, and following May or June was a distinct bear market of drastic proportions.

The bull market of 1943-46 seemed to have reached its end by June 1946. Following that month, the price level began to waver. Each month saw a decline, and during the months of September and October the decline was so drastic as to raise the question everywhere of whether the stock market had not discounted a serious letup in business. Between June and October, railroad stocks, using Standard and Poor's index, declined by an average of 32.3%. Industrial stocks during the same period declined by 20.4%, public utility stocks by 21.3% and copper stocks by 23%. A combined average of 90 stocks, comprising 20 representative railroads, 50 industrials and 20 public utilities, experienced an average decline of nearly 22%.

The market psychology of the bull year of 1945 seemed to extend over into the first half of 1946. Although unfavourable market factors were plentiful, the speculative community stressed (1) favourable corporate earnings and increased dividend declarations, (2) the anticipated ending of government war controls and business regimentation, (3) the enormous pressure of idle funds seeking investment, with outright purchases the general rule and (4) the prospect of reduced corporate taxation. Moreover, there was a strong undercurrent of inflation thinking and a general belief in a postwar boom to meet the needs of foreign nations as well as a sadly depleted domestic backlog of goods, repairs and construction.

Toward the middle of 1946, however, bullish enthusiasm seemed to have spent its force, and bear considerations clearly gained the upper hand. Continual strikes throughout the country in nearly all leading industries made materialization of the anticipated postwar boom seem more and more unlikely. Reconversion of industry from war to peace was slowed up in all directions. Governmental decontrol efforts also seemed ineffective

and caused feelings of protest throughout the nation. Numerous wage increases won by labour were not accompanied by a compensating increase in prices for producers, thus causing a prospect of declining profits. Many of the leading industries relied upon to set the pace were failing sadly to get back to profitable production, because of strike waves and the numerous resulting shortages in steel, coal, freight cars and required finished parts. Moreover, much apprehension was caused by stymied foreign policy indications and the prospect of serious trouble with the U.S.S.R.

These conditions were probably the cause of the approximately 22% decline in the price level of stocks between June and Oct. 1946. By November, however, the market seemed to recover its composure and became comparatively dull, with the price level remaining fairly steady to the end of the year, despite the continuance of strikes on an appalling scale. Judging from press accounts, the apparent stop in price declines was attributed largely to the November election, with its landslide proportions. Election results seemed to be interpreted as a tidal rise to the right. Although many deadlocks seemed to be assumed, nevertheless, much hope was experienced for a greater conservatism of treatment of business, a substantial reduction in the tax burden and a considerable pruning of the government's emergency powers.

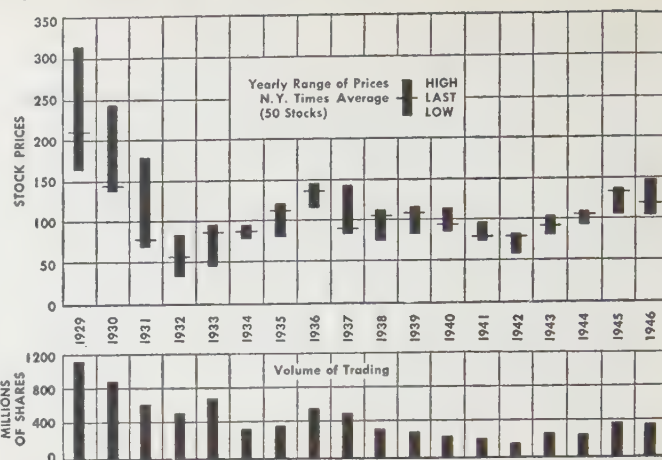
Using the Standard and Poor's barometric figures (average for each month based on daily closing prices), the average monthly price of 20 representative railroad stocks stood at 66.7 for Jan. 1946 as compared with 64.0 and 49.3 for Dec. and Jan. 1945, respectively. Thereafter, with only a minor recession in March, April and May, the

	Railroads 20 stocks	
	1946	1945
Jan.	66.7	49.3
Feb.	66.3	50.4
March.	62.7	50.5
April	63.7	52.5
May	63.6	54.7
June	66.1	58.6
July	62.8	56.6
Aug.	59.9	53.4
Sept.	48.3	56.2
Oct.	45.1	59.0
Nov.	46.6	62.7
Dec.	48.4	64.0

*Copper figures use 1935-1939 as a base period. All other figures use 1926 as a base period.

The above figures are an average for the month based on daily closing prices, except for copper, which are weekly closing prices.

(Source of data—Standard & Poor's Trade and Securities, Current Statistics.)



TRADING IN STOCKS on the New York Stock exchange: yearly range of prices and number of shares sold, exclusive of odd-lot and stopped sales

January average of 66.7 was maintained in June, when the monthly average again stood at 66.1. Following June a continuous and drastic decline took place, namely, from 66.1 for June to 62.8 for July, to 59.9 for August, to 48.3 for September and to 45.1 for October. Compared with the high price for the

Table I.—U.S. Security Market Prices

	Industrials 50 stocks		Public Utilities 20 stocks		*Copper 7 stocks		Stocks 90 stocks	
	1946	1945	1946	1945	1946	1945	1946	1945
Jan.	172.8	131.8	88.5	57.7	132.2	91.2	143.1	107.1
Feb.	173.1	135.8	89.5	61.3	136.3	94.9	143.5	107.7
March.	167.8	135.8	88.8	61.2	131.4	92.7	139.2	110.6
April	179.5	138.8	93.7	63.5	139.1	95.0	148.2	113.4
May	179.8	143.9	94.3	66.5	142.8	95.9	148.5	117.7
June	177.8	145.2	94.5	69.9	139.7	97.2	147.6	119.8
July	173.5	141.7	90.2	71.2	138.8	94.3	143.4	117.4
Aug.	170.5	143.3	88.4	69.8	133.9	91.3	140.6	117.7
Sept.	145.9	153.7	75.5	72.9	109.2	99.6	119.9	125.8
Oct.	142.9	159.7	74.3	77.3	109.7	110.6	117.2	131.0
Nov.	141.5	163.5	76.0	83.4	115.1	120.7	116.7	135.3
Dec.	145.3	166.7	79.5	83.2	123.8	126.3	120.2	137.6

year in January, the decline amounted to 32.3%.

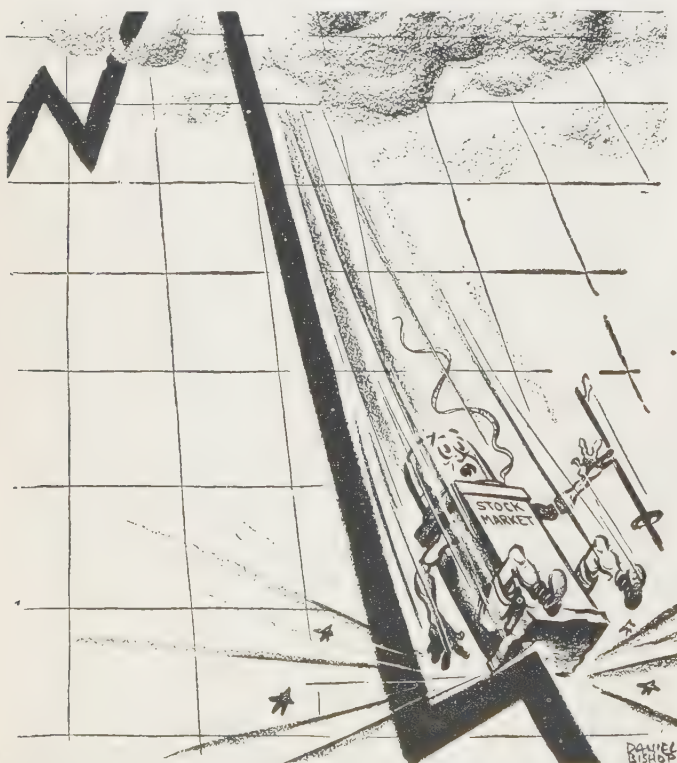
In the field of industrial stocks, again using the Standard and Poor's averages for 50 leading issues, the average monthly price stood at 172.8 for Jan. 1946, as compared with 166.7 and 131.8 for Dec. and Jan. 1945, respectively. From Jan. to May 1946, this monthly average rose from 172.8 to 179.8. Following May a continuous and increasingly severe decline occurred to 177.8 for June, to 173.5 for July, to 170.5 for August, to 145.9 for September and to 142.9 for October. The extent of the severe decline from May to October (from 179.8 to 142.9) amounted to 20.4%.

Similar price movements by months occurred in the public utility group of stocks. For 20 public utility stocks, the Jan. 1946 average stood at 88.5, as compared with 83.2 and 57.7 for Dec. and Jan. 1945, respectively. Following Jan. 1946 the average monthly price increased from 88.5 to 94.5 for June, an increase of 6.7%. Thereafter the price level declined drastically to 90.2 for July, to 88.4 for August, to 75.5 for September and to 74.3 for October.

The extent of the decline from June to October (94.5-74.3) amounted to 21.3%.

The copper group's monthly average price stood at 132.2 for Jan. 1946 as compared with 126.3 and 91.2 for Dec. and Jan. 1945, respectively. By May 1946 the average had increased to 142.8. Thereafter a severe and continuous decline occurred from 142.8 for May to 109.7 for October, or 23%.

Combining the 90 stocks used by the Standard and Poor's index for railroads, industrials and public utilities, the Jan. 1946 average stood at 143.1, as compared with 137.6 and 107.1 for



"RETURN FROM A MOUNTAIN VACATION," by Daniel Bishop of the St. Louis Star-Times illustrates the sharp decline in U.S. stock market prices which occurred in late August and September of 1946

Dec. and Jan. 1945, respectively. The 1946 market showed an increase from 143.1 for January to 148.5 for May, or by about 3%. Subsequently the price level declined moderately month by month to 140.6 for August, and thereafter drastically to 117.2 for October. The decline from May to October was nearly 22%.

On Nov. 1, 1946, the market value of all listed shares on the New York Stock exchange stood at \$66,114,907,000, with an average market price per share of \$51.63. On Nov. 1, 1945, this market value stood at \$69,560,969,000, with an average price of \$58.71. A depreciation in value of approximately 12% was thus shown for the year.

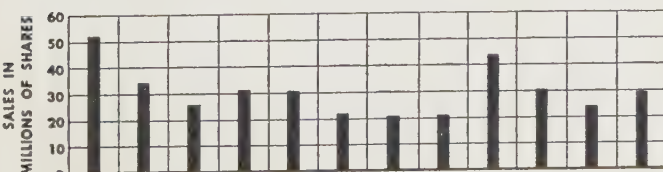
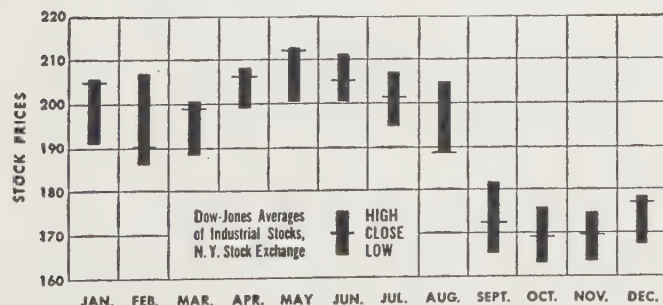
Number, Volume and Amount of Stocks.—According to the New York Stock exchange's compilation, the total stocks listed on that exchange on Nov. 1, 1946, stood at 1,756,181,000 shares, with a total market value of \$66,114,907,000. This value compares with \$69,560,000,000 and \$53,087,000,000 on Nov. 1 of 1945 and 1944, respectively. Of the 1946 total (as of Nov. 1), United States stocks aggregated 1,705,252,000 shares, valued at \$64,970,929,999, and stocks of other countries 50,929,000 shares valued at \$1,143,977,000. The total of shares was distributed over 1,300 separate United States issues and 19 issues of other countries, representing a total of 955 issuing corporations.

Table II.—1946 Price Range of 25 Leading Representative U.S. Common Stocks

Stock	Close 1945	High 1946	Low 1946	Close 1946
Allied Chemical & Dye	186	212 1/4	154	171
American Car & Foundry	64	72 3/8	42	49 3/4
American Smelting & Refining	64	73 3/4	45 1/2	58 3/4
American Telegraph & Telephone	191	200 1/4	159 3/4	171 1/2
American Tobacco	89	99 1/2	73	81
Anacostia Copper	44 1/2	51 3/4	35	40 3/4
Bethlehem Steel	96	114 3/4	85 1/2	91
Chrysler Corporation	131 1/2	141	75 1/4	91 1/2
Douglas Aircraft	97 3/4	108 3/4	63 3/4	71 3/4
E. I. du Pont de Nemours	186 1/4	227	161	190 3/4
General Baking	13	14 3/4	10 1/2	11 3/4
General Electric	47 3/4	52	34	35 3/4
General Motors	75 1/2	80 3/4	47 3/4	52 1/2
Goodyear Tire & Rubber	60	77	50 1/2	54 3/4
Great Northern Ry. (pfd.)	59	64	40 1/2	45 3/4
Illinois Central Railroad	43	45 1/2	18 1/2	25 3/4
International Harvester	95	102	66 1/2	72
Montgomery Ward	72 3/4	104 1/4	57 3/4	60 3/4
National Dairy Products	35 1/4	45 1/4	30	36 3/4
New York Central Railroad	33 3/4	35 3/4	13 3/4	18 3/4
Pennsylvania Railroad	42 1/4	47 1/2	25	25 1/2
Standard Oil of Indiana	40 1/2	49 3/4	37	41
Standard Oil of New Jersey	66 3/4	78 3/4	61 3/4	69 3/4
Union Pacific Railroad	139 1/2	168 1/2	110	130 3/4
United States Steel	81 1/2	97 3/4	65 1/2	71 3/4

Total shares traded on the New York Stock exchange during 1946 amounted to 363,709,312 shares, as compared with 377,563,575 shares during 1945, 263,074,018 shares during 1944, 278,741,765 during 1943, 125,677,963 during 1942, 170,534,363 during 1941 and 1,124,991,490 during 1929, the largest yearly total on record. The 1946 market, like that of 1945, was a fairly active one. It should be noted that 1945 showed an increase of nearly 44% more than the volume of transactions for 1944. January and September were the largest months for volume on the New York Stock exchange during 1946 with 51,510,000 and 43,450,000 shares, respectively, while July was the smallest with 20,595,000 shares. The New York curb market had sales during 1946 of 137,220,000 shares, as compared with 143,337,000 shares during 1945, 71,062,000 shares during 1944, 71,382,000 during 1943 and 22,328,000 during 1942.

Bonds.—Using the Standard and Poor's barometer figures for composite bonds (average for each month based on daily closing prices), the average high price stood at 120.2 for Jan. 1946. Thereafter, the monthly



SALES AND PRICES on the New York Stock Exchange, 1946

high average price remained at 120.2, 120.3 and 120.3 for the months of February, March and April. For May and June the figure stood at 119.8 and then declined gradually to 119.5, 119.3 and 119.1 for July, August and September. For the month of October a sharp decline occurred to 116.2. The bond market was thus remarkably stable during the year, at an exceedingly high price level, and showed a decline between January and October of only about 3%. Monthly fluctuations between high and low were also relatively small, the largest fluctuation occurring during September when the range between high and low, however, amounted to only 3.3 points.

Table III.—U.S. Bond Prices for 1946

Composite Bonds Dollars per \$100 (Standard Statistics Company)			
Month		High	Low
Jan.		120.2	119.1
Feb.		120.2	119.9
March		120.3	120.0
April		120.3	119.4
May		119.8	119.4
June		119.8	119.2
July		119.5	118.6
Aug.		119.3	118.6
Sept.		119.1	115.8
Oct.		116.2	114.8
Nov.		116.5	115.1
Dec.		116.5	115.4

According to the New York Stock exchange's record, bond and note flotations of United States corporations during the first 10 mo. of 1946 totalled \$3,331,202,000; but exclusive of refunding issues, investment trusts and holding companies, the total flotation amounted to only \$1,080,332,000. These figures compare with similar totals during the corresponding 10 mo. of 1945 of \$4,383,043,000 and \$936,510,000, respectively.

Number, Volume and Amount of Bonds.—According to the New York Stock exchange's compilation, the total par value of bonds listed on that exchange at the beginning of Nov. 1946 stood at \$136,879,706,000, with a market value of \$140,245,280,000. This par value compares with \$124,802,000,000 and \$128,741,000,000 for the corresponding date of 1945. The increase in the par value of bonds during 1945, as was the case for a number of previous years, is largely attributable to the issue of large amounts of United States government securities. Of the 1946 total, United States corporation bonds (at the beginning of November) amounted to \$14,175,050,000, with a market value of \$13,263,270,000; company bonds of other countries with a par value of \$602,457,000 and a market value of \$562,425,000; United States government bonds (inclusive of corporations and subdivisions) with a par value of \$120,469,130,000 and a market value of \$125,256,400,000 and other governments (inclusive of subdivisions) with a par value of \$1,633,070,000 and a market value of \$1,163,184,000. The total listed bonds of United States corporations were distributed over 614 issues with 333 issuers; of United States government bonds with 80 issues and 3 issuers and other governments with 200 issues and 48 issuers. Total bonds traded on the New York Stock exchange during 1946 amounted to \$1,364,177,150 as compared with \$2,261,985,000 during 1945, \$2,694,704,000 during 1944, \$3,254,717,000 during 1943, \$2,182,626,000 during 1942 and \$2,114,099,000 during 1941.

Table IV.—1946 Price Range of 25 Leading U.S. Domestic Bond Issues

Name	High	Low	Lost (Dec. 31)
American Telegraph & Telephone 2 3/4s 80	107 1/2	99 3/4	102 1/2
American Tobacco 3s 62	105 3/4	102 3/4	104
Atchison, Topeka & Santa Fe 4s 95	141	126 1/4	129 1/2
Bethlehem Steel 2 3/4s 70	105 3/4	100	101 3/4
Chesapeake & Ohio 3 1/2s 96E	107 3/4	104 3/4	105 1/2
Chicago, Burlington & Quincy 3 1/2s 85	106 1/4	99 1/2	101 1/2
Commonwealth Edison 3 1/2 cv 58	106 3/4	104 3/4	104 1/2
Erie 3 1/2s 2000G	106	90 1/2	92
Great Northern Railway 3 1/2s 2000	107	99	101
Greyhound 3s 59	104 3/4	102 1/2	102 3/4
Illinois Central 4s 52	108	91 1/2	98
Louisville & Nashville 2 7/8s 2003	105	94	96 1/2
National Dairy 2 3/4s 70	105 3/4	101 3/4	103 3/4
Northern Pacific 4s 97	127 3/4	105	110
Ohio Edison 2 3/4s 75	106	100	101
Pennsylvania Railroad gen 5s 68	139 1/2	120	123
Philadelphia Company 4 1/4s 61	108 1/2	105 3/4	107 3/4
Reading Railroad 3 1/2s 95	105 1/2	95	99
Southern Pacific 4 1/2s 81	110 1/2	92 1/2	100
Southern Railway gen 4s 56	109 1/2	98	102 1/4
Standard Oil of New Jersey 2 7/8s 71	99 1/2	97 1/4	98 1/4
Texas Corporation 3s 65	108	105	106
Union Pacific 1st 4s 47	104 3/4	101 1/2	101 1/2
Western Union 5s 51	108	72	85 3/4
Westinghouse El. & Mfg. 2 7/8s 51	103 3/4	101 1/2	102 1/2

Stock Exchange Chronology.—As was the case in 1945, the 1946 chronology of the New York Stock exchange's alterations in its rules, practices and recommendations were confined to a comparatively small range of subjects. The following may be listed as the most important.

Practices with Respect to Contracts and Trading.—Under this heading three actions of importance should be referred to, namely:

(1) The decision of the board of governors on June 15 to re-establish "the daily clearance of contracts between members in listed securities through the Stock Clearing Corporation, and the addition of another 'skip day' between the date of trades and settlement dates." It should be noted that the daily clearance of contracts had been discontinued after Sept. 1, 1942. In view of the decision, the board of governors adopted amended rules, effective Aug. 29, re-establishing daily clearance of members' contracts and inauguration of third day delivery.

(2) Announcement, on April 30, of the abandonment of the informal agreement reported to have been in effect from 1943 between over-the-

counter dealers restricting daily fluctuations in United States government securities to one-fourth of a point. The New York exchange also announced that the volume in government bonds on that exchange, where trading had been free, was the heaviest from 1939.

(3) Announcement by the exchange that, effective Sept. 9, "ticker symbols for all securities of companies reported to the New York Stock exchange as being in receivership or bankruptcy proceedings would be preceded by the letter 'Q,' with a view to "keeping security holders and the investing public informed as to the status of listed companies."

On July 18, the New York exchange issued a statement concerning the volume of margin accounts held by member firms, which was most informative in view of the existing 100% margin requirement. As of June 30, 1946, 287 firms carried 74,265 open margin accounts for customers, compared with 282 firms which carried 137,752 such accounts on June 30, 1945, and 256,504 accounts carried by member firms on Nov. 30, 1938.

Margin Requirements.—Effective Jan. 21, the federal reserve board ruled that "registered securities shall have no loan value for the purpose of stock market transactions." In other words, the margin requirement on stock purchases was raised to 100% from the previous level of 75%. Apropos of this action, the president of the New York exchange, on Oct. 1, declared the "prohibition of the use of credit in the purchase of listed securities is unsound and discriminatory and has resulted in the diversion of investment funds into speculation in commodities, farm lands and real estate where the ability to borrow funds is virtually unrestricted and where credit is abundant" and recommended that "when the new Congress of the United States convenes in January it should undertake a study of the Securities Exchange act of 1934 and that more new blood must be infused into the Federal Reserve Board in order that its policies may become more flexible and elastic."

Listing Requirements.—Effective in July, the exchange's basic initial listing fee was reduced from a flat rate of $\frac{1}{2}$ of a cent per share to $\frac{1}{2}$ of a cent per share for the first 2,000,000 shares and $\frac{1}{4}$ of a cent per share in excess of 2,000,000. The optional payment of the listing fee in a lump sum, instead of on a continuing annual basis, was discontinued except for additional shares of already listed stocks. The extension of credits on current application from fees covering listings authorized in prior years was also discontinued. On Oct. 3 the board of governors also approved "liberalized requirements for the listing of foreign shares on the New York Stock Exchange."

Proposed Incorporation of Firms.—The account of 1945 referred to the undertaking by the New York exchange of a study "to consider the advisability of permitting member firms to do business in corporate form" and that the president of the exchange, on Nov. 15, transmitted to members "an outline of the restrictions and conditions which the Exchange would impose if member corporations were permitted." The importance of this subject is apparent when the past history of the exchange is considered. On April 12, 1946, the exchange transmitted to members a tentative draft of basic amendments to the constitution which would permit permissive incorporation of member firms and asked for the reaction and comments of members before June 1. On June 28 transcripts of arguments for and against permitting member firms to incorporate were presented to the membership by Chairman John A. Coleman, of the exchange, preliminary to a determination by the board of governors whether or not to submit enabling amendments to the membership of the exchange for balloting.

General Stock Exchange Actions.—Three such actions were:

(1) A letter sent to all presidents of listed companies enclosing an up-to-date copy of the exchange's listing agreements and a guide for the officials charged with day-to-day relations with stockholders and the New York Stock exchange. Particular attention was called to the requirement for the prompt publication by corporations of any action with respect to dividends, the allotment of rights to subscribe or other rights or benefits pertaining to the ownership of listed securities.

(2) Another letter to all presidents of listed corporations, redefining the exchange's policy in respect to split-ups.

(3) A request to all member firms to report the nature and purpose of their interest in foreign business enterprises, to facilitate the exchange's study of the development of securities, commodities and financial business in countries outside the United States. (See also BUSINESS REVIEW.)

Great Britain.—The bull market in stocks and bonds which had been in existence on the London stock exchange from June 1940 continued, with secondary reactions, in 1946. A new all-time record was established for industrial ordinary shares as measured by the (London) *Financial Times* index. The market for British funds continued to rise, and the government was able to borrow at record low rates. Three factors stimulated the upward movement: the treasury's policy of "cheap money"; better knowledge of the scope of the government's nationalization program and higher distributions by public companies. The movement did not develop strength until April, with the announcement in the national budget of abolition of excess profits tax at the end of 1946.

The government's borrowing and conversion program included: repayment of £493,000,000 of 2½% national war bonds, 1946-48; creation of £748,000,000 of 2½% savings bonds, 1964-67; notice of repayment (on Jan. 5, 1947) of £429,000,000, 3% local loans and issue "on tap" of a new 2½% treasury stock, redeemable 1975 or after, at par. Municipalities were enabled to convert higher interest-bearing stocks into 2½% issues at 99%, maturing 1966-71. The uncertain redemption date of the 2½% treasury stock proved an unpopular feature and led to considerable selling of local loans and reinvestment in redeemable government securities and, for the sake of the higher yields, in good class debentures and preference and ordinary shares of industrial companies. Search for yield was a keynote of 1946. The nationalization program, although affecting different market sections in different ways, intensified this search. The market received favourably the award by an arbitration tribunal of £164,660,000 as compensation for the nationalization of the coal-mining industry, and higher colliery share prices followed. Conversely, the proposed nationalization of rail-road-water transport for £1,065,000,000 in British transport stock, based on stock exchange quotations at certain dates, came as a shock, led to selling of railway shares

and added to reinvestment demand. Although the supply of stock was increased by many successful new issues, these were insufficient to meet the varied demand, and higher prices were a natural sequel.

Not for many years had such a marked revival in the Argentine railway market been seen; this followed the Anglo-Argentine agreement, which included proposals for the formation of a company to take over the assets of the British-owned lines on terms providing a guaranteed income. Speculative sections were enlivened by a boom and slump in Orange Free State gold shares, and advances in base metals shares in sympathy with the higher world prices for metals. Foreign bonds were a rising market, with main interest in Japanese and Brazilian issues, but European rather neglected.

With the revaluation of the Canadian dollar from \$4.44 to \$4.03 to the pound in July, Canadian dollar stocks were adjusted upwards. Ratification by the U.S. congress of the \$4,400,000,000 loan to Britain and the gradual recovery in British exports also made for firm markets. Probably the two most depressing influences of 1946 were the late summer break in Wall street, and fear of a coal shortage and its repercussions on British industry. The reversion of the London stock exchange to fortnightly accounts dealings (for cash) came too late in the year much to affect markets.

Table V.—Financial Times Indexes, Great Britain*

1946	Government Securities	Home Rails	Ordinary Shares	Gold Mines	Recorded Stock Exchange Bargains (numbers)
Jan. 2	115.32	63.84	114.0	173.90	10,021
Feb. 1	116.76	64.50	116.6	166.34	9,066
March 1	117.52	63.64	115.4	172.39	10,317
April 1	117.45	64.19	113.3	159.55	8,793
May 1	119.10	66.24	120.2	158.30	11,987
June 3	118.63	65.18	126.9	157.38	14,904
July 1	118.61	64.42	127.7	153.80	12,073
Aug. 1	118.61	62.80	123.3	145.05	8,233
Sept. 1	118.91	63.36	127.6	142.20	9,277
Oct. 1	119.69	64.58	120.4	133.31	8,346
Nov. 1	120.72	69.57	127.6	127.64	10,565
Dec. 2	120.62	68.61	131.0	130.62	13,330

*Bases (100): Government securities, home rails and gold mines Oct. 15, 1926; ordinary shares July 1, 1935.

Europe.—Following the sharp and sustained rise in stock market prices during the war years, largely as a result of inflationary conditions and, as in Great Britain, lack of alternative avenues of investment, uncertainty developed on continental bourses during 1946. On balance, prices slightly exceeded the end of 1945 levels. Political and economic problems held back markets in Sweden, Belgium, France and Italy. In Switzerland, highest levels from prewar days were reached in August, but the Wall street slump checked the rise. Amsterdam bourse reopened in May, but prices fell well below the 1943-44 high points. (H. FN.)

Stomach Disorders: see ALIMENTARY SYSTEM, DISORDERS OF.

Stone, Harlan Fiske (1872-1946), U.S. jurist, was born on Oct. 11 in Chesterfield, N.H. He received a B.S. degree from Amherst college, Amherst, Mass., and an LL.B. degree from Columbia university school of law in 1898. He entered private practice in New York but later returned to Columbia where he was named professor of law in 1902. In 1910 he was made dean of the law school but resigned in 1923 to return to private practice. The next year, President Calvin Coolidge appointed him attorney general of the United States (April 7, 1924). Then on Mar. 2, 1925, President Coolidge named him associate justice of the U.S. supreme court. The appointment was criticized because Justice Stone had been a law partner of a man closely associated with the financier J. P. Morgan. Justice Stone frequently concurred with the minority reports of Oliver Wendell Holmes, Louis D. Brandeis and Benjamin Cardozo and was known with these other eminent jurists as one of the "great dissenters." He was one of the most outspoken members of the liberal wing of the bench that upheld many of the decisions on the constitutionality of the various New Deal measures promulgated by the Roosevelt administration. In March 1937 Justice Stone wrote the decision upholding the Railway Labor act and he was with the majority in the three historic opinions of May 1937 which affirmed the Social Security act. Upon the retirement of Charles Evans Hughes, as chief justice, Justice Stone was appointed in June 1941 to that post. He was taken ill while sitting in court in Washington, D.C., on April 22 and died shortly afterward.

Stone. The table lists the production of the various types of stone in the United States in 1943 and 1944.

Production of Stone in the United States
(In thousands of short tons or thousands of dollars)

Name of Stone	1944			1945		
	Dimension	Crushed	Total	Dimension	Crushed	Total
Basalt	18	14,025	14,043	204	14,707	14,911
Granite	284	7,112	7,395	362	7,378	7,740
Limestone	162	115,344	115,506	334	112,240	112,574
Marble	52	101	153	60	112	172
Sandstone	74	6,352	6,427	64	4,323	4,387
Others	29	12,027	12,055	35	13,587	13,622
Total	619	154,961	155,580	1,059	152,347	153,406
Value	\$14,855	\$160,787	\$175,642	\$17,849	\$161,459	\$179,308

Dimension Stone.—Sales of dimension stone in 1945 improved 71% in quantity but only 20% in value. Although materially improved by the beginning of the postwar construction program, the tonnage remained less than that of 1939. In addition to the items shown in the table, 69,660 tons of slate were sold as dimension stone in 1945, against 60,950 tons in 1944.

Crushed Stone.—Sales of crushed stone in 1945 declined 2% in quantity but increased 2% in average value per ton. The 1945 tonnage reported above does not include: 27,332,000 tons of limestone used in making cement and 11,841,000 tons used in making lime; 482,230 tons of slate granules and flour; 642,600 tons of asphaltic stone. Including these additional items and dimension stone, the total stone output was 193,773,000 tons in 1945, against 193,893,000 tons in 1944.

Canada.—Stone production in Canada was 5,884,718 tons in 1945, against 5,994,992 tons in 1944. (G. A. Ro.)

Straits Settlements: see MALAYAN UNION AND SINGAPORE.

Strategic Mineral Supplies. Following the demonstration of the war years that the inadequacy of the United States supply of mineral commodities was not confined to the handful that had previously been classed as "strategic," interest centred in 1946 in the problem of stockpiling all commodities that developed shortage of supply in sufficient amounts to cover the shortages that might be expected to accompany any future emergency. To this end, steps were taken in two directions. First, temporary provision was made that all war surplus that fell within the specifications set up by the Army and Navy Munitions board for stockpiled materials should be added to the stockpiles created under the Strategic Materials act of 1939, unless they were required by industry for current use. Considerable surplus material had already been added to the stockpiles under this provision, and more was being taken over as fast as it was declared surplus, and provision could be made to handle it. Second, the act of 1939 was amended, increasing its scope to cover current needs more adequately. The new legislation, known as the Strategic and Critical Materials Stock Piling act (public law 520-79th congress) was approved July 23, 1946.

The new legislation provided that "the Secretary of War, the Secretary of the Navy, and the Secretary of the Interior, acting jointly through the agency of the Army and Navy Munitions Board, are hereby authorized and directed to determine, from time to time, which materials are strategic and critical under the provisions of this Act and to determine, from time to time, the quality and quantities of such materials which shall be stock piled under the provisions of this Act." The procurement division of the treasury department was designated as the agency to make the purchases, provide for storage on approved military and naval reservations, provide for any needed refining or processing to put materials in the best form for stockpiling, provide for rotation of the stocks if necessary to prevent deterioration and dispose of stocks as required by rotation, obsolescence or by a revised determination of requirements. The act also made permanent the temporary pro-

vision for transferring surplus war material to the stockpile, and the procurement division handled the materials received by transfer in much the same manner as new purchases. Later, \$100,000,000 was appropriated by congress for current purchases.

The chief objection to the act is that under pressure from industry the "Buy American" clause was included, giving the output of domestic producers certain priorities over imported materials. This inclusion definitely weakens the protective features of the legislation. The stockpiling of domestic output depletes the already weakened domestic reserves, and contributes nothing to future security except immediate accessibility; hence it should be used only to the extent necessary to keep a marginal industry on a going basis. It is only through the stockpiling of imported materials that the available supply is increased. (G. A. Ro.)

Strauss, Lewis Lichtenstein (1896-), U.S. banker, was born on

Jan. 31 in Charleston, W. Va. A secretary to Herbert Hoover during World War I (1917-19), he attended the Paris peace conference, and later served with U.S. food and relief organizations in Europe. Upon his return he entered the legal firm of Kuhn, Loeb and company in New York, becoming a partner in 1929. He was called to military duty in 1941 as staff assistant to the chief of the bureau of ordnance, later becoming special assistant to the secretary of the navy. He served as member of the army-navy munitions board, and of the interdepartmental committee on atomic energy. Rising to the rank of rear admiral in Oct. 1945, Strauss was awarded the Legion of Merit by both the army and navy. He was credited with discovery of many of the navy's secret weapons. On Oct. 28, 1946, Pres. Truman named Strauss a member of the U.S. Atomic Energy commission—a five-man board—to help direct and control the development of atomic energy in the U.S. He spent many years in private study on nuclear physics and, before the atomic bomb, was interested in the use of atomic energy in cancer therapy.

Strawberries: see FRUIT.

Streicher, Julius (1885-1946), German demagogue and politician, was born Feb. 22 at Fleinshausen. He served in the army during World War I, and after the war, he taught school in Nuernberg. In the early 1920s, he joined the nazi party and participated with Hitler in the Munich putsch, Nov. 1923. Encouraged by Hitler, Streicher became the most extreme anti-Semite in the reich and after the nazis gained power in 1933, he was made gauleiter for Franconia. In Nuernberg, his chief bailiwick, he forbade Jews to eat in public cafés and restaurants and he induced town councils throughout Franconia to re-establish ghettos. Streicher disappeared with dramatic suddenness from the nazi stage in 1940. It was later revealed that he had been arrested for his "real estate operations" and that he was tried before the supreme party court in Munich. The case was hushed and the verdict was never revealed. Streicher then retired to his farm.

After the collapse of Germany, Streicher, disguised as a painter, was captured May 23, 1945, by U.S. troops near Waldring, Bavaria. Indicted along with a score of other top nazi leaders to stand trial on charges of war crimes before the International Military Tribunal at Nuernberg, Streicher was found guilty of crimes against humanity, Oct. 1, 1946, and sentenced to death. He was hanged on Oct. 16 in Nuernberg, where he once ruled with absolute power.

Streptomycin: see BACTERIOLOGY; CHEMOTHERAPY; MEDICINE; UROLOGY.

Strikes and Lock-outs.

The United States, Canada and Great Britain published, for many years, current statistics of strikes and lock-outs, their causes and results, together with detailed reports on the more important strikes of each year. After 1942 the statistics on strikes gathered by these countries were less complete because of the wartime conditions.

During the first 11 months of 1946 (Table I) there were but 281 fewer strikes in the United States than there were in the entire 12 months of 1945. More workers were on strike during 1946 than in any other year in U.S. history. Man-days idle were four times as many as in the previous peak year, 1937, and four and a half times as many as in 1945.

Table I.—United States: Number of Strikes, Workers Involved and Man-days Lost: 1941–1946 (11 months)*

Year	Number of strikes	Number workers involved	Man-days idle during year
1941	4,288	2,362,620	23,047,556
1942	2,968	839,961	4,182,557
1943	3,752	1,981,279	13,500,529
1944	4,956	2,115,637	8,721,079
1945	4,616	3,425,000	24,360,000
1946 (11 mo.)	4,335	4,545,000	107,475,000

*Compiled from Monthly Labor Review, United States Bureau of Labour Statistics.

An outstanding characteristic of 1946 was the stubbornness with which both management and labour fought out strikes in many industries. The General Motors strike, which started in Nov. 1945, was not settled until 1946. The Allis-Chalmers strike, which began on April 28, 1946, continued into 1947. The J. I. Case strike had continued for more than a year when this article was being written. Coal, the maritime industries and others experienced unusually bad strikes. Even the railroad brotherhoods, who had not struck since 1888, went out in May and terminated their strike only under severe government pressure. The government took a more active part in settling strikes than in prewar, peacetime years but found itself unable to terminate some of the strikes. In the case of coal and the railroads, government intervention ended the strikes but not the disputes.

Table II compares the number and severity of work stoppages in Great Britain during the first ten months of 1946 and 1945. Strike idleness in 1946 through October was not quite as bad as

it was during the corresponding months of 1945; the principal difference being in the lesser strike idleness in coal mining and transport industries in 1946. Engineering, shipbuilding, and iron and steel were more seriously affected in 1946 than in 1945.

Table II.—Analysis by Industries of Work Stoppages Arising from Industrial Disputes in Great Britain: First Ten Months of 1946 and Corresponding Months in 1945

Industry	January-October 1946			January-October 1945		
	Number stoppages beginning in period	Number working people involved	Aggregate number working days lost	Number stoppages beginning in period	Number working people involved	Aggregate number working days lost
Fishing and agriculture	3	8,800	69,000	3	2,100	10,000
Coal mining	1,143	195,500*	387,000	1,050	205,000*	573,000
Other mining and quarrying	8	600	1,000	10	700	1,000
Brick, pottery, glass, chemical, etc. . . .	28	2,200	18,000	20	2,500	17,000
Engineering	158	98,600	533,000	209	69,600	297,000
Shipbuilding	93	16,100	185,000	167	26,100	132,000
Iron, steel and other metal	156	37,000	300,000	145	18,100	64,000
Textile	32	6,500	42,000	35	3,600	9,000
Clothing	32	14,500	102,000	25	6,500	12,000
Food, drink, tobacco .	17	8,000	52,000	8	1,600	5,000
Woodworking, furniture	15	900	6,000	15	1,500	3,000
Paper, printing, etc. .	7	3,400	4,000	7	500	1,000
Building, etc. . . .	60	5,800	15,000	33	3,200	5,000
Gas, water and electricity supply .	10	4,800	18,000	3	200	1,000
Transport	91	50,700	135,000	140	125,300	1,347,000
Public administration services	6	1,300	8,000	6	1,400	5,000
Distribution, commerce, etc.	18	10,300	67,000	7	400	1,000
All other industries . .	29	6,400	26,000	32	3,700	20,000
Total	1,906	471,400*	1,968,000	1,915	472,000*	2,503,000

*Some workers, chiefly in coal mining industry, were involved in more than one stoppage and are counted more than once in totals. The net number of individuals involved in coal mining stoppages in the period under review in 1946 was approximately 120,000 and in the corresponding period in 1945, was approximately 105,000. For all industries combined, the corresponding net totals were approximately 360,000 and 330,000, respectively.

During the first ten months of 1946 there were 1,906 strikes in Great Britain, which compared with 1,915 in the corresponding months of 1945. There were 471,000 workers idle in the strikes of 1946, compared with 472,000 in the ten-month period of 1945, and 758,000 in the same months in 1944. In man-days lost the 1946 strikes were likewise less serious: 1,968,000 compared with 2,503,000 in 1945 and 3,525,000 in 1944.

PICKET trying to stop an automobile at the gate of Metro-Goldwyn-Mayer studio in Hollywood, Calif., on Sept. 27, 1946, was knocked over by the impact. The strike resulted from a jurisdictional dispute between two A.F. of L. unions



Table III.—Relative Frequency and Size of Labour Disputes in Great Britain in 1946 and 1945

Month	Strikes in progress		Number of work people involved		Number of working days lost	
	1946	1945	1946	1945	1946	1945
January	213	180	40,900	32,800	120,000	104,000
February	206	172	50,700	27,400	183,000	60,000
March	222	202	55,900	74,800	270,000	402,000
April	213	228	42,100	44,700	157,000	98,000
May	230	196	85,300	51,000	208,000	30,000
June	217	222	51,800	57,900	223,000	202,000
July	183	195	47,300	47,200	164,000	169,000
August	184	202	43,800	43,400	168,000	110,000
September	202	220	42,300	40,800	185,000	115,000
October	225*	262	68,200	90,800	285,000	1,114,000
November . . . . .	...	251	...	89,200	...	235,000
December . . . . .	...	163	...	23,700	...	95,000

Compiled from *The Ministry of Labour Gazette* (London).

*Figures for Oct. 1946 are provisional and subject to revision; those for earlier months have been revised where necessary in accordance with latest information.

In Great Britain wage questions accounted for nearly one-half both of the total number of stoppages in 1945 and of the total number of workpeople directly involved.

The few disputes which arose on questions of hours of labour accounted for only 3.9% of the total number of workpeople directly involved. Disputes in connection with the employment of particular classes of persons, working rules and disci-

Table IV.—Analysis of Principal Causes of Industrial Disputes in Great Britain in 1945

Principal causes	Number begun during 1945		People directly involved	
	Number	Per cent	Number	Per cent
Wage increase	291	12.7	101,000	22.6
Other wage disputes	699	30.5	118,000	26.4
All wage disputes	990	43.2	219,000	49.0
Hours of labour	89	3.9	34,000	7.6
Employment of particular classes or persons	291	12.7	50,000	11.2
Other working arrangements and discipline	782	34.1	108,000	24.1
Trade unionism	76	3.3	17,000	3.8
Sympathetic action	23	1.0	7,000	1.6
Other causes	42	1.8	12,000	2.7
Total	2,293	100.0	447,000	100.0

Compiled by *The Ministry of Labour Gazette*, April 1946 (London).

Table V.—Number and Time Loss in Canadian Labour Disputes, 1946 and 1945

Month	1946				1945			
	No. of strikes	No. of employees involved	Time loss in working days	Per 1,000 Available Work Days	No. of strikes	No. of employees involved	Time loss in working days	Per 1,000 Available Work Days
Jan.	12	2,935	20,593	0.28	17	5,452	31,937	0.44
Feb.	16	3,532	12,406	0.17	16	5,023	6,656	0.09
March	19	5,876	46,068	0.63	22	4,800	8,709	0.12
April	17	6,907	47,116	0.65	15	4,622	23,533	0.32
May	28	47,730	564,925	7.80	13	3,336	6,738	0.09
June	25	70,688	935,188	12.92	12	2,926	5,138	0.07
July	28	49,752	918,285	12.68	25	11,975	45,497	0.62
Aug.	20	42,407	867,252	11.96	19	13,190	41,122	0.56
Sept.	13	33,030	657,601	9.08	16	19,819	184,556	2.52
Oct.	10	32,919	393,296	5.43	14	25,868	419,242	5.73
Nov.	12	...	33,894	...	21	...	422,673	...
Dec.	5	...	23,804	...	7	...	261,619	...
Total	205	...	4,520,424	197*	...	...	1,457,420	...

Compiled from *Canadian Labour Gazette*. All 1946 figures are preliminary.

*These figures relate only to the actual number of strikes and lock-outs in which the workers involved during the year, not being a summation in each case of the monthly figures.

pline made up nearly half of the total number of stoppages. (Table IV.)

The sharp increase in number of strikes in Canada, and particularly in the numbers of workpeople involved and man-days lost (Table V) resulted from the strikes in the automobile and other mass-production manufacturing industries. Most of these

Table VI.—Trend of Labour Disputes in Canada, 1941-46

Year	Number of disputes	Number of workers involved	Time loss in man-working days
1941	231	87,091	433,914
1942	354	113,916	450,202
1943	402	218,404	1,041,198
1944	199	75,290	490,139
1945	176	93,318	774,754
1946 (10 mos.)	298	295,876	4,462,730

Compiled from *Canadian Labour Gazette*.

large strikes were closely tied in with the situation in the United States.

(See also LABOUR UNIONS; NATIONAL LABOR RELATIONS BOARD; UNITED STATES.) (D. D. L.)

Strong, George Veazey (1880-1946), U.S. army officer, was born on March 4 in Chicago. He was graduated from the United States Military Academy at West Point, N.Y., in 1904, the Army War college in 1924 and the Command and General Staff school in 1931. He was assigned to Fort Meade, S.D., after leaving West Point and later saw service in the Philippines. He was military attaché at the U.S. embassy in Tokyo, 1908-11, and during World War I he received the D.S.M. for his skilful handling of troop movements preceding the attack on St. Mihiel and the Argonne front. After his return to the U.S., he became professor of law at West Point, holding that position until 1923, when he was made chief of the military affairs section of the judge advocate general's office in Washington. He testified in the court-martial of Brig. Gen. William (Billy) Mitchell, supporting the defendant and warning that hostile air bases within easy flying range of the Panama canal might result from concessions made by Latin-American governments to German capitalists. He became assistant chief of staff in 1938, was given command of the 7th corps area at Omaha, Neb., in 1940 and was transferred to the 8th army corps at Brownwood, Tex., in 1941. Promoted to a major general in April 1941, he was named head of the army's military intelligence division the following year. Maj. Gen. Strong retired early in 1944 but was later recalled to serve with the joint chiefs of staff, retiring for a second time in June 1945. He died in Washington, D.C., on Jan. 10.

Strontium Minerals. War demand for strontium passed its peak in 1943, and the United States output of celestite decreased from 7,566 short tons in 1943 to 3,005 tons in 1944 and 2,784 tons in 1945. Imports dropped from 16,881 tons in 1943 to 5,793 tons in 1944, and 3,691 tons in 1945. (G. A. Ro.)

Stuart, John Leighton (1876-), U.S. missionary, educator and diplomatist, was born June 24 in Hangchow, China, the son of U.S. missionaries. He spent much of his childhood in China, but was sent for his higher education to Hampden-Sydney college in Virginia, from which he was graduated in 1896. After further studies in the Union Theological seminary in Virginia, he was ordained as a Presbyterian minister and returned to China as a missionary in 1905. He became president of Yenching university in Peking in 1919 and in the stormy years of internal political strife in China, he succeeded in steering a safe middle course without incurring the hostility of either Kuomintang or Communist elements. He did, however, incur the enmity of the Japanese in 1938 for his refusal to obey their local dictates and on Dec. 8, 1941, Dr. Stuart and other members of Yenching's faculty were interned in a private house in Peking. He was released after the end of World War II and reopened Yenching university in Oct. 1945. After returning to the United States for a brief visit he went back to China as unofficial advisor to Gen. George C. Marshall in April 1946; the following July, President Truman named him U.S. ambassador to China. Negotiations conducted by Marshall and Stuart to end the Nationalist-Communist struggle were not successful and on Aug. 9, they issued a joint statement declaring that settlement of the dispute "appears impossible." Dr. Stuart signed in Nanking for the U.S. (Nov. 4) the five-year U.S.-China treaty of friendship, commerce and navigation.

Submarines: see NAVIES OF THE WORLD.

Subsidies: see AGRICULTURE.

Sudan: see ANGLO-EGYPTIAN SUDAN; FRENCH COLONIAL EMPIRE.

Sugar. Total United States sugar production in 1946, beet and cane, was estimated at 1,950,000 tons in 1946 compared with 1,667,000 tons in 1945 and an average of 1,948,000, 1935-39. The increase in 1946 over 1945 was caused by a larger beet crop since the cane crop of Louisiana was reduced by bad weather.

The sugar beet crop in 1946 was 10,666,000 tons, compared with 8,626,000 tons in 1945 and a five-year average of 9,568,000 tons, 1935-44. The area was 821,000 ac. compared with 713,000 ac. grown in 1945 and an average of 787,000 ac. 1935-44. This was not a near-record acreage since more than 900,000 ac. had been harvested in several previous years, the latest being in 1942 when 954,000 ac. were harvested. The record was made in 1933 at 983,000 ac. The yield in 1946 was 13 tons per ac., which was near the record of 13.7 tons in 1941 and above the average of 12.1 tons 1935-44. The season was generally favourable in the Great Lakes states and the crop made good gains over 1945. Record yields of 17 tons per ac. were reported for California. The acreage in the irrigated Imperial valley was increased. The quality of the 1946 beet crop was below average but preliminary reports indicated a production of 1,440,000 tons of refined sugar which compares with 1,194,000 tons in 1945.

Cane sugar production in 1946 was estimated at 461,000 tons of 96 degree raw sugar, compared with 475,000 tons in 1945 and an average of 451,500 tons. The tonnage of cane was estimated at 5,925,000 tons in 1946, 6,276,000 tons in 1945 and 5,426,200 tons for the average 1934-44. The acreage was increased in both Louisiana and Florida over 1945 but the yield in Louisiana was reduced by bad weather in the growing season and the yield was only 19 tons per ac. compared with 21.9 tons in 1945. Yields in Florida were 34 tons which was above 1945 and the average. The total Louisiana crop was 4,769,000 tons

compared with 5,234,000 tons in 1945 and an average of 4,698,000 tons 1935-44. The Florida crop was 1,156,000 tons in 1946; 1,042,000 tons in 1945 and 728,000 tons average.

The total acreage of sugar cane for sugar was 285,000 ac. which was above the average of 267,600 ac., 1935-44 but below the record of 1942 at 316,900 ac. which had not been equalled since 1911. The capacity of Louisiana to grow cane for sugar appeared to be somewhere about 250,000 ac.

The sugar output of the maple industry was again low in 1946 following the disastrous season of 1945. The production of maple sugar was estimated at 372,000 lb. which was 57% above the 237,000 lb. of 1945 but 60% of the 1935-44 average of 643,000 lb. Unseasonably warm weather in early spring started the sap and then again turned cold and spoiled the season. Honey production was down 10% in 1946 due to lower yield per colony of bees which increased about 6% over 1945. Production of syrups from sugar cane was reduced and sorgho syrup production was smaller due to reduced acreage.

The United States sugar supply was estimated in Aug. 1946 to be about 5% below 1945 and rationing was expected to be continued through another year. The total supply was short due to the loss of the Philippine crop and the reduced Cuban production, balanced with the strong demand. The stocks of sugar on Jan. 1, 1946, were 1,400,000 tons, slightly above a year earlier but 1,000,000 tons less than in 1941. The distribution of the stocks was uneven and many communities had local shortages that prevented consumers receiving their rations. The Cuban and Puerto Rican sugar crops for 1946 and 1947 were purchased by the government under the Sugar agreement. The total Cuban crop was estimated at 4,476,000 tons in 1945 compared with 3,923,000 tons in 1944. Puerto Rico produced 909,000 tons in 1945, 964,000 tons in 1944 and about 910,000 tons in 1946. Hawaii produced 857,000 tons in 1945 and a little more in 1946 which was about the average crop for that island.

World sugar production was put at 30,000,000 tons for the 1946-47 season which was about 12% more than the 26,700,000 tons of 1945-46, compared with an average of 34,544,000 tons 1935-39. All areas in the world, except Central America, the West Indies and South America produced less sugar during the war years. European sugar production was reduced about 50%. The Philippines, Java, Formosa and other areas were unable to contribute to the world's supply. World production of beet sugar declined 50% from 1940 to 1945. Prospects for 1946-47 indicated an increase in Europe, a 12% larger Cuban crop and perhaps some from Java and Formosa together with a larger sugar beet crop in Europe.

The secretary of agriculture announced a sugar allotment for the first quarter of 1947 slightly larger than that of the previous year but also stated it as unlikely that rations would be increased to consumers before April 1, 1947. Sugar rationing was continued through 1946 at 5 lb. per capita for each four months to household consumers plus 10 lb. for home canning. Industrial users were given 50% of their base usage in the first quarter and 60% in the last three quarters of the year. Total per capita consumption was about 73 lb., the same as in 1945, compared to 96.5 lb. in 1935-39. The price of sugar while under control rose from an average of 6.6 cents per pound in Oct. 1945 to 9 cents in Oct. 1946. The ceiling price on raw sugar was raised from 4.2 cents per pound to 5.5 cents in Sept. 1946.

The Sugar act of 1937 was extended by congress to Dec. 31, 1947. It provides for quotas of production to the United States supply. The Philippines, Florida, Cuba all want a part of the U.S. market and while quotas were suspended after 1942 the problem was expected to arise again. The government's subsidy

FIRST SHIPMENT of sugar from Cuba to arrive in Miami, Fla., after the end of the war being unloaded early in 1946; the cargo totalled about 2,409,000 lb.



program to increase United States sugar production was continued through 1946 and about \$85,000,000 was paid to growers of beets and cane. This was estimated to average \$13.50 per

Table I.—U.S. Sugar Beet Production by States, 1946 and 1945

		(In short tons)			
State	1946	1945	State	1946	1945
California	2,087,000	1,568,000	Nebraska	800,000	635,000
Colorado	1,962,000	1,835,000	Utah	588,000	437,000
Idaho	1,246,000	809,000	Wyoming	488,000	346,000
Montana	916,000	865,000	Ohio	224,000	208,000
Michigan	808,000	627,000	Other states	1,547,000	1,296,000

Table II.—U.S. Sugar Cane Production, 1946 and 1945

		(In short tons)	
State	1946	1945	
Louisiana	4,769,000	5,234,000	
Florida	1,156,000	1,042,000	

ton for beets and \$7.60 per ton for cane. Processors of sugar were also paid to avoid increasing prices to consumers. (See also BEEKEEPING; MAPLE PRODUCTS; PRICE ADMINISTRATION, OFFICE OF; SYRUP, SORGO AND CANE.) (J. C. Ms.)

Suicide Statistics. There was a steady rise in suicides in the United States after the close of World War II, according to the experience of the large body of industrial policyholders of the Metropolitan Life Insurance company. The death rate from suicide in this experience for each of the first eleven months of 1946 was well above the corresponding rate for 1945; for the year as a whole, the increase amounted to 14%. For the first quarter of 1946 alone, the death rate from suicide was more than one-third above that for the like period of 1945, when the country was still at war; among white males the increase was more than 50%, while among white females it was only 10%.

During 1945, there were 759 deaths from suicide in Canada and the death rate was 6.3 per 100,000 total population; the comparable rate for 1944 was 6.1 per 100,000. England and Wales reported 3,934 deaths from suicide for 1945 and a death rate of 9.2 per 100,000, the corresponding rate for 1944 being 8.9. For the United States in 1945, there were 14,782 deaths from suicide, the rate being 11.2 per 100,000; this marks a rise from 1944, when there were 13,231 deaths from suicide, the rate being 10.0, the lowest on record after 1900, when reporting was begun. Only a few other countries had death rates from suicide available for 1944, namely, Belgium 12.3, Denmark 22.2 and Switzerland 25.6.

Of the deaths from suicide within the United States during 1944, the latest year of complete official record, 36.3% were by means of firearms or explosives, 23.1% by hanging or strangulation, 11.1% by taking solid or liquid poisons, 9.4% by inhaling illuminating gas and the rest by other means. There were 46 suicides at ages 10 to 14 years, of whom 34 were white males and 9 white females. For this age group, the death rate was only 0.4 per 100,000. The rate increased steadily with advance in age; for example, at ages 20 to 24, the death rate from suicide was 6.1 per 100,000 rising to 12.5 at ages 35 to 39 and to 30.3 at ages 75 and over. The rates according to sex and race in 1944

Death Rates per 100,000 from Suicide, According to Age, Race and Sex; United States, 1944

Age	Total Persons	White Males	White Females	Negro Males	Negro Females
All ages	10.0	16.1	5.9	4.9	1.4
10-14	.4	.7	.2	.3	.1
15-19	2.8	3.5	2.4	1.7	1.3
20-24	6.1	9.9	4.1	6.7	2.6
25-29	8.6	15.0	5.2	8.8	1.4
30-34	9.8	14.3	7.1	7.1	2.8
35-39	12.5	18.5	8.7	7.8	1.6
40-44	14.5	21.9	9.5	7.3	2.6
45-49	16.1	24.3	10.2	8.4	1.8
50-54	18.5	28.2	11.0	8.1	1.9
55-59	20.7	31.8	11.3	11.8	1.3
60-64	22.4	35.3	11.7	11.4	1.2
65-69	23.6	40.1	10.3	6.5	3.1
70-74	24.4	43.4	9.2	8.6	2.3
75 & over	30.3	58.0	9.9	7.3	2.7

were as follows: white males 16.1; white females 5.9; Negro males 4.9; and Negro females 1.4. Further details regarding suicide death rates according to age, race and sex are shown in the accompanying table.

There are wide geographic variations in the mortality from suicide within the United States. Thus, in 1944, the Pacific states, as a group, led with a high rate of 14.0 per 100,000; on the other hand, the south central states, as a group, were lowest with an average rate of 6.6 per 100,000. The rates for the other geographic regions were: south Atlantic 7.5; mountain 9.1; north central 10.9; middle Atlantic 11.3 and New England 11.5.

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Sulphur. Mine production of crude sulphur in the United States increased from 3,604,337 short tons in 1944 to 4,203,571 tons in 1945, and a new record high, 8% above the peak of 1942. Shipments were 3,941,373 tons in 1944 and 4,293,289 tons in 1945. Production sagged during the last quarter of 1945 and the first half of 1946, but the total for the first eight months of 1946 was 2,783,305 tons and shipments were 2,938,309 tons, a 10% decrease in the production rate as compared with 1945, but an increase of 3% in the shipment rate. At this time stocks had increased to 5,277,580 tons. (G. A. Ro.)

Sumatra: see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

Summerville, George J. ("SLIM") (1895?-1946), U.S. motion picture actor, was born in Albuquerque, N.M. As a youngster he roamed the west and Mexico, picking up odd jobs. In 1913 he accidentally wandered into the Mack Sennett studio in California, where he got his start as an extra in comedies and feature pictures. He was one of the original "Keystone Cops" of the early Mack Sennett comedies. It was not until 1930, however, that he achieved a measure of fame in the role of Tjaden in *All Quiet on the Western Front*. Thereafter, the gangling, dour-faced comedian was frequently typed as a rustic bumbler or a blundering buck private hero. He appeared in *The Spoilers*, *The Road Back*, *Tobacco Road*, *Western Union*, *Jesse James*, *The Country Doctor*, *Way Down East*, *The Farmer Takes a Wife* and *Rebecca of Sunnybrook Farm*. He died at Laguna Beach, Calif., on Jan. 5.

Sumner, James Batcheller (1887-), U.S. biochemist, was born Nov. 19 in Canton, Mass. After receiving his Ph.D. from Harvard university in 1914, he took graduate work at the University of Brussels. He joined the faculty of Cornell university medical college in 1914 as assistant professor of biochemistry, becoming full professor in 1929. He was the first to isolate an enzyme, in 1926. According to Prof. Sumner "living cells contain hundreds if not thousands of enzymes and one definition of life is action by those enzymes wherein such phenomena occur as growth, reproduction and other biological changes." Discouraged at first by his teachers from becoming a chemist because he had only one arm, Prof. Sumner won a personal triumph when he was awarded one-half of the Nobel chemistry award on Nov. 14, 1946; the remaining half was divided between Professors Wendell M. Stanley and John H. Northrop, both biochemists.

Sunday Schools. The board of managers of the World's Sunday School association held its first postwar meeting in London on July 1-3, 1946. Among its actions were the following: (1) To set 1950 as the year for the



U.S. SUPREME COURT members making their annual call upon the president in the fall of 1946. Left to right: Associate Justices Wiley Rutledge, Frank Murphy, Felix Frankfurter, Hugo Black; President Harry S. Truman; Chief Justice Frederick M. Vinson; Associate Justices Stanley F. Reed, William O. Douglas, Robert H. Jackson, Harold H. Burton

next World's Sunday School convention, and (2) to appoint a committee on religious films and other visual aids, with J. Arthur Rank, British film producer, as chairman.

Postwar restoration of interdenominational service to Sunday schools and other agencies of Christian education went forward in Europe and Asia as rapidly as conditions would permit. Korea was provided by the World's Sunday School association and mission boards with an emergency printing of Sunday-school lessons. Dr. Chester S. Miao, executive secretary of the National Committee for Christian Religious Education in China, was given a period of rest after harrowing war years in Shanghai and sent back to China with plans for a greatly enlarged program. The work of the Committee on Christian Education in the Republic of the Philippines, in preparing lesson materials and in other services, was reinstated, and then the executive secretary, Rev. Samuel G. Catli, and Mrs. Catli were sent to the United States for a year of rest and study. Principal leaders of national, interdenominational bodies in Europe were given financial aid to enable them to re-establish their work.

The Sunday School associations of the Union of South Africa and of Southern Rhodesia each sponsored a series of meetings in major cities on the occasion of a visit by the general secretary of the World's association from New York.

The Revised Standard Version of the New Testament, prepared by a committee of scholars appointed by the International Council of Religious Education (United States and Canada), was published in February and received wide approval.

A Western Hemisphere Christian Youth conference was held in Cuba in August under the sponsorship of the United Christian Youth movement (United States and Canada), the Unión Latinoamericana de Juventudes Evangelicas (Latin American Union of Evangelical Youth), the World's Sunday School association and the Committee on Co-operation in Latin America. (See also CHURCH MEMBERSHIP.) (F. L. Kp.)

Superphosphates. Increased demand for fertilizers raised superphosphate production in the United States from 6,692,368 short tons in 1944 to 7,372,104 tons in 1945. Sales of phosphate rock to producers of superphosphates in 1945 were 4,418,410 tons, or 73% of the total sales. Exports increased from 205,887 tons in 1944 to 207,157 tons in 1945. (G. A. Ro.)

Supreme Court of the United States. The cases decided in 1946 were predominantly in criminal law, federal regulations, federal tax and labour. The 1945-46 term of the United States supreme court was characterized by a decrease in the number of closely divided opinions. Because of the absence of Justice Robert H. Jackson, representing the United States at the Nuernberg trials, there were no 5-to-4 decisions.

Harlan Fiske Stone, 12th chief justice of the United States supreme court, died April 22 following an attack while sitting with the court. He was elevated to the chief justiceship in 1941 by President Franklin D. Roosevelt.

The Hon. Frederick Moore Vinson, secretary of the treasury, was appointed the 13th chief justice of the United States.

There was a total of 136 opinions handed down during the 1945-46 term, of which 42 were unanimous and in 25 more, there were concurring, but no dissenting votes. Dissenting votes were cast in 69 opinions. Federal regulation cases led the list, 13 for the government and 8 against; federal taxes were second, with 13 for the government and 5 against; criminal law, rising in number from the 1944-45 term, was split 7 for the government and 7 against; labour cases were fourth, with 7 for the government and 2 against. Among the opinions were:

	Favourable to government	Against government
Federal tax cases	13	5
Federal labour cases	7	2
Federal regulation cases (other than labour)	13	8
Federal criminal cases	7	7
Federal war cases	2	3
Federal public contracts cases	3	0
Federal bankruptcy cases	1	0
Federal eminent domain cases	2	1
Federal courts and procedure cases	2	2
Federal miscellaneous cases	1	3
Total	51	31
State tax cases	6	2
State regulation cases	4	0
State criminal cases	3	5
State miscellaneous cases	2	0
Total	15	7

Members of the Court.—The United States supreme court was composed in 1946 of the following members (dates indicate year appointment was confirmed by the senate): chief justice, Frederick M. Vinson (1946); associate justices, Hugo L. Black (1937), Stanley F. Reed (1938), Felix Frankfurter (1939),

William O. Douglas (1939), Frank Murphy (1940), Robert H. Jackson (1941), Wiley B. Rutledge (1943) and Harold H. Burton (1945). (See also LAW.) (B. WE.)

Surgery. Since the cessation of military hostilities ideas resulting from the experiences of World War II have crystallized. Whereas previously it was thought that injury to tendons and nerves needed immediate definitive therapy, during the war it was demonstrated that whereas the immediate wound closure is important in order to prevent further contamination of the wound, unless specialist care is available it is not only possible but also desirable to delay the repair of the tendons and nerves until specialized treatment, which is so important in these cases, can be obtained. Also, the setting up of special centres, such as amputation and paraplegia centres, has been valuable. Although many amputations were done for war injuries, annually there are many more amputations done yearly in civilian life. The establishment of special centres for the application of prostheses is an important advance.

In patients with injuries of the lung in whom there is an accumulation of blood within the pleural cavity the evacuation of the blood after a period of two to three weeks brings about a rapid restitution of function. Without the decortication procedure, there is danger of the lung remaining collapsed and non-functioning because of the development of scar tissue over the surface of the lung. P. C. Samson used this procedure both in military and in civilian life. Paul Sanger used this procedure successfully in acute infections of the pleural cavity.

Streptomycin, one of the new antibiotics, was studied extensively and found to be of great value in the treatment of tularaemia, influenzal meningitis and certain urinary infections. A new antibiotic, bacitracin, developed by Frank Meleney, has many of the advantages of penicillin and offers considerable promise.

The use of male sex gland secretions in the treatment of cancer of the breast proved to be of value, particularly as regards palliation in late cases. In those cases in which there was extension of the cancer to the bones, the administration of the male sex hormone not only controlled the pain but also produced regression of the tumour, permitting even recalcification of the bone which was destroyed by the cancer. The use of other glandular products in the treatment of breast cancer metastases to the soft parts was suggested and offers some promise.

H. de Sousa Pereira successfully treated the severe pain associated with cancer of the neck of the uterus by abdomino-pelvic sympathectomy. Although it is only a palliative procedure, it is certainly justifiable.

With the introduction of propylthiouracil, the preparation for operation of patients with toxic thyroid disease became safer. Although thiouracil was efficacious in controlling the toxic manifestations, it had the distinct disadvantage of being quite toxic and, therefore, was considered not without danger. Propylthiouracil, on the other hand, is just as efficacious and does not have the toxic manifestations of thiouracil. Thiouracil was shown by B. T. King and L. J. Rossellini to be of great value in the treatment of acute inflammations of the thyroid (thyroiditis).

The treatment of arterial disease involving the extremity was fairly well standardized. Many patients with diseases of the peripheral arteries can be benefited by interrupting the impulses carried over the sympathetic nervous system. Tetra-ethyl ammonium was used by Robert L. Berry and his associates in these and other cases in which there is an over-activity of the sympathetic nerves. In order to decrease the increased number of red blood cells in polycythaemia, P. W. Schafer performed sympathectomies with good results, the rationale for the procedure being that the increase in red cells is due to a diminished blood supply resulting in a decrease in oxygen to the bone marrow. Following a sympathectomy, the blood supply and diminished oxygen of the bone marrow increase and the stimulus for increased production of red cells is removed.

Actinomycosis of the thorax and abdomen, which were so difficult to

control in contrast to actinomycosis of the face and neck, was successfully treated by Champ Lyons by the combination of several methods of therapy: (1) the institution of adequate surgical drainage; (2) chemotherapy, employing penicillin during the acute phase of the infection because penicillin does not destroy red cells, to be followed later by sulfonamides, which must be used for many months; and (3) the employment of large amounts of blood during the acute infection in order to re-establish the total circulating haemoglobin and red cell mass. Lyons and his associates further demonstrated the importance of blood volume determinations in chronically ill patients in whom although the haemoglobin per cent and the red cell count per cu.mm. may be within normal limits, there is actually severe anaemia because of the contraction of the blood volume. Only following correction of this severe anaemia can these patients safely withstand a necessary major surgical operation.

Kurt Lange and L. Loewe treated frostbite by the subcutaneous administration of heparin, the rationale being that clotting in the peripheral arteries which frequently occurs in frostbite is prevented by the anticoagulant, heparin. L. E. Hines and D. L. Kessler showed that the combination of heparin and penicillin must be used cautiously because the administration of penicillin to an individual receiving heparin greatly increases the sensitivity to the heparin and unless careful control is made severe haemorrhage may result.

With the availability of radioactive isotopes, it was possible to treat certain conditions with these substances. Toxic goiter was treated successfully by means of radioactive iodine, the selective affinity of the thyroid for the iodine molecule, making it possible for the radioactive material to have a maximum effect on the thyroid gland.

The results from vagus resection in the treatment of duodenal ulcer continued to be good. Although the resection of the vagus does produce a satisfactory decrease in the acid content of the stomach, it also produces a marked interference with the motility of the stomach and should not be used if there is any obstruction to the outlet of the stomach, unless a new opening is made between the stomach and the intestine.

Although the treatment of burns was fairly well standardized, investigations by J. K. Berman and his associates showed that the toxic manifestations in severe burns could be minimized and largely obviated by the injection of isotonic salt solutions into the burned area. In this way, the excessive loss of fluid to the outside and absorption from the burned area is prevented. (See also ANAESTHESIA; MEDICINE.)

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Surinam (DUTCH GUIANA). A Netherlands colony in north-eastern South America, bounded on the east, south, west and north, respectively, by French Guiana, Brazil, British Guiana and the Atlantic ocean. Area, 54,291 sq.mi.; pop. 1945 est., 178,000. The population includes approximately 1,000 Dutch, 1,000 other Europeans and Americans, 42,000 British Indians, 34,000 Javanese, 2,000 Chinese, 19,000 bush Negroes, and 2,600 aboriginal Indians. The capital is Paramaribo (pop., 60,723), other inhabited places include Nieuw Nickerie (5,000), Coronie (4,500), and Moengo (1,400). The colony is ruled by a governor, who serves as president of an executive council of four, all nominated by the queen of the Netherlands. The governor in 1946 was Dr. J. C. Brons.

History.—The colonial government organized a department of social affairs and immigration early in 1946. Delegates from Surinam participated in the second Caribbean conference, held in the Virgin Islands of the United States in February-March. The Anglo-American Caribbean commission, organized in March 1942 by Great Britain and the United States, was broadened on a *de facto* basis in 1945 to include Surinam as well as other Dutch and French colonies in the Caribbean area, and the re-organized basis was formalized in the Virgin Islands conference

and subsequently. The 1946 West Indian conference considered the problem of under-population in Surinam, as well as other social and economic questions affecting the colony.

Surinam was greatly interested during the early part of the year in attaining the status of autonomy impliedly promised various parts of the Netherlands empire by the queen in her address of Dec. 6, 1942. The colonial government appointed a committee to accompany a similar group from Curaçao to the Netherlands to petition Wilhelmina to that effect; the two groups left for Europe June 11. The Netherlands government subsequently announced that it proposed to present a bill modifying the constitutions of Surinam and Curaçao in a fashion to provide a greater degree of decentralized territorial administration for Surinam. Netherlands officials later in the year were quoted as regarding Surinam as a province of a metropolitan country. The colony was faced during 1946 with crystallizing restlessness on the part of its large Asiatic population. A mass meeting on June 9, organized by the central board of Hindustanis and Indonesians, adopted resolutions asking that such population elements be granted full economic, social and political rights and that a universal suffrage be established.

Education.—In 1946 the colony had approximately 50 public and 75 private (mostly church) schools with about 18,500 enrolled.

Finance.—The monetary unit is the guilder (or florin) of 100 cents, exchangeable at about 53 cents U.S. currency. The guilder was formerly tied to the Netherlands currency but was detached in 1943. A Dutch commission, headed by a former Surinam governor, went to the colony early in 1946 to study financial conditions and problems, especially the possible adjustment of the Surinam and Curaçao guilder to that of the Netherlands. The government was anxious to keep the guilder pegged to the U.S. dollar at its then value of \$0.5333, but it was considered likely by March that the guilder would be forced to undergo devaluation. The need for dollar exchange increased steadily during 1946 and led before the end of the year to a government order prohibiting importation of all luxury food items. The cost-of-living index by February had reached 160 as against 100 in 1939.

Trade.—The first coffee shipments ever made from Surinam to the Netherlands met a favourable reception in 1946. The colonial government decided early in the year to allow the export of rice production above 20,000 bags of 100 kg. Exports of bauxite to the United States in 1945 totalled 673,185 long tons (the figure included the earmarked stock-pile in Trinidad); bauxite exports in the first quarter of 1946 were 136,541 long tons, about equal to those of the first quarter of 1945. Lumber exports to the United States in 1945 were 202,894 bd.ft., of which 80,364 ft. were fancy hardwoods. Late in 1946 shipments of foodstuffs from the Netherlands and other European countries began to appear in Surinam.

Agriculture.—Sugar production in 1945 was 4,373,512 kg., consumption was 3,621,377 kg., and stocks on hand Jan. 1, 1946, amounted to 728,500 kg. A new type of upland rice began appearing in the Paramaribo market early in 1946. The government estimated that some 14,000 families averaging four persons each were engaged at least part time in rice production in 1945, but the colony had only two rice mills. Balata production in the first quarter of 1946 was 27,837 kg., an increase of 7,829 kg. over the same period in 1945; the total amount of balata received at Paramaribo from the interior in 1945, however, was 192,993 kg. (1944: 194,403 kg.). The Netherlands government announced plans to develop Surinam's forests on a vast scale and in consequence established the Surinam Timber foundation; the colonial government was given 190 shares and a Dutch woodworking company 210 shares. The foundation planned to

work 10,000,000 ac. of forests.

Mining.—Bauxite production in 1945 increased by 155,478 long tons over that for 1944. A strike of bauxite mine workers early in Oct. 1946 prevented any further mining or loading until it was settled Nov. 5. Gold production in the first 10 months of 1946 was 108,128 grams; placer gold production in 1945 totalled 183,364 grams (1944: 177,993 grams).

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Surplus Property Disposal. The best estimates available in 1946 indicated that ultimately \$34,000,000,000 of property produced for war purposes would be found surplus. By the end of September, \$21,500,000,000 of this had already been declared to the War Assets administration and other disposal agencies.

Viewed in the light of the purpose for which these goods were produced, they had already accomplished their primary objective. Even if the particular property in question had never left the factory where it was produced it had still contributed to victory.

Congress, however, saw in this vast quantity of war goods the potential answers to many of the nation's postwar needs. The Surplus Property act of 1944, as amended, was written to make the best possible use of this vast accumulation from every possible angle. The dollar return on actual money invested was a goal but not paramount.

The 20 objectives of the act, set forth in Section 11, set up the goals toward which the surplus disposal program was to be aimed. These social and economic aims, while worthwhile in themselves, created difficulties in establishing an orderly program.

Of the total surplus acquired up to Sept. 30, 1946, about \$6,300,000,000 including scrap and salvage, had been sold, or about one-third of all declared up to that date. More than two-thirds of the liquidation job was therefore still to be done. The expectation of the War Assets administration was that the task would be completed sometime in 1948.

The War Assets administration actually came into being only on March 25, 1946. It was set up by executive order under powers granted the executive under the Surplus Property act. It is an agency reporting directly to the president, its sole function the disposal of surplus property under the program outlined by congress.

WAA was the outgrowth of a number of preceding agencies all of which had handled the disposal program either as their sole activity or as one of several activities. In 1933 the procurement division of the treasury department was assigned responsibility for disposing of war surplus of World War I. The advent of World War II, however, saw such a rapid accumulation of surplus property that, at the request of President Roosevelt, Bernard Baruch and John Hancock made a comprehensive survey and report, recommending the creation of a central authority. The Surplus War Property administration, created by executive order of Feb. 14, 1944, was charged with general supervision and direction of the surplus disposal program.

In order further to facilitate and regulate disposal, congress on Oct. 3, 1944, passed the Surplus Property act of 1944 establishing a Surplus Property board to take over the functions of the Surplus Property administration. The board was succeeded by the Surplus Property administration in the Office of War Mobilization and Reconversion by amendment to the original act, Sept. 18, 1945. The Consumer Goods division of treasury procurement was transferred to the department of commerce and later to the Reconstruction Finance corporation. On Feb. 1, 1946, an executive order transferred all surplus disposal



PROSPECTIVE BUYERS and War Assets administration personnel inspecting some of the 25,000 miles of wire which constituted part of the \$5,000,000 worth of surplus property put on sale in 1946 at Torrance, Calif.

functions, except those relating to disposal in foreign countries, to the War Assets corporation in RFC, with provisions for WAA taking over the operation on March 25.

WAA determines policies for all disposal agencies concerning the disposition of surplus located in the continental United States and U.S. territories and possessions. It makes the actual disposals program for 90% of all surplus. Types of surplus sold by WAA include consumer goods (goods usually sold through retail distributors), capital and producers goods, raw materials, semi-finished products, industrial equipment, aircraft and aircraft parts and components; war plants and other industrial real property.

Under the act, congress set up certain buying priorities and preferences to special groups: (1) federal agencies for their own use; (2) veterans for use in their own businesses, professions and agricultural enterprises (except real property); (3) Reconstruction Finance corporation for resale to small business; (4) state and political subdivisions and instrumentalities; (5) eligible nonprofit institutions. Under the May 1946 amendment to the act, veterans have also an exclusive privilege to buy for their own personal use from "set-aside" lists of hard-to-get items. These lists, which by the end of 1946 had been largely cleaned out, include the more desirable items in surplus from the standpoint of popular demand.

Disposals of Surplus Property

(Exclusive of leases)

Cumulative through June 30, 1946

(In millions of dollars)

Total	\$4,646
Real property, total	1,098
Plants and industrial	993
Agricultural land	13
Airports	36
Community facilities	39
Housing	17
Personal property, total	3,548
General products	2,345
Aircraft parts and components	75
Aircraft	847
Electronics	88
In territories and island possessions	56
Marine personal property	68
Foodstuffs and other agricultural products	69

Each of the priorities is given consideration on all applicable sales programs. Consideration is given, also, to the 20 objectives outlined by the act. Since certain of these objectives are in a measure contradictory, it is necessary, in many instances, to weigh them against each other. The main objective is to release World War II surplus as rapidly as possible within the limitations imposed by law.

(J. S. Cs.)

Swains Island: see PACIFIC ISLANDS, U.S.; SAMOA, AMERICAN.
Swaziland: see BRITISH SOUTH AFRICAN PROTECTORATES.

Sweden. A democratic monarchy of northern Europe. Area, 173,341 sq.mi.; pop. (Dec. 31, 1945) 6,673,956. Capital, Stockholm (as of Dec. 31, 1945) 671,601. Other principal cities (Dec. 31, 1945), were Göteborg (Gothenburg) (315,474), Malmö (171,158), Norrköping (78,344), Hälsingborg (66,537), Örebro (59,879). Religion, Lutheran Christian. Ruler in 1946: King Gustavus V. Prime minister: Per Albin Hansson, until his death on Oct. 6, thereafter Tage Erlander.

History.—Excluded from original membership in the United Nations because of its neutral status, Sweden was nevertheless eager to take its place among the co-operating states of the world as soon as possible. In June 1946 the riksdag (parliament) voted to request admission and Sweden was elected unanimously by the Security council (Aug. 29). When the assembly, on Nov. 9, voted in favour of admission, a Swedish delegation flew to New York; the group was headed by Östen Undén, foreign minister.

During the year, the Swedes continued much of their war-time rationing on food. The bread and flour ration was cut 6%, to save 50,000 tons of wheat and 22,000 tons of rye for European relief. From 1944 to 1946 the Swedes sent 400,000 tons of food to needy peoples abroad (value about \$42,500,000).

One of the heaviest blows suffered by Sweden in 1946 was the death from a heart attack of Prime Minister Per Albin Hansson, Oct. 6. Foreign Minister Östen Undén took over temporary leadership, and on Oct. 9 the Social Democratic party chose Tage Erlander, minister of education, as its president. A few days later Erlander became prime minister.

There was no general election during the year, but on Sept. 15 elections were held for the provincial and municipal councils. The Communists gained, though not as much as expected; the Conservatives and the Social Democrats both lost. The Farmers and the liberal Peoples' party were the large gainers, and the Peoples' party became second in strength to the Social Democratic party in the country as a whole.

	Seats held after Sept. 15 elections	Change from 1942 elections
Peoples' party	252	+74
Conservatives	212	+68
Farmers	247	+36
Social Democrats	743	-82
Communists	99	+67

Probably the two most serious economic problems of the year were the torrential rains of September and the coal shortage. The rains ruined as much as 30% of the crops in some regions and the farmers tried to harvest from boats.

A fund of \$100,000,000 was set up during the year for housing loans, to encourage multiple-family building and repair of older structures. Municipalities made available long-term loans to individuals, and the cities could borrow up to 100% of construction costs from the central government; co-operative organizations could borrow up to 95% and individuals to 85%. The goal was to reduce rents to 20% of workers' income. In June the two chambers of the riksdag approved the program of the minister for social welfare, Gustav Möller, almost doubling the existing pension rates. Pensions might go as high as 1,000



PRINCE CARL GUSTAF of Sweden, whose birth April 30, 1946, assured continuation of the Bernadotte dynasty. His mother, Princess Sibylla, is shown holding him, as his father, Prince Gustaf Adolf, watches. His sisters (left to right) are the Princesses Margaretha, Christina, Desiree and Birgitta

kr. per year for single persons and 1,600 kr. for married couples, with 600-800 kr. additional for rent. Compulsory sickness insurance was enacted by the riksdag on Dec. 18, to take effect July 1, 1950. Nationalization of oil distribution was seriously discussed but the basic principle was still held that no activity should be nationalized if private management was doing an efficient and fair-priced job.

Labour peace existed. Employers as well as employees were organized on a national basis, and each bargained with the other collectively. The federation of trade unions contained 1,106,917 members—about one-sixth of the population.

Sweden extended Russia a 1,000,000,000 kr. (\$278,500,000) credit, to be used in six years, and to be repaid in 15 years. According to the trade agreement Sweden was to send to Russia such things as high quality steel and steel products, ball bearings, machines and measuring instruments, parts for electrical and turbine equipment, breeding stock and herring. Russia was to send to Sweden such items as chrome and manganese ore, asbestos, mineral oils, cotton, flax, fertilizers. Russia also was to provide some of the raw materials, such as pig-iron, for the goods which Sweden was to produce and deliver on the purely credit basis: equipment for electrical power stations, equipment for extraction and concentration of ores, machinery for peat extraction and the mechanization of forestry, equipment for housing construction, 300 steam locomotives, 45 trawlers and 50 motor-ships and other similar items.

These various arrangements bound Sweden to sell only about 15% of its normal export volume to Russia. Internal opposition and U.S. protests against the treaty arose because of the government guarantees involved and because of the tie-up with the Russian controlled economy.

American Overseas Airlines opened service to Stockholm on Jan. 7, 1946, and the Scandinavian Airlines officially opened their transatlantic flights on Sept. 19. Regular air connections were established between Stockholm and Moscow.

Education.—In 1941-42 there were 529,750 pupils and 25,848 teachers in the regular elementary schools, and 53,868 students in secondary schools. In the five institutions of university grade 8,937 students were enrolled in 1944. The state provided also a large number of special industrial and continuation schools.

Defense.—In 1946 attention was centred on development of jet-propelled and radio-guided ships and plans for atomic-energy-driven sub-

marines—and adequate defense against such types of armament.

Finance.—The monetary unit is the krona (23.86 U.S. cents on Nov. 28, 1945, and revalued July 1946 in a sudden stroke to be worth 27.77 U.S. cents (3.60 kr.= \$1.00), an increase of 14%.

The government financial picture must be given in two separate accounts.

Table I.—Data of Finance in Sweden
(In millions of kronor)

	1944-45	1945-46 estimate	1946-47 estimate
Ordinary account:			
revenue	3251	3209	3347
expenditures	4103	3522	3347
Capital account:			
revenue	1533	851	900
expenditures	606	851	900
Public debt	10,953	11,310 (Oct. 1)	

	1945	End of Aug. 1946
Notes in circulation	2,782	2,534
Gold reserve	1,062	1,046
Commercial bank deposits	6,847	7,199
Savings bank deposits	5,468	—

Trade.—General trade statistics, mentioning only the chief countries concerned are shown in Table II. During Jan. to Sept. of 1946 Great Britain took first place as Sweden's customer, buying 267,300,000 kr. worth of goods (c. 15%); the U.S. was second with 139,100,000 kr.; then came the Netherlands (127,800,000 kr.), Norway (127,400,000 kr.),

Table II.—Imports and Exports, Sweden
(In 1,000 kronor)

	1939	1944	1945 (preliminary figures)
Imports (total)	2,498,700	1,677,382	1,087,908
From Germany	619,800	798,466	89,400
Switzerland	45,800	138,606	123,950
Argentina	48,100	120,928	106,967
United States	414,300	44,500	175,898
Exports (total)	1,888,600	853,396	1,756,633
To Germany	369,000	345,350	0
Switzerland	17,800	87,511	55,000
Argentina	34,100	72,211	91,000
United States	178,600	2,100	232,623
United Kingdom	417,500	5,600	282,894
Norway	137,500	30,500	327,517
Finland	93,900	71,000	149,600

Belgium (125,600,000 kr.), France (107,300,000 kr.), Denmark (106,300,000) and Argentina (90,400,000 kr.). The most important change was the dropping out of Germany from its prewar second place. Sweden's imports before World War II came in large part from Germany, but in the first eight months of 1946 the U.S. led as supplier to Sweden with 606,600,000 kr. worth of goods (about 26% of total); next came Great

Britain (226,500,000 kr.), Switzerland (176,500,000 kr.), and Argentina (154,900,000 kr.). In the first eight months of 1946 both imports and exports exceeded the value of the total 12-month trade of 1945: (Jan.-Sept. 1946) imports: 2,367,000,000 kr.; exports, 1,834,000,000 kr.

Communications.—Railroads in 1945 measured 16,711 kilometers. Six new motor-powered trains, on the U.S. streamliner model, were being built in Sweden for 1947 use. There were 1,168,100 telephones, an average of 177 per 1,000 inhabitants. There were 95,967 automobiles. Air lines flew 2,926,797 mi., carrying 81,000 passengers; length of established air routes was about 16,500 mi. Mail carried by air was about the same as in 1944, but baggage doubled and freight trebled.

The merchant fleet in 1945 numbered 2,069 ships with a gross tonnage of 1,598,000 (679 steamers of 548,558 tons, 580 motor vessels of 969,483 tons, 808 auxiliary vessels of 79,676 tons and 2 sailing ships, 90 tons).

Agriculture.—Agricultural area and crop yields for 1945 are shown in Table III.

Table III.—Agricultural Production in Sweden, 1945

	Hectares	Yield in metric tons
Area of meadows	942,139	
Total cultivated area	3,717,179	
Wheat (winter)	203,891	454,452
Wheat (summer)	87,105	133,811
Rye (winter)	162,824	270,326
Rye (summer)	5,358	5,946
Corn	93,286	168,750
Oats	542,727	754,895
Mixed grains	277,378	462,660
Peas	25,791	32,996
Beans	345	538
Potatoes	145,252	1,658,874
Sugar beets	54,633	1,813,661
Hay	1,342,671	—

The livestock census at June 1, 1944, included 603,857 horses, 2,858,949 cattle, 558,290 sheep, 1,053,865 swine, 6,174,517 chickens.

Forestry.—In the period 1940-44 more than 6,000,000,000 cu.ft. of timber was cut for fuel, against a normal cut of about 3,000,000,000 cu.ft. Much of the excess cut was useful thinning, but the labour burden was heavy. Export of wood products was down in 1944 to 324,635,000 kr., but climbed in 1945.

Manufactures.—Industrial establishments in 1943 numbered 20,907 and workers 598,165. Values of chief manufactured products (figures for 1941 and 1943) are shown in Table IV.

Table IV.—Values of Principal Manufactures of Sweden

	1941 kr.	1943 (or 1942) kr.
Machinery	1,359,063,000	1,761,958,000
Ships	206,242,000	242,368,000*
Automobiles, etc.	225,293,000	246,661,000
Electrical apparatus	322,101,000	400,918,000
Milling	204,102,000	190,688,000
Wood pulp	276,578,000	307,337,000
Paper	210,206,000	292,300,000
Wood	229,167,000	423,908,000*
Furniture, etc.	194,341,000	250,049,000
Yarn, etc.	204,942,000	225,045,000
Textiles	330,326,000	330,326,000
Breads	185,659,000	233,147,000
Tobacco products	248,055,000	326,280,000

*1942

Investments in industry during 1940-1944 averaged 726,000,000 kr. as compared with an average of 504,000,000 kr. for 1938 and 1939. State and municipal funds were about one-sixth of the total investments for 1940-1944.

Mineral Production.—Production of the leading minerals in 1941 (in long tons) was as follows: iron ore 10,527,889; iron and steel 1,165,593; bar iron and steel 821,547; coal 556,690; copper 11,879; gold 5,950 kg.; silver 23,682 kg.

Fisheries.—In 1943 there were 15,437 professional fishermen in salt-water fishing, nearly half from the Gothenburg region. Fishing boats numbered 21,432. The total catch was worth 118,928,000 kr. and weighed 143,811 metric tons. Herring accounted for almost half the weight and 41% of the value.

BIBLIOGRAPHY.—*The American Scandinavian Review*; Ralph Wallace, "The True Story of Swedish Neutrality," (condensed from *The Minneapolis Tribune*), *Readers Digest*, Sept. 1946, pp. 89-96. (F. D. S.)

Sweet Potatoes: see POTATOES.

Swimming. Most noteworthy in swimming during 1946 were the remarkably fast and widespread recovery of water sports in devastated Europe; the return to activity of the Fédération Internationale de Natation Amateur, controlling body in aquatics; and an extraordinary feat of endurance achieved by a blind 48-year-old Hawaiian, King Nawahi.

Europe not only resumed most of its national championships and other important fixtures abandoned in wartime, but the competition brought to light two new world's record breakers

and a host of brilliant performers.

Miss Nel van Vliet, of the Netherlands, was the outstanding star. She earned recognition as the greatest breast stroke swimmer ever developed by shattering all six of the standards listed for women and slashing the time for 200 m. from 2 min. 56 sec. to 2 min. 52.6 sec. and for 500 m. from 7 min. 49.9 sec. to 7 min. 41 sec.

Alex Jany, of France, was the other successful ace. He clipped the highly rated mark of 2 min. 6.2 sec. for 200 m. free style to 2 min. 5.4 sec. Teamed with Alfred Nakache and Georges Valerey, Jany also helped to establish a record of 3 min. 16 sec. for the 300 m. medley relay, which was added to the F.I.N.A. table in June, and later to drop it to 3 min. 12.3 sec.

Leonid Meshkov, of the U.S.S.R., swam the 100 m. breast stroke in 1 min. 5.2 sec., against the record of 1 min. 7.2 sec., but the soviet was not a member of the federation, so the performance could not be recognized.

The F.I.N.A., inoperative from 1939, resumed its functions at a meeting in London in June and the executive bureau made many changes in the rules, approved 45 of the records claimed while it was stagnant and elected H. E. Fern of Great Britain president and R. Max Ritter of the United States secretary-treasurer.

The sightless Nawahi performed one of the most amazing feats in natatorial history. Following the sound of a bell on the escorting boat, the hardy veteran conquered the 22 mi. of rough water from Catalina Island to Point Firmin, Calif., in 22 hr. 40 min.

In the United States, Joseph Verdeur lowered the breast stroke records for 200 yds. from 2 min. 21 sec. to 2 min. 19.5 sec. and for 200 m. from 2 min. 36.8 sec. to 2 min. 35.6 sec., but his exploits were overshadowed by the striking work of 15-year-old James McLane, who won the national 400 m., 800 m. and 1,500 m. free style titles, defeating at 400 m. the world's record holder, William Smith. Experts acclaimed him the foremost middle distance prospect of all time. (L. DE B. H.)

KING NAWAHI, 48, blind Hawaiian, being helped ashore by life guards after swimming 22 miles from Catalina Island to Point Firmin, Calif., during 1946



Switzerland. A republican confederation of 22 cantons of west-central Europe, bounded N. and E. by Germany, S. by Italy and W. by France. Flag, white cross on red background. Area 15,944 sq.mi.; pop. (1941 census) 4,260,179. Chief towns: Berne (cap. 129,331); Zürich (333,829); Basle (161,380); Geneva (124,442); Lausanne (91,738). Languages (census 1930): German 2,924,314; French 831,100; Italian 242,034; Romansh 44,204; and others 24,797. President (Jan. 1, 1946) Dr. Karl Kobelt.

History.—On Feb. 12, 1946, after the mysterious disappearance and probable killing of a member of the Swiss legation in Budapest, Switzerland broke off diplomatic relations with Hungary. A month later, after several unsuccessful attempts, Switzerland finally re-established diplomatic relations with the soviet union which were broken off in 1924 after a soviet official was assassinated on Swiss soil. The new friendly relations were followed by the founding of a Russian-Swiss oil company with which Russia was to supply Switzerland with as much Rumanian oil as needed.

On Dec. 8, by a referendum vote of 534,336 to 124,000, Swiss voters rejected a proposal under which the Swiss federal council would have been obligated to guarantee jobs for all. Proponents of the measure said it would prevent unemployment; opponents argued that only authoritarian states could implement such a law.

Education.—Managed locally by the cantons and communities, education is obligatory and free. The seven universities (Basle, Zürich, Berne, Geneva, Lausanne, Fribourg and Neuchâtel) had a total of 12,104 matriculated students in the winter of 1944-45.

Finance.—The franc, the Swiss monetary unit, was devalued about 30% in 1936, so that it contained about 200 mg. of fine gold. It had in 1946 an official exchange value of 23.40 U.S. cents but an actual trading value of 27 or 28 cents or even more; there was talk of raising the official exchange value to 30 cents. Switzerland presented the anomalous spectacle of a dollar-rich country in the midst of a dollar-poor Europe. The Swiss National bank at the end of 1946 had gold holdings of 6,000,000,000, which more than covered the outstanding note circulation. In May, after long months of negotiations, Switzerland finally settled with the Allies a dispute concerning money secreted in Switzerland by Germans for safe keeping during World War II, estimated by the Swiss at \$250,000,000 and by the Allies at thrice that amount. Switzerland agreed to turn over to the Allies half of all German assets which might be uncovered, and would retain the other half to satisfy Swiss claims against bankrupt Germans. In another agreement at the same time frozen Swiss credits in the United States, amounting to \$500,000,000, were released for repatriation under certain restrictions to prevent their having an inflationary effect in Switzerland.

Trade and Communications.—Direct water communications between Basle and the seaports of Antwerp, Belgium, and Rotterdam, the Netherlands, obstructed during World War II by ruined bridges and sunken boats, were reopened in 1946. Prior to the war more than 3,000,000 tons of freight, or about half of Switzerland's imports and exports, passed through the port of Basle. Of this freight 92% was imports, mainly food, coal and other raw materials, and 8% was exports, mainly cheese, textiles, precision instruments and other fine manufactures. By May 1946, the quantity of imports and exports had reached again their prewar level (about 8,000,000 and 700,000 metric tons respectively), and the total value, owing to the rise in prices, exceeded the prewar level. Switzerland had 3,218 mi. of railway, mostly electrified and three main and three local broadcasting stations.

(S. B. F.)

Symphony Orchestras: see MUSIC.

Synthetic Products: see AGRICULTURAL RESEARCH ADMINISTRATION; CHEMISTRY; PLASTICS INDUSTRY; RAYON AND OTHER SYNTHETIC FIBRES; RUBBER; STANDARDS, NATIONAL BUREAU OF.

Syphilis: see MEDICINE; VENEREAL DISEASES.

Syria and Lebanon. Independent republics, formerly French mandated territories, bordering the eastern Mediterranean. Syria: area 73,587 sq.mi.; pop. (est. 1942) 2,800,000; chief town, Damascus (cap.) 225,000. Lebanon: area 3,475 sq.mi.; pop. (est. March 1943) 1,025,000; chief town, Beirut (cap.) 234,000. Language: in Syria mainly Arabic, in Lebanon Arabic, French, Hebrew, Armenian, Greek; religion: (approx.) 66% Mohammedan (mainly in Syria), 33% Christian (Maronites 335,904; Greek Orthodox 245,050; Greek Catholics 109,734; Armenian Orthodox 160,570; Armenian Catholics 26,659; Syrian Orthodox 43,806; Syrian Catholics 21,120; Protestants 21,450) and 1% Jewish. President of Syria (1946): Shukri el Quwatli; of Lebanon: Sheikh Bishara el Khoury.

History.—The British and French agreed to start the withdrawal of their troops from Syria on March 11, 1946, and to complete the operation by April 30. The withdrawal was, however, accomplished by April 15. The Syrian government asked the British to send a military mission to train the Syrian army, but the request was refused for fear of French susceptibilities. In spite of Syrian assurances given in Dec. 1945, French schools were forcibly closed in January. In April Saadullah Jabry, the prime minister, resigned but formed a new government in which he retained the ministry of foreign affairs. The Syrians were understood to have informed the French that they would be treated in Syria in the same way as other powers, as would French schools. The Syrians were prepared to buy up French assets in the country. Diplomatic representatives were exchanged with Turkey in March. Opposition, which was reported in September to have broken out against the government, was suppressed.

As the result of a protest made in January by Lebanon to the Security council of the United Nations regarding the retention by France and Great Britain of troops in Lebanon, both countries agreed to evacuate their forces, Great Britain by June 30, 1946, and France by April 1, 1947. A Lebanese delegation went to Paris to discuss details of the withdrawal. These talks resulted in the French advancing the date of their withdrawal to the end of August, it being agreed that 30 officers and 200 men should remain to supervise the removal of material. At the beginning of June the British reported that all their forces had left with the exception of a small staff which would remain to clear up. A similar French statement was issued at the beginning of September. On Sept. 30 the last of the British forces left. In May allegations of maladministration against three of its members caused the resignation of Sami Bey Solh's cabinet. A new cabinet was formed under Saadi Munla as prime minister and minister of national economy, Gabriel Murr as deputy prime minister and Philippe Tecla as foreign minister. Two papers were suspended in April for criticizing the government and British policy in the middle east. Bombs were thrown at the British and U.S. legations in August and at the U.S. university in Beirut as a protest against decisions taken on Palestine. Diplomatic relations were established with Turkey and Switzerland. A Lebanese delegation, including the president and the foreign minister, visited Turkey in June. In Dec. 1946 a new coalition government was formed, with Riyad bey el-Solh as prime minister.

The following figures apply to both Syria and Lebanon.

Education.—In 1942: state schools 742; Christian schools 811; foreign schools 492; private schools 306; Moslem schools 149. Pupils, Syria 142,015, Lebanon 138,318.

Trade and Communication.—In 1944: imports £ Syrian 80,000,000; exports £ Syrian 34,000,000. Roads (1939) c. 1,900 mi.; railways (1939) 690 mi.

Finance.—Revenue and expenditure (est. 1944) balanced at £ Syrian 48,534,000; notes in circulation (Dec. 1945) £ Syrian 35,770,600; gold reserve (June 30, 1939) £ Syrian 1,400,000. Monetary unit: the Syrian pound (divided into 100 piastres). Rate of exchange, Dec. 1945: £ Syrian=54.3 French francs=45.6 cents U.S.

Agriculture.—1943 (in short tons): wheat 641,630; barley 364,194; maize 24,775; sesamum 5,410; olives 148,000; cotton 2,860; cotton seed 6,710; tobacco (1941) 5,170; oats (1939) 5,940; potatoes (1938) 45,760; wool (1938) 10,890; raw silk (1938) 220; wine (1938) 1,135,200 gal. (See also ARAB LEAGUE.) (D. K. M. K.)

Syrup, Sorgo and Cane. The 1946 output of sorgo syrup was estimated at 12,074,000 gal. compared with 9,850,000 gal. produced in 1945 and an average of 12,213,000 gal. in prewar years. Both acreage and yield were higher than in 1945.

Table I.—U.S. Cane Syrup Production by States, 1946 and 1945

		(In gallons)			
State	1946	1945	State	1946	1945
Louisiana . . .	11,825,000	15,075,000	Florida	1,980,000	2,090,000
Georgia	4,025,000	4,564,000	South Carolina .	420,000	342,000
Mississippi . .	3,500,000	3,520,000	Texas	270,000	260,000
Alabama	2,430,000	2,860,000			

Table II.—U.S. Sorgo Syrup Production in Leading States, 1946 and 1945

		(In gallons)			
State	1946	1945	State	1946	1945
Alabama	1,827,000	1,782,000	North Carolina .	1,215,000	640,000
Tennessee . . .	1,520,000	840,000	Arkansas	1,200,000	825,000
Mississippi . . .	1,400,000	1,680,000	Georgia	689,000	912,000
Kentucky	1,360,000	730,000	South Carolina .	580,000	605,000

Cane syrup production was estimated at 24,450,000 gal. which was below the crop of 1945 but higher than that of any other year after 1937. The acreage was reduced but yields were enough above average to offset the acreage reduction. The weather was generally favourable. (See also BEEKEEPING; MAPLE PRODUCTS.) (J. C. Ms.)

Table Tennis. The International Table Tennis federation, which suspended activities during World War II, was revived on June 22, 1946, by its president, the Hon. Ivor Montagu, after a London conference, with 21 member associations as against 28 before the war. The first world championships for individuals and teams after the 1939 Cairo matches were scheduled for the week of Feb. 25, 1947, in Paris. Because of the eight-year lapse, deaths and population shifts, no accurate gauge of national playing strengths was possible. Problems facing the 14th I.T.T.F. congress included the status of national associations in Germany, Japan, Hungary, Austria, Rumania, Finland and new associations in Russia, Bermuda, Denmark, Greece, Portugal, Scotland and South Africa; proposed participation in the Olympic games, discontinuance of individual world titles and zoning of team matches; paid players; racial and religious discrimination; and a constitutional revision. (C. Z.)

Tahiti: see PACIFIC ISLANDS, FRENCH.

Tai Li (? —1946); Chinese secret police head, was one of the loyal supporters of Chiang Kai-shek from the early days of the Chinese revolution. He studied at the Whampoa military academy when Chiang was commander of the school. During the Mukden incident in 1931, Tai was assigned by

Chiang to create an anti-Japanese undercover group, and he later expanded this organization into a powerful secret service agency. After the Pearl Harbor incident in Dec. 1941 brought the United States into the war, Gen. Tai headed the S.A.C.O. (Sino-American Co-operative organization), a secret service agency allegedly manned by some 70,000 Chinese saboteurs and guerrillas, equipped by the United States. On occasion, S.A.C.O. co-operated with the U.S. Office of Strategic Services. Gen. Tai's ruthless treatment of foes of the Nationalist government was condemned by Chinese Communists and Chinese democratic groups, and when Chungking and the Chinese Communists had reached an agreement on "unity," one of its terms called for dissolution of his organization, which went under the official and innocuous title of the Bureau of Investigation and Statistics. The collaboration between the S.A.C.O. and the OSS for the dispatch of OSS espionage units into Thailand (Siam), in the closing days of World War II, was hamstrung by Gen. Tai, who, according to OSS officers, did not want the OSS to have an "exclusive" espionage pipe line into Siam. On March 17, 1946, Gen. Tai allegedly was among a number of Nationalist government officials who were killed in a plane crash in the mountains, but subsequent reports suggested that he might have been assassinated by his political foes.

Taiwan: see FORMOSA.

Talc. The sales of talc minerals (talc, pyrophyllite and ground soapstone) in the United States increased from 398,863 short tons in 1944 to 401,080 tons in 1945, while mine production fell from 418,228 tons to 401,217 tons. Increased use was reported in ceramics, rubber, roofing, toilet preparations and insecticides, totalling 48% of consumption in 1945, against 42% in 1944. Paint, the largest single use, declined from 28% of the total in 1944 to 24% in 1945.

Canadian production in 1944 included 19,013 short tons of soapstone and 13,584 tons of talc, decreasing to 13,889 tons of soapstone and 13,600 tons of talc in 1945; these figures give totals of 32,597 tons and 27,489 tons respectively. (G. A. Ro.)

Talmadge, Eugene (1884–1946), U.S. politician, was born on Sept. 23 in Forsyth, Ga. After having been graduated from the law school of the University of Georgia in 1907, he practised his profession in Atlanta. In 1927 he was elected state commissioner of agriculture and continued to hold that post until 1933 when he successfully ran for the governorship of the state. After serving two consecutive terms as governor (1933–37) he was defeated in his bid for a seat in the U.S. senate in 1938. In 1940 he was elected governor for a third time. He soon took over control of the state's finances and was accused of dominating the schools. Subsequently pressing for the dismissal of two members of the state's university board system for advocating racial equality, he explained that "I done it to stop them furriners from preaching that niggers and whites should get together." A notorious advocate of "white supremacy," Talmadge was a defeated candidate for the governorship in 1942; his successful opponent, Ellis Arnall, maintained during the election campaign that the issue at stake was "democracy versus dictatorship," and urged the people to support the Arnall administration so that the state "would no longer be the laughing stock of the nation." Talmadge again became a candidate for the governorship in 1946. He attacked the supreme court ruling which upheld the rights of Negroes to register and vote in April 1946, declaring that if he were elected, he would amend the state primary laws, thereby circumventing the decision. In the 1946 election for governor he polled fewer popular votes than his opponent but won the

seat by means of the Georgia county-unit rule system. A governor-elect, he died at Atlanta, Ga., Dec. 21.

Tanganyika: see BRITISH EAST AFRICA; MANDATES.

Tangerines: see FRUIT.

Tanks, Military: see MUNITIONS OF WAR.

Tariffs. Such changes as were made in the tariff systems of the world during 1946 were not only of minor consequence, but they were also of materially less importance in their social and economic implications than were measures undertaken during the year to establish a working basis for future international economic collaboration. Because of the exigencies of World War II, customs duties had probably been employed as instruments of commercial policy less during the period of hostilities than during any comparable period in at least three decades. Although actual hostilities had ceased, the postwar supply situation during 1946 was sufficiently acute throughout the world that the emphasis in many countries continued to be on the control of exports rather than imports. With the prospects of a revived world trade, however, and with the presence of warborn industries in various lands, there was renewed pressure in many countries to adopt restrictive import duties for the benefit of selected domestic enterprises or individual interest groups. These pressures met with only minor success during the year; nevertheless, they constituted important obstacles to the more basic attempts to revitalize multilateral trading through the elimination of the many barriers which had served as continuing restrictions on the volume of world trade.

Thus, while 1946 probably would not be remembered for any noteworthy change in the tariff policies of the important trading nations, the year might ultimately have historic significance because of the beginning which was made toward a broader and freer exchange of goods and services among nations. During World War II the United Nations, particularly through the Atlantic charter and the lend-lease agreements, had committed themselves to a program for promoting world prosperity and facilitating the maintenance of peace. They had thus pledged themselves to seek means for achieving a wider multilateralism of trade through the elimination of trade barriers and the rejection of such instrumentalities of economic warfare as heightened tariffs, embargoes, quotas, exchange controls, multiple currencies, export subsidies, trade discriminations and bilateral agreements. Similar commitments were embodied in the Anglo-American Trade and Financial agreement in 1946. The more important steps during the year to achieve these objectives were the establishment of the International Monetary fund and the International Bank for Reconstruction and Development (*qq.v.*) and the proposal for an international trade organization.

Both the Monetary fund and the International bank were created in response to the Bretton Woods proposals in 1944. The fund was designed to eliminate currency and foreign-exchange difficulties of the type which had obstructed world trade during the interwar period. Member countries undertook through the fund to maintain stable exchange rates, to avoid competitive and discriminatory monetary and exchange practices and, so far as possible, to make their currencies freely convertible. A common pool of monetary resources was established to meet temporary shortages of exchange and to assist members during emergencies.

The resources of the Monetary fund were not available, of course, to finance capital investments and long-term transactions. Hence, a companion institution was created to render such assistance to nations. The International Bank for Recon-

struction and Development had an authorized capital of \$10,000,000,000 subscribed by the member countries. Subject to the provisions of its carefully drawn Articles of Agreement, the bank was in a position to promote the postwar rehabilitation of nations and, therefore, to further orderly economic development. The bank's official statement of purposes was as follows: (1) to assist in the reconstruction and development of territories of members; (2) to promote private foreign investment by means of guarantees or participation in loans and other investments made by private investors; (3) to promote the long-range balanced growth of international trade and the maintenance of equilibrium in balances of payments; (4) to conduct its operations with due regard to the effect of international investment on business conditions and to assist in bringing about a smooth transition from a wartime to a peacetime economy.

In addition to these measures of international co-operation there was still need for more direct action to eliminate trade barriers and to establish "rules of the game" to facilitate world collaboration on a multilateral trading basis. In Feb. 1946, therefore, the Economic and Social council of the United Nations adopted a resolution calling for an international conference to consider the creation of an International Trade organization (I.T.O.). The council also created a Preparatory committee representing 19 nations to arrange for the conference, to prepare an agenda for its deliberations and to draft a charter for the proposed organization. When the Preparatory committee met in London in Oct. 1946, the U.S. delegates brought with them a proposal for co-operative action (Suggested Charter for an International Trade organization) designed to break down trade barriers and expand world trade.

The proposed charter was given painstaking scrutiny in London, where a number of important modifications were made. The final draft agreed upon for submittal to the delegates of the United Nations constituted the proposed charter for the I.T.O.; it embodied a code of international trading principles and provided that the International Trade organization should constitute an agreement among the signatory powers to:

1. Reduce trade restrictions and discriminations imposed by governments.
2. Eliminate restrictions on trade imposed by private business groups.
3. Prevent, by intergovernmental action, disorder in the markets for certain primary commodities.
4. Seek full employment by co-operative action rather than by conflicting nationalistic measures which in the past had failed to accomplish their employment objectives and had further restricted international commerce.
5. Establish an international organization (the International Trade organization) to administer the world trade charter and to provide an effective forum for future negotiation of problems relating to international commerce.

In anticipation of the actual signing of the charter of the new International Trade organization, the United States in Nov. 1946 announced its intention to pursue still further its reciprocal trade agreements program by negotiating on a scale much more comprehensive than in the past. The United States indicated that early in 1947 it would seek most-favoured-nation agreements providing reciprocal reductions in tariff duties and modifications of other barriers. It was also suggested that, should these negotiations prove successful, multilateral concessions among the other negotiating countries might be agreed upon to facilitate a general reduction of trade barriers throughout the world.

As was the case in the previous year, 1946 was substantially a standstill period as far as actual tariffs and related instruments of commercial policy were concerned. Again there were virtually no important modifications of tariff schedules throughout the world; there were, however, many piecemeal changes, usually unimportant, raising or lowering the rates of duty for specified import items. So also as in 1945, these scattered changes displayed no decided pattern nor trend; modifications

providing for increased rates of duty, however, appear to have been somewhat more prominent than those establishing lower import charges.

Perhaps the closest to an over-all revision of a country's tariff schedule were the actions taken by Siam and Costa Rica. In May 1946 Siam revised its tariff increasing the levies on most dutiable items. In September Costa Rica reprinted its schedule and consolidated with the basic duties numerous surcharges previously in effect; to provide additional revenue duties on most items in the schedule were increased.

During the year Argentina, Colombia, Panamá and Peru instituted initial measures to effect comprehensive revisions of their import tariff schedules; the first three of these countries indicated an intention, among other changes, to model their tariffs after the nomenclature and classification recommended by the League of Nations.

Less extensive upward revisions of duties were made in a few other countries. With the termination of the trade agreement between Argentina and the United Kingdom (1936) in Feb. 1946, Argentina increased its duties on nearly 300 tariff items on which concessions had previously been granted to the United Kingdom and generalized to other nations on a most-favoured-nation basis. Ecuador, Panamá and Paraguay increased import duties, in effect, by increasing an import surcharge usually designated as a consular fee. Paraguay imposed an additional surcharge of 6% ad valorem on a substantial list of items described as nonessential imports. For the stated purposes of conserving foreign exchange, increasing government revenue and providing for a more equitable system of taxation, Mexico, in Jan. 1946, approximately doubled its duties on imports of nearly 350 luxury commodities. Three countries in Europe also made substantial upward revisions. By a royal decree in July 1946 Belgium increased its tariff on a long list of imports including paper products, cutlery, scientific instruments, various manufactured tools, electrical machinery, calculating machines, typewriters and cash registers. Finland, which had previously imposed a surtax of 200% of the rates in its basic schedule of 1938, increased the surtax to 300% for most dutiable items. Special licence fees, not to exceed 5% ad valorem, appear to have been imposed on virtually all imports into the Netherlands. In March 1946 Iran imposed a surtax of 10% ad valorem on most imports. A variety of measures of lesser importance provided for increases of duty on scattered individual items in a few other countries.

Although there were numerous changes lowering tariff rates on individual import items in various countries, these modifications were usually of minor importance and scarcely merit elaboration. In two countries, however, the changes, though temporary, were quite far-reaching. Czechoslovakia and Poland temporarily suspended duties on most imports; both of these countries maintained import-licencing systems. (See also INTERNATIONAL TRADE.)

(D. LH.)

Tarkington, (Newton) Booth (1869-1946), U.S. author, was born on July 29 in Indianapolis, Ind. For his early career see *Encyclopædia Britannica*. The gentle humour and the restrained and delicate sentiment pervading his novels of boyhood adventure, adolescent love and family life were widely enjoyed by U.S. readers. Tarkington's earliest books were sentimental romances. Later he returned to portray his native Indiana scene and *Penrod* (1914) and *Seventeen* (1916), both concerned with juvenile heroes, established him a reputation as an expert on the pranks of boys and adolescents. Regarded as examples of Tarkington at his best are *The Magnificent Ambersons* (1918) and *Alice Adams* (1921), both of which won Pulitzer prizes.

He was awarded the gold medal of the National Institute of Arts and Sciences, 1933, and the Howells medal of the American Academy of Arts and Letters, 1945. During his writing career, which spanned 47 years, he wrote some 40 novels, many of them best-sellers, and about 20 plays, on some of which he collaborated with Harry Leon Wilson, E. G. Sutherland and Julian Street. His later works include *The World Does Move*, an autobiography (1928), *Little Orvie* (1934), *The Fighting Littles* (1941) and *Kate Fennigate* (1943). Tarkington was finishing another novel when he died in Indianapolis on May 19.

Tasmania. A state of the Australian commonwealth, forming an island 26,215 sq.mi. in area to the south-east of the mainland, from which it is separated by 140 mi. of Bass strait. Pop. (est. June 1945): 248,063. Chief cities: Hobart (cap., 70,800); Launceston (est. 40,000). Governor (1946): Admiral Sir Hugh Binney.

History.—The Labour administration under Premier R. Cosgrave remained in office during 1946. One of the chief concerns of the government was to attract new industrial enterprises to the state and with this object in view several extensions of the hydroelectric power scheme were sanctioned. The aluminum production commission chose a site for the establishment of the production of aluminum ingots and the general development of Tasmania's bauxite resources, which were known to be extensive. The initial outlay for the purchase of plant, etc., amounted to approximately £A3,125,000. Expenditure on public works during 1944-45 totalled nearly £A938,000, an increase of 50% on the previous fiscal year. Of this sum £A359,375 was spent in Tasmania by the Australian shipbuilding board.

Education.—In 1941: number of schools (state) 424, (private) 63; teachers (state) 1,273, (private) 329; scholars (state) 33,354, (private) 6,886; average attendance (state) 27,457, (private) 5,320.

Finance.—Revenue (1944-45) £A3,656,875; expenditure £A3,675,931; public debt (June 30, 1945) £A30,323,125. (£A1 = \$3.2 U.S.).

Communication.—Roads (1940) 9,386 mi.; railways, government (1945) 642 mi.; private 130 mi. Motor vehicles licensed (Dec. 1945): cars 17,172; commercial vehicles 7,331; cycles 3,044. Wireless receiving set licences (Dec. 1945) 50,720. Telephones (June 30, 1941) 19,565.

Manufacturing.—(1944-45) factories 1,006; employees 10,511; gross value of output £A21,356,667; unemployment (trade union returns) (Feb. 1946) 1.7%. (W. D. MA.)

Taxation. **United States.**—In 1946, for the first time after 1931, there was neither a federal revenue act nor important federal tax legislation. Congressional debate and action upon such matters as general revision of the internal revenue system remained for 1947 and later years. Yet 1946 saw interesting and significant developments in the national tax field.

Excess Profits Tax.—When suspending the wartime excess profits tax for years after 1945, congress continued, for 1946 only, computation of unused excess profits credits as though the tax were still in force and allowed carry-back of such credits to obtain decrease or refund of excess profits tax for prior years. This averaging up of an unproductive transition year with productive war years effectuated an established plan to counterbalance loss of corporate earnings during reconversion. Also to help reconversion congress accelerated the 10% postwar refund of excess profits tax paid, making the refund bonds payable at the owner's option on or after Jan. 1, 1946. Labour leaders indignantly attacked these procedures as an unfair subsidy to their opponents in the current labour-management controversy and inflated assertions were made of amounts payable.

More accurate understanding generally spread, exaggerations died down and the relief provisions operated as planned. While the total sums involved could not be accurately stated at the close of the year, outstanding excess profits tax refund bonds aggregated nearly \$1,028,000,000 as of June 30, 1945.

The extreme rigour of the excess profits tax necessitated insertion of special relief provisions to keep it from having a ruinous or crippling effect in exceptional cases. Taxpayers charged the internal revenue bureau with illiberal, dilatory and disingenuous administration of the relief provisions. These charges grew to great volume and reached an effective climax in hearings before the Congressional Joint Committee on Internal Revenue Taxation during the first half of 1946. The bureau ultimately proposed, and the joint committee approved, establishment without further legislation of an Excess Profits Tax council and initiation of procedure for excess profits tax relief which was plainly intended to be more flexible, franker and generally more satisfactory. Men of outstanding ability were placed on the council. They and the tax court, where test cases on relief are finally adjudicated, faced a long, hard job involving sums running literally into the billions.

The Courts and Federal Taxes.—A well-established, simple tax under proper statutory authorization and administration should give rise to little litigation. The federal internal revenue system of the United States was being better administered. But with the vast elaboration of modern society it became almost fantastically complicated and the lumbering legislative processes of congress did not systematically or speedily correct ambiguities and omissions revealed in application of the internal revenue code. The result was a great deal of litigation, making the judicial attitude toward taxes abnormally important to taxpayers.

Judicial Attitude.—Irrked by inadequacy of specific provisions in the internal revenue code, the United States supreme court, and by its suggestion some of the lower federal courts, took much specific affirmative action by virtue of what they deemed the general tenor of the code. Such action was particularly notable from about 1939 on, raising questions as to proper apportionment of functions between congress and courts in the revenue field. Concededly, a judge, acting upon a general statute, is not rigidly restricted to specific instances enumerated therein but should apply the legislature's principles to the *types* of situations it had in mind. Yet a judge should not extend such a statute, even to reach what he is sure would be a just result, unless certain that the legislature would have gone to that length if faced with the particular case to be decided. Also, with respect to interpretative enlargement of tax laws, the U.S. constitutional provision that "All Bills for raising Revenue shall originate in the House of Representatives . . ." embodies a deep-rooted Anglo-U.S. tenet that scope of taxation is to be determined by popularly elected legislators, not by the executive nor an appointive judiciary.

Adverse critics of the judicial practice of implying specific tax liabilities from generalities in the code urge that development of rules by this method is too haltingly irregular. A court can decide, one by one, only the particular cases brought before it and therefore leaves taxpayers long uncertain as to related cases which legislative draftsmen would foresee and cover in a single enactment. It is further said that judicial lawmaking is too rigid for use in the tax field, where policies must shift with considerable frequency and experiments must be tried and often abandoned. Courts are not authorized to enunciate tax policies, but only to interpret and apply tax laws. Also they are expected to adhere to the rules they announce, rather than to experiment and retract. Hence, under their practice of affirmative action they sometimes multiplied contradictions and

doubts instead of curing them, by laying down fixed lines of decision diverging either initially or later from concurrent congressional action on related matters. Supporters of affirmative action by the judiciary, however, justly urged that congress has power to cure undesired divergence by corrective legislation, and that the courts are taking care of many specific situations urgently calling for attention and not receiving it from the legislature.

For instance: (1) If F, a father, buys a bond, has it appreciate in his hands and gives it to S, his son, who turns the appreciation into a profit by selling the bond, the profit is taxable to S. This is a congressional rule, long embodied in an express provision of the code. (2) But if F tears unmatured coupons from the bond and gives them to S, who collects the coupon interest in the year of gift, F must pay income tax on the interest for that year. That is a 1940 court-made rule, there being no express provision in the code. (3) So if F, who has completed his work under an insurance agency contract, assigns to S all his rights in the contract, and S long afterward receives commissions under the contract because of payment of renewal premiums, the amount of these commissions is taxed to F in the year of their receipt. (4) Likewise if F, holder of a promissory note carrying overdue interest, gives the note to S, who collects the overdue interest in the year of gift, F must under a 1946 decision return the amount of the collection for income tax. (5) But if F dies, owning such a note, or owning a bond with unmatured coupons, and S, receiving the note or the bond under F's will, collects the interest, it is taxable to S. This is according to an express provision of the code enacted in 1942. From 1934 to 1942 interest or other income accrued to F at the date of death, and later collected, was taxable under the code to F in the last tax period of his life. Congress decided that this rule inflicted undue hardship and changed it. Finally, (6) if H, a husband, lives with W, his wife, in California or Washington, where the community property system prevails, H is taxed on only half his earnings, W being taxed on the other half; but (7) H and W, living in a noncommunity state, can in no way so divide H's earnings as to relieve H from tax on all the earnings. Both these rules were court made, and there was no likelihood that the courts would change them, despite the tax disparity thus created between inhabitants of different parts of the United States.

The attitude of Justice Harold H. Burton, and still more of Chief Justice Fred M. Vinson, on this important governmental problem was being watched with interest.

Dobson Case.—Overwhelmed by the load of internal revenue litigation, the supreme court in Dec. 1943 decided the Dobson case. This gave the tax court's determinations much more finality in internal revenue cases than determinations of the court of claims or the district courts. Although only a trial tribunal, the tax court was thus to some extent made supreme. The Dobson ruling is a statutory interpretation, fixed by the supreme court without hearing argument, as counsel had not discussed the point. Justice Felix Frankfurter in 1946 termed it "a brave effort"; Dean Erwin Griswold of the Harvard law school, a leading authority, also in 1946 called it "a *tour de force*." Both of course may be right, but the ruling seems not to have simplified or accelerated consistent final decision of tax cases. Several 1946 decisions show it forced on circuit courts of appeals different standards for review of controversies appealed from the tax courts on one hand, and from district courts and courts of claims on the other, thus making victory too often depend upon lucky choice of the tribunal in which to begin the case. The supreme court divided several times in practical application of the Dobson rule, and in 1946 simultaneously sustained two seemingly contrary decisions by two different members of the



"IN THE FIGHT AGAINST INFLATION." Drawn by Justus of the *Minneapolis Star* during 1946

tax court without indicating any intelligible harmonizing factor. Congressional establishment of a general federal court of tax appeals might meet the unsolved difficulty, but many tax lawyers disapproved this expedient.

Treasury Regulations.—In 1940, again in 1941 and perhaps on other occasions, the supreme court suggested a different attack on the problem of tax uncertainties and consequent judicial overload. This was that the treasury should by "appropriate regulations" resolve ambiguities and fill gaps in the code, apparently making such regulations as to tax incidence, even if beyond the explicit language of congress, authoritative unless irreconcilable with the fair meaning of that language. The treasury moved cautiously on the hint, but once in 1941 and more often in 1945-46 did issue regulations which were little codes about certain classes of tax problems. These were attacked and defended. Their provisions were not altogether consonant with earlier judicial decisions, and during 1946 the tax court asserted power to disregard the regulations in at least some cases where it preferred its own views.

International Conventions.—Prior to 1946 the United States had entered into conventions with Canada, France and Sweden to ease the burdens of double taxation and prevent fiscal evasion. The arrangements with Sweden covered income taxes; with Canada both income and death taxes; with France income and certain related taxes. During 1946 a modifying convention with France respecting income taxation was signed, as was a death tax convention; ratification had not been accomplished at the close of 1946. Also during 1946 conventions with Great Britain and Northern Ireland, signed in 1945 and covering both income and death taxes, were ratified and proclaimed effective (from Jan. 1945 in case of United States tax). A tax convention with the Union of South Africa was signed Dec. 13, 1946. In addition, 1946 saw income tax conventions with the Netherlands, Belgium and Luxembourg drawn up and negotiations opened with these countries respecting death taxes.

Negotiations on the same topics were expected to begin with the Philippine government during Jan. 1947.

Prospective Tax Revision.—During the 1946 election campaign Republicans emphatically promised large and quick reduction of federal taxes if they won. They did win, but President Truman precipitated the tax-cutting issue by proclaiming official cessation of hostilities at noon Dec. 31, 1946. Unless counteracted or accelerated by congress as to tax effects, this meant sharp reduction of many wartime excise rates from July 1, 1947. The president in his state of the union message on Jan. 6, 1947, recommended continuance of the higher rates through June 1948. Meanwhile the Republicans had not fully settled on anything so simple as the 20% individual income tax cut forecast during the campaign. Reductions might be more selective and less drastic. From discussion in the treasury, congress and elsewhere some judgment could be formed as to other revenue matters due for scrutiny. They included: (1) revision of corporate taxes, with special attention to the complex problem of "double taxing" dividends as contrasted with interest, by reason of the latter's deductibility from gross corporate income; (2) taxation of U.S. business abroad—foreign branches, foreign establishments, western hemisphere trade corporations and so on—obviously a matter of increasing importance; (3) income averaging over periods longer than single years, a technique desirable to equalize consequences of progressive rates and already permitted in limited ways but very difficult of sweeping application, as long experience abroad proved; (4) treatment of family income, notably some equalization of the variant tax burdens on married couples living respectively in community and noncommunity property states and (5) more consistent and simple interaction of estate, gift and income taxes. As indicated above, fundamental administrative problems pressed for effective consideration. Among them were apportionment of functions to congress, treasury and courts, with particular reference to treasury regulations and practice, powers of the tax court and possible institution of a single federal court of tax appeals; and better control of ingenious devices for tax avoidance constantly nurtured by necessary continuance of an expanded high revenue system, such control perhaps being furthered through over-all antitax-avoidance legislation substituting flexible principles for meticulous detailed loophole plugging.

State and Local Taxes.—Only about 15 state legislatures passed significant tax acts in 1946, whereas at least 44 would have and probably would take opportunity to do so in 1947. Nonetheless, 1946 produced a large bulk of state and local revenue laws. During the year the process of transition from governmental war economy moved far. Postponed capital expenditure was begun, deferred maintenance had to be made up, large extraordinary expenses such as veterans' bonuses imposed their weight and the universal pressure for higher pay was felt in public service.

Because of differing legal and economic conditions the picture varied state by state. Massachusetts, with an antiquated fiscal system, exhausted its modest surplus (at maximum perhaps \$19,000,000) and searched for new revenue sources. Extension of special taxes on corporate income was necessary to finance an enlarged veterans' bonus. Meanwhile, Boston and other Massachusetts municipalities were in growing fiscal difficulty. Serious talk began of reallocation of expenses between state and local governments, for relief of the latter. Higher state revenues during the latter half of 1946 did not suffice to promise solution under the existing system. Gov. Robert F. Bradford at inauguration Jan. 2, 1947, warned of an over-all \$75,000,000 deficit.

New York had piled up a large surplus (nearly \$186,000,000

on March 31, 1945) and had modernized its fiscal arrangements both as to revenue collection and control of expenditure. In 1946 the New York legislature reduced by 50% personal income taxes for 1945 and for fiscal periods ending in 1946; it also reduced business corporation franchise tax rates and tax rates on unincorporated businesses. New York city, however, was hard put to it financially; under legislative enablement it imposed a nominally temporary tax on transient occupancy of hotel and lodginghouse rooms renting for more than \$2 daily, and extended, at double existing rates, city gross receipts, sales and use taxes.

Missouri, while increasing personal income tax exemptions, enacted a 7% excise income tax on banking institutions in lieu of the bank share tax and the tangible and intangible personal property taxes; also a 4% tax on the yield of intangible personal property. New Jersey enacted a financial businesses tax based on allocated net worth, and in lieu of franchise tax, etc. Oregon by a heavy majority voted down an initiative petition to tax sales and gross incomes 3% for the purpose of providing persons more than 60 with pensions of \$100 per month.

In various parts of the country there were manifestations of fiscal difficulty among the municipalities. St. Louis, Mo., and Toledo, O., imposed low-rate taxes on earnings and profits. Many California cities (*e.g.* Los Angeles, Oakland, San Diego, Santa Monica) enacted sales taxes. San Francisco voted down a sales tax, and the proposed Denver, Colo., sales tax failed to pass, but both cities remained in urgent need of revenue. Salt Lake City, Utah, announced consideration of a sales tax.

By popular vote Illinois approved a bond issue of \$385,000,000 to pay a veterans' bonus, the bonds to be retired in 25 years primarily by additional taxes on cigarettes and pari-mutuel betting, a state property tax levy to cover any deficiency. Michigan and Rhode Island also approved bonuses. Tax exemptions were provided in veterans' favour; *e.g.*, in Louisiana and New York.

During 1945 and early 1946 the states felt considerable apprehension as to the effect on their revenues of the United States supreme court's decision in 1944 that interstate insurance transactions constituted interstate commerce. Congress provided some reassurance in 1945 by the McCarran act, but both constitutionality and scope of this law remained in doubt pending decision of test cases under it. The supreme court decided two such cases in June 1946, with results satisfactory to state governments, whose power was sustained to tax and regulate and to differentiate treatment of domestic and foreign insurance companies.

Canada.—Unlike the United States, Canada during 1946 made such extensive changes in the dominion tax structure that only a partial outline can be given. Personal income tax, to be calculated under a new simplified schedule of graduated rates rising from 22% to 85%, was reduced by increasing exemptions (income deductions) from \$660 for single persons to \$750, and from what was in practical effect \$1,200 for married couples without children to \$1,500. This was estimated to cut from the rolls one-quarter of the total number of personal income tax payers. The marital exemption of \$1,500 utilized by the husband is reduced by the wife's income between \$250 and \$750; when the wife's income as well as the husband's exceeds \$750, each is dealt with for exemption purposes as a single person. In effect, this reduces the exemption incentive to gainful work by most married women from the wartime level of \$660 to \$250. The deduction because of each child eligible for family allowance is \$100; for each dependent not so eligible \$300. This will make acceptance of the family allowance plan practically universal; previously it was not so, as any accepting taxpayer had to repay an amount roughly corresponding to income tax credit for each eligible child. Farmers and fishermen are given the optional benefit of paying income tax on the basis of a three-year moving average, the first average to be built up in 1946-48.

The total ordinary flat-rate tax burden on corporate income is reduced from 40% to 30%; taxation of excess profits, reluctantly continued despite weaknesses and limitations, is confined to corporations and joint stock companies with the rate reduced from 20% to 15%. The broad exemption of co-operatives from income tax is removed, but with a provision for limited deduction of patronage dividends along lines recommended by the McDougall commission.

Dominion succession duty rates are doubled, with a provision for deduction from tax up to half its amount for like duty paid any province.

The utility of this provision to a taxpayer obviously depends not only upon relative rates but also upon relative values at which dominion and provincial taxation begin. The changes just noted are a move toward having the succession duty field put in exclusive occupation of the dominion government.

In most important respects the legislative changes became effective as of Jan. 1, 1947. Finance Minister James Ilsey estimated the annual cost to the dominion government at \$266,000,000.

An income tax appeal board and an income tax advisory board were established, the first to hear appeals from assessments, the second to hear and advise upon taxpayers' objections to the exercise of ministerial discretionary powers.

Progress was made toward agreements between the dominion and five of the nine provinces as to temporary withdrawal by the latter from certain tax fields. Saskatchewan, if the provincial legislature approved, was to withdraw from income, corporation and succession taxation for five years beginning April 1, 1947, in exchange for a \$15 per capita subsidy from the dominion. In respect of Manitoba and New Brunswick, negotiations were concluded but without official release of details at the close of 1946. As to Alberta there was exploratory discussion, and as to British Columbia deliberations began late in Nov. 1946.

Great Britain.—As the British budget was moved nearer to balancing, the government cautiously and systematically extended tax reliefs begun in 1945. At large, the changes of 1946 were less impressive than those of the preceding year, with the possible exception of termination of excess profits tax from Jan. 1, 1947. Even this change, as Chancellor of the Exchequer Hugh Dalton remarked, had its counterbalance; 50% of the loss by repeal came back in income tax and surtax. Total net revenue loss for 1946-47 from the changes was estimated at £32,000,000 or \$128,000,000, and much more for a full year. Not all the revisions led to loss of revenue, as appears from the following summary:

Some adjustments of detail were made in customs duties; both exemption from, and the lower scale of rates under, entertainments duty were extended; at considerable cost to the revenues the purchase tax was eased as of April 10 and July 22, 1946, both by exemption of numerous articles in common use and by application of lower rates, these changes including remission of tax on acquisition by visitors, etc., of motor vehicles for export.

Income tax reliefs included exemption of workers' contributions to national insurance, the sacrifice of revenue here being substantial and resulting from increase as higher rates of contribution become payable; correspondingly, payments of benefits and of family allowances except lump-sum payments were made chargeable for income tax. To encourage gainful work by married women, the special allowance for a wife's earned income was increased (contrast the Canadian reduction noted above) from a maximum of \$320 (£80) to a maximum of \$440; also to encourage industry, the general earned income relief, while not increased beyond the current \$600 maximum, is to be calculated up to that limit at the rate of one-eighth of earned income, instead of the former one-tenth. The total number of persons expected to be completely freed from income tax by these three alleviations was estimated at about 500,000 in a full year. The chancellor stated that during 1946 a married couple with two children and an earned income of \$2,400 would pay \$336 tax as contrasted with more than \$484 in 1945.

Income tax postwar credits for 1941-44 are on application to be released after Aug. 1, 1946, to "the old warriors, the veterans of industry," namely men more than 65 and women more than 60.

Estate duty, the most important of British death duties, was modified as of April 10, 1946, by increase of the exemption limit from \$400 to \$8,000 and regrading of the progressive rate scale to give partial relief to all estates between \$8,000 and \$30,000, to hold the tax on estates from \$30,000 to \$50,000 and to increase the tax on estates more than \$50,000, the scale rising to a maximum of 75% as compared with the previous 65% on estates from \$8,000,000 up. Here the estimates were: total annual deaths about 600,000; about 200,000 subject to estate duty with previous exemption and rates; only about 50,000 subject to estate duty with new exemption rates; only about 10,000 subject to increased tax by the change; but, because of the large aggregate of capital involved in the category last mentioned, total gain to the revenue from the remodelled duty of \$88,000,000 in a full year.

Although, as stated above, excess profits tax was terminated, the national defense contribution of 5% on profits prior to distribution was continued and renamed "the profits tax" from Jan. 1, 1947. The change of name obviously implied comparative permanence.

Other Countries.—From 1945 European and Asiatic countries struggled, some with greater success, others with less, through the troubled conditions between active war and established peace. Their tax systems attest this struggle.

Sweden.—Never an actual belligerent, Sweden was still forced to adjust its fiscal policies to the costs of war. To the state income and property tax and the special graduated property tax of peacetime were added: (1) the graduated defense tax, a superstructure keyed in with the taxes previously mentioned; (2) the general turnover tax, a rarity in Scandinavia and unfavourably received and (3) a war profits (or excess profits) tax with rates of 50%-70% calculated by a complex process. All political parties agreed that the tax last named should be repealed as soon as possible. The labour parties contended that the turnover tax should be next to go, whereas industrialists wished to get rid of the defense tax, the principle of which the socialists desired to retain. A committee on tax revision was appointed to study the problem.

Switzerland.—The Swiss confederation, also nonbelligerent, enacted during the war a number of indirect taxes and—by exception to theoretically normal constitutional practice—several important direct taxes, the latter including a wartime excess profits tax with rates of 50%-70%. All the confederation taxes after 1940 rest on the power of the federal council to determine new taxes in extraordinary times without recourse to the people but subject to requirement of report to parliament. Some of the war taxes terminated with or before the end of 1945. The complex, burdensome and often unfair excess profits tax was marked for early repeal. A new general regulation along normal lines was in preparation to continue the fiscal system on expiry of the extraordinary tax pro-

visions. The detail of Swiss wartime taxation interestingly reflects the burdens cast upon Switzerland not merely for self-protection but also for care of refugees and in general because of its position as an international cross-roads. Weight of taxation enhanced tax avoidance, and one of the war taxes (*l'impôt anticipé*) was essentially a measure against fraud as applied to taxpayers with Swiss fiscal domicile, being refundable to those correctly declaring their taxable revenues.

The Netherlands.—Not only did the Germans invade and occupy the Netherlands, but they intended to make the country part of the reich. Hence, during the war the Dutch fiscal plan was bent more and more into accord with German practice. Return of the revenues to a Dutch pattern therefore required detailed study. After the war the Netherlands imposed a 25% capital levy and a 50% tax on increases in capital position between the outbreak of war and the liberation, the latter tax rising to 90% where increase was because of "illegitimate activity."

Belgium.—Invaded and occupied for years, Belgium took steps by blockage, required declarations or returns and otherwise to control the financial situation as rapidly as the Germans were forced out. Late in 1944 a tax was proposed resembling the Dutch tax last mentioned above. This went through variations and was enacted in Oct. 1945, as a sort of retroactive excess profits tax covering the war period and payable Jan. 1, 1946, with interest charges, etc., for delay.

Germany (United States Zone).—The German national government, physically shattered by the war, was also further broken up for the time being by the zone system of occupation. Administrative co-ordination of the United States and British zones necessarily falls far short of re-establishing a nation. Hence, the tax questions arising under occupation were largely local in nature. Usurpation by the former central government of the taxing and borrowing powers of lower units of government produced a condition which forced the occupying authorities to redistribute taxing powers and utilize decentralized remnants, fortunately substantial, of the former administrative system. Tax yields were so low in 1945 as to necessitate in 1946 reorganization and drastic stiffening of rate schedules by the Allied Control Council, with changes in bases, exemptions, methods of payment and so on. The average effective tax rate, excluding income taxes, was estimated in consequence to have become triple that of 1933-37. The result in the United States zone was a considerable, although not spectacularly reassuring, increase of tax collections.

Japan.—While Japan suffered extremely heavy damage during the latter part of the war, its main islands were not subjected to land invasion and the central government continued to function. The Japanese tax picture, however, was unfavourable, both because of the country's general condition and because the revenue system had been ill planned and ill administered. Broadly speaking, taxes tended to be regressive in incidence, bearing too heavily on wage and salary earners. There was much evasion and avoidance.

The various ordinary levies are familiar in general type—income taxes, business taxes, land and house taxes, death taxes, a number of excises and customs duties. Pressures of the North China Incident led to an extraordinary excess profits tax on corporations and individuals, the rates of which rose as the war developed. Some ordinary taxes—e.g., the land tax, the total yield from which is large—are nationally administered with proceeds distributed to local governments, which also impose directly a variety of independent taxes, generally consisting of surtaxes on nationally levied taxes. Most important of national taxes was the individual income tax, in 1946 supplying about half the national tax revenue. It included a normal tax, intricately classified and with some elements of progression, and a composite, progressive surtax covering four of the eight major normal tax income classes. Incomes of the members of a household are aggregated for tax computation, with liability proportionately distributed to the individuals concerned. Corporate income tax, also important, yields about one-sixth of the national tax revenue. Inheritance taxes apply to transfers between relatives and not to transfers to unrelated persons. A feudalistic element appears in separate classification of inheritance involving succession of a household.

The occupying authorities planned tax revision for increased revenue and greater equity. The plans included at the end of 1946 pay-as-you-go individual income tax, effective enforcement of requirements for individual returns, provision for averaging in income taxation, substitution of an integrated gift and estate tax for inheritance taxes and wide simplification of the tax system. Revision was also desired to tax out of existence the major part of war insurance and indemnity claims against the government.

An extraordinary program prepared on request by the finance ministry was modified after adjustment of many differences and much unfortunate delay extending opportunities for evasion. Among the objects of this program were curbing inflation, raising revenue for emergency demands of occupation and rehabilitation and redistributing national wealth to strengthen the weak middle class. Pursuing the program, the diet on Oct. 11, 1946, passed a capital levy at heavy progressive rates on larger family fortunes. Filing was to continue through Jan. 1947, full payment to be made one month after filing. Enforcement of such a levy obviously involves enormous difficulty in valuation, collection and sundry administrative detail. The present law contained a shrewd provision that in case of disagreement as to valuation of property, the government might buy from the taxpayer at his appraisal, paying in national bonds. If the levy fully attained expectations, it would absorb approximately 10% of Japanese private wealth as of March 1946. (See also BREWING AND BEER; BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; LAW.)

Eire.—In the 1946-47 budget, the standard rate of income tax was reduced from 7s.6d. to 6s.6d. in the £, at a cost of £1,600,000 in a full year. Excess profits tax was abolished as from Jan. 1, 1947. The excise and customs duties on sugar were lifted, but an extra duty of 12s.6d. per proof gallon imposed on whisky, and a 100% ad valorem duty on wines were estimated to yield £300,000. Total estimated revenue from taxation was £48,200,000.

France.—The 1946 budget removed anomalies in the assessment of married couples under income tax; abolished two indirect taxes on sugar and on salt (*gabelle*) and steeply raised duties on spirits. Total budget

receipts were estimated at Frs.373,000,000,000 (\$3,133,200,000) of which Frs.245,058,000,000 (\$2,058,487,000) had been collected during the first eight months of the year. These figures included, however, an appreciable amount of revenue other than taxes. The principal taxes produced the following amounts during the first eight months of 1946; direct taxes Frs.42,959,000,000 (\$350,855,000); stamp taxes and registration fees Frs.16,966,000,000; among indirect taxes, turnover tax produced Frs.63,391,000,000 (\$522,484,000). The nonrecurrent "national solidarity tax" (in reality a capital levy) had produced Frs.32,451,000,000 (\$212,588,000) during the same period and was known to have exceeded Frs.50,000,000,000 (\$440,000,000) at the end of 1946. In an economic and financial inventory published in Dec. 1946 by the French ministry of finance great stress was laid on the lag between tax receipts and the inflationary increase in prices and earnings and on the unequal fiscal burden borne by the different branches of the economy, in particular the insufficient taxation of agricultural profits.

India.—The budget for 1946-47 gave relief to the small individual income tax payer by reducing the rate in the lower ranges and increasing earned income allowance, while increasing the rate on higher ranges and making super tax more severe. Excess profits tax, budgeted at Rs.900,000,000 (\$271,350,000) for 1946, was discontinued from March 31, 1946; and raw materials for industry were exempted from customs duty. The duty on kerosene was reduced and that on motor spirit lowered from 15 to 12 annas (16 annas=1 rupee) per gal. To discourage speculation in precious metals a duty of Rs.25 per tola (108 grains) of fine gold was imposed, silver duty remaining at 8 annas per fine ounce.

Ceylon.—Few important changes were made in taxation through the budget of 1946-47, but the abolition of excess profits tax was promised, as from the end of 1946. Income tax accounted for Rs.102,500,000 (\$30,900,000) and customs for Rs.141,325,000 (\$42,580,000) out of a total estimated revenue of Rs.342,000,000 (\$103,133,000).

Australia.—Effective from Jan. 1, 1946, a new kind of tax became operative, this being the social service contribution which was levied at a graduated rate rising to 1s.6d. in the £. New rates of income tax started at 3d. in the £ on incomes more than £A500, of single persons, rising to 15s.2d. on the portion in excess of £A500, of individual incomes. Income tax was further reduced in July 1946. Together with reductions announced in the budget for 1946-47, which included a lowering of sales tax to 10%, abolition of the special war customs duty and primage duty on manufacturing equipment and a reduction of 1d. per gallon on gasoline duty, the reduction in exchequer revenue was estimated at £A37,000,000 for 1946. Total receipts from taxation were budgeted at £A348,000,000.

New Zealand.—Total tax revenue for 1946 was estimated at £NZ83,607,000, which included £NZ30,750,000 income tax, £NZ14,500,000 customs; £NZ14,250,000 sales tax and £NZ8,000,000 each from stamp duty and national security tax. War surcharge on income tax was reduced from 33% to 10%; the income tax for companies was reduced to the rate in force in March 1942, at a cost of £NZ4,700,000. Excess profits tax was entirely abolished (cost £NZ500,000). So was sales tax on building materials, household furniture and certain other articles (cost £NZ700,000 in a full year) and gold export duty. The 3% primage duty on books and magazines was also abolished contingent on a 5% reduction in their retail prices.

Union of South Africa.—The budget for 1946-47 left the normal rate of income tax unchanged, but substantial reductions were made in the special personal and savings levies, married people not subject to income tax becoming exempt, with the effect that nearly 130,000 people ceased to be direct tax payers. Motorcar sales tax was abolished at a cost of £SA250,000, as was the tax on telephone accounts and on railway passengers. Both excess profits and trade profits duty were scaled down so as to benefit the small taxpayer, and gasoline duty was reduced by 3½d. per gallon. Despite these and other concessions the budget surplus was estimated at more than £SA3,000,000.

Total Estimated Revenue from Taxation for Some Other Countries in 1946

Country		Amount in national currency	Equivalent U.S. \$*
Austria	Schillings	1,415,600,000	\$141,560,000
Belgium	B. Frs.	25,578,000,000	\$583,178,400
Czechoslovakia	Cz. Crowns	24,166,000,000	\$485,736,600
Norway	Nw. Crowns	1,311,700,000	\$264,438,720
Poland	Zloty	15,211,000,000	\$152,110,000
Sweden	Sw. Crowns	2,832,000,000	\$787,862,000

*Rates current in Nov. 1946.

Source: *United Nations Monthly Bulletin of Statistics*, Nos. 9, 10 and 11, 1946.)

FILMS.—*Property Taxation* (Encyclopædia Britannica Films, Inc.). (J. L.N.)

Taylor, Laurette (1887-1946), U.S. actress, was born April 1 in New York city and made her first stage appearance while still a child. In 1903 she went to the Boston Athenaeum, played in *His Child Wife* and in November of that year made her New York debut in *From Rags to Riches*. A leading player in a stock company for several years, she returned to New York in 1909 to play in *The Great John Ganton* and *The Ringmaster*; the following year, she made her first hit with her portrayal of Rose Lane in *Alias Jimmy Valentine*. Miss Taylor reached the top of the stage ladder with her performances as Peg in *Peg o' My Heart*, which was first presented in New York in 1912. During World War I, she starred in several successful plays written by her husband, J. Hartley Manners, including *Out There* (1917) and *Happiness* (1918). She was accorded considerable critical ac-

claim for her performance as Sarah Kantor in *Humoresque* in 1923, and as Rose Trelawny in *Trelawny of the Wells* (1925). Retiring from public life for several years, Miss Taylor returned to the stage in 1938 to play a small role in *Outward Bound*, but withdrew from the theatre once more until April 1945, when she co-starred with Eddie Dowling in *The Glass Menagerie*. Miss Taylor's performance in this play was lauded by New York critics as the best of the season. She died at New York city, Dec. 7.

Tea. The United States consumption of tea increased in 1946 to .64 lb. per capita which was almost up to the pre World War II average of .67 lb. consumed in 1935-39. The low year was 1943 when only .46 lb. was used. Imports in the year ending June 30, 1946, were reported at 86,586,000 lb. which was slightly less than the 89,542,000 lb. imported a year earlier. The supply was approaching the prewar level of about 90,000,000 lb. average although more than 100,000,000 lb. were imported in 1939-40. Although tea sold for 50% more per pound during World War II than in World War I the consumption per capita was not increasing at the same rate of population. Tea prices advanced late in 1946 in line with other prices. The allocation of tea supplies was under the Combined Food board acting through the Tea committee in London. (J. C. Ms.)

Technicolor: see MOTION PICTURES.

Telegraphy. During 1946 the shortage of materials, resulting from World War II and prolonged labour strife, continued to hamper progress in the program of placing important new developments in wide use in the telegraph industry. In spite of these handicaps, however, significant advances were made.

Carrier Telegraph Systems.—Maximum increased capacity of trunk lines was achieved by use of carrier systems. Telegraph carrier equipment superimposed a number of different frequencies on a single pair of wires, and thus made it possible to obtain as many as 36 independent telegraph circuits, capable of carrying 288 messages simultaneously, from a single pair of wires. A number of new intercity carrier systems were installed in 1946, and more than 200,000 mi. of carrier telegraph channels were in operation by the end of the year.

Reperforator Relay Switching System.—Further improvements were made in 1946 in the reperforator switching system that Western Union installed at major relay cities. The reperforator system eliminates manual retransmission and greatly speeds telegraph service. The improvements permit operators merely to touch the proper buttons to switch incoming telegrams to the desired outgoing circuits instead of using plugs and jacks. Considerable progress was also made in the development of fully automatic switching equipment which segregates, without manual assistance, the telegrams arriving on certain classes of incoming circuits and effects retransmission to destination.

Reperforator switching systems were in operation at Richmond, Va., Atlanta, Ga., St. Louis, Mo., Dallas, Tex., and Oakland, Calif. A reperforator switching unit at Philadelphia, Pa., was nearing completion and one at Cincinnati, O., was to be ready early in 1947.

Radio Beam Telegraph.—Radio beam transmission is perhaps the most significant advance of the decade in telegraphy. A beam system was in experimental use between New York city and Philadelphia, Pa., after Feb. 1, 1945, and construction of the first triangular radio beam network, between New York, Pittsburgh, Pa., and Washington, D.C., was well advanced. High radio towers were erected 30 to 50 mi. apart with an-

tennas equipped with parabolic reflectors to transmit the microwave signals in a narrow beam. A radio beam network to interconnect the major cities in the United States was planned.

Radio beam telegraphy was expected eventually to eliminate the need for the familiar pole lines and hundreds of thousands of miles of wire between main telegraph centres, and afford the ultimate in service continuity. Wires would continue in use to link tributary towns with the main beam centres. The beam system makes possible a vast increase in the number of channels or circuits ordinarily available for the handling of telegraph traffic. Through application of carrier systems to the beam, it is possible to send more than 2,000 telegrams in both directions simultaneously over a single system. Since atmospheric static is not felt in the microwave region, radio beam transmission is unaffected by these electrical disturbances. Service interruptions due to ice, high winds and falling trees are eliminated, and installation and maintenance of a beam system costs less than maintenance of the familiar pole line.

Telefax (Automatic Facsimile Telegraph).—By means of the telefax the public may transmit its own telegrams by dropping them into a slot just as letters are dropped into a mailbox. The machine automatically wraps the telegrams around a revolving cylinder in the telefax cabinet. An electric eye rapidly scans the handwritten message, and the telefax transmits it over the wire to a receiving machine where it arrives as a facsimile copy. Telefax operation is one of the methods employed for the transmission of telegrams between telegraph branch offices and main offices and between the offices of large firms and telegraph main offices. Telefax machines were expected to be placed in hotel lobbies, railroad stations, office building lobbies and air line terminals.

In 1946 facsimile transmission of messages was applied to radio when Western Union inaugurated a marine news reporting service between pilot boats in the outer New York harbour and its main office building in that city. Officers on the pilot boat write on slips of paper data regarding the arrival of vessels and place the slips in the transmitting cylinder of the telefax machine installed in the wheelhouse. The messages are sent by radio to Western Union's marine newsroom, where they are received in facsimile. The news is then flashed over the marine news ticker system to its subscribers. Such reports were previously obtained by stationing observers in a tower at the entrance to the bay where ship movements were observed by means of telescopes.

Another application of telefax to radio telegraphy is the telecar, a mobile delivery unit developed to speed the delivery of telegrams in outlying areas of large cities. A telefax unit, mounted in a vehicle which cruises about a prescribed area, receives telegrams by radio from the local main office of the telegraph company for delivery directly to addressees within that area. As soon as the address appears on the message, the "roving telegraph office" is on its way to make delivery.

Electronic Start-Stop Regenerative Repeater.—Teleprinter signals carried over long circuits must be "regenerated" to overcome distortion produced by electrical interference in telegraph lines. Regenerative repeaters formerly required some form of rotary commutating device to time the selection and retransmission of the signals. During 1946 a revolutionary regenerator, entirely electronic with no moving parts, was developed and placed in operation. The timing of the retransmitted signals is controlled by the propagation time of a transient pulse passing through a circuit network. This method of timing is inherently more precise than motor-controlled devices, hence greater accuracy is obtained. Since no moving parts are involved, maintenance requirements are reduced to a minimum. (J. L. E.)

Telephone. Unprecedented growth in scope of service, record strides in expansion of physical plant and significant developments in the communications art headlined the story of the telephone industry in 1946.

Spared of war's destruction to physical property, the United States—already with well over half of the world's telephones—saw its telephone industry make phenomenal gains. More new telephones were installed and more telephone equipment was manufactured than in any previous year. Telephone people from Maine to California drove toward the principal objective of catching up with the unfilled demand for service. This was a job that began with the backlog of wartime orders and continued to grow in magnitude as the postwar period brought an even heavier demand.

In nations ravaged by war, the first full year of peace following World War II was largely one of restoring and rebuilding telephone systems. And in most countries, the postwar demand for service exceeded the capacity of available facilities. Of the estimated world total of more than 54,000,000 telephones in service, about 42% were outside the United States.

The telephone industry in the United States moved forward on the largest expansion and improvement program in its history. Telephone manufacturers were turning out the needed apparatus faster than ever before despite shortages of materials, and the new equipment was rushed from the factories to local communities throughout the land where it was most needed. To make room for this equipment, new central office buildings were going up along with additions to existing buildings. At the same time enlargement of the outside wire and cable plant kept pace with the expansion of switching facilities.

INSTALLERS of the Western Electric company wiring crossbar frames for additional central office facilities in a midwestern city in the U.S. during 1946



More than 5,500,000 applications for main telephone service were taken care of in 1946. Included in this total were more than three-fourths of the orders on hand when the year began and more than two-thirds of those placed during the year. But so great was the sustained demand for service that year-end found the telephone companies in the United States still with long lists of waiting applicants. The number of telephones in service was increased by the record total of 3,800,000—more than double the net gain for any previous year—and yet there remained 2,500,000 unfilled orders for service, with the flood of new applications still continuing.

Because of the time required to manufacture and install the complex equipment needed to meet the demand, the telephone companies used every expedient possible to make available facilities serve more people. Existing equipment was stretched far beyond normal capacity in the effort to shorten the wait for as many applicants as possible.

To expand the telephone plant, operate it and meet the continuing demand for service required more people and more capital. The job of recruiting and training new employees attained major proportions. Securing the necessary capital for the expansion program was a subject of vital importance for management, employees and investors alike. Linked with the capital requirements was a move for increased rates to meet the higher operating costs.

Service.—The number of telephones in service in the United States reached a new high of 31,700,000 at the end of 1946. The nation's total included 25,700,000 Bell system telephones—a 12-month increase of about 3,300,000—and 6,000,000 telephones served by some 6,000 other companies.

Not only were new telephones installed at a previously unheard of rate, but the people of the U.S. were using their telephones more than ever before. Both local and long distance traffic exceeded even the heaviest wartime calling rates. Telephone conversations averaged 130,000,000 per day—an increase of about 19,000,000 over the daily average for 1945. Local conversations were up from 106,400,000 to 124,200,000 daily, while toll conversations increased from 4,900,000 to 5,800,000 per day.

Investment.—After three quarters of 1946, the investment in telephone plant and equipment stood at \$6,845,000,000. The increase from the first of the year was \$415,000,000. Of the total invested in telephone plant and equipment in the United States, the Bell system's portion on Sept. 30, 1946, amounted to \$6,085,000,000.

Personnel.—Also at a record level was the number of telephone employees. The number of men and women in the operating telephone companies reached 585,000. Of that total, some 500,000 were employed by the Bell system telephone companies. The total Bell system personnel, including 117,000 employees of the Western Electric company and 6,200 employees of Bell Telephone laboratories, numbered 625,000—an increase of 150,000 for the year.

Developments.—The year 1946 witnessed a number of significant developments in the extension and improvement of communications. By the end of the year the Bell companies had telephone service for motor vehicles and other mobile units in commercial operation in 25 leading cities of the United States. Rural telephone service over electric power lines was inaugurated in four states, with installations begun in two other states. Use of radio to link remote farms and ranches with the regular telephone system was begun on a limited scale in eastern Colorado.

The Bell system's coaxial cable network, intended primarily to provide additional long distance telephone circuits, was moving westward. And the over-all coaxial program, to be completed in the next few years, was increased to 12,000 route

miles. One pair of conductors within a coaxial cable can handle hundreds of telephone conversations simultaneously. The cable also is suitable for television transmission.

Between New York and Washington, the coaxial cable was used extensively during 1946 for experimental intercity transmission of television programs. This was the beginning of television network operation, by which one event or program can be broadcast simultaneously by widely separated television stations.

Extension of overseas telephone service between the United States and the rest of the world went forward steadily. With 1946 service extensions, telephone users in the United States were in touch with some 60 overseas countries and territories. The volume of overseas messages was running about ten times greater than in the highest prewar year. Overseas rates had been reduced about 40% below the prewar level. (W. S. G.)

Telescopes. The close of World War II brought a notable increase in the number of large telescopes planned for use in various parts of the world. Of especial interest were those for which financial provision had been made and the design was under consideration. For those listed the dimensions would necessarily be subject to some uncertainty until the design was completed.

The 120-in. reflecting telescope (F5) of the University of California was to form a part of the equipment of the Lick observatory and to be placed on Mount Hamilton. The design provides for a fork type of mounting and use of the telescope at three separate focal lengths.

The 100-in. Newton reflecting telescope, provided by the British government and named after the great inventor of the reflecting telescope on the occasion of the tercentenary of his birth, was probably to be located in southwest England and to co-operate with the observatories at Oxford and Cambridge.

The 100-in. reflecting telescope of the Kodaikanal observatory in northern India was to be provided by the Indian government. This telescope and that immediately following were expected to be of exceptional value to astronomy because of their climatic locations.

The 100-in. reflecting telescope of the Helwan observatory in Egypt was to be provided by the Egyptian government.

A large telescope of Schmidt type was being designed for the Stockholm and Upsala observatories in Sweden, with aperture

of the order of 40 in. and concave mirror about 60 in. in diameter. This would be the second largest Schmidt telescope hitherto designed.

Definite plans had not been completed in 1946 for several other large telescopes in Belgium, France, the soviet union and Turkey.

Optical figuring of the 200-in. mirror for the Palomar telescope and of the 74-in. Radcliffe mirror for Pretoria was nearing completion. The 60-in. telescope of the Cordoba observatory in Argentina was in regular operation. (W. S. Ad.)

Television. **United States.**—Declassification of many of the wartime television developments made these accomplishments available for public and commercial applications. Developments for guided missile control resulted in lighter weight camera equipment and more sensitive and rugged pickup tubes. As a direct result of this war activity more reliable and lighter portable camera equipment of high sensitivity was placed in commercial use for outside pickup, greatly facilitating the coverage of news and sporting events under adverse lighting conditions. This equipment incorporated the Image Orthicon pickup tube, publicly announced late in 1945. The use of this tube resulted in an even higher sensitivity than originally anticipated, and facilitated the use of turret lens systems wherein the tube and associated magnetic coils were moved longitudinally with respect to the lens system for focusing purposes.

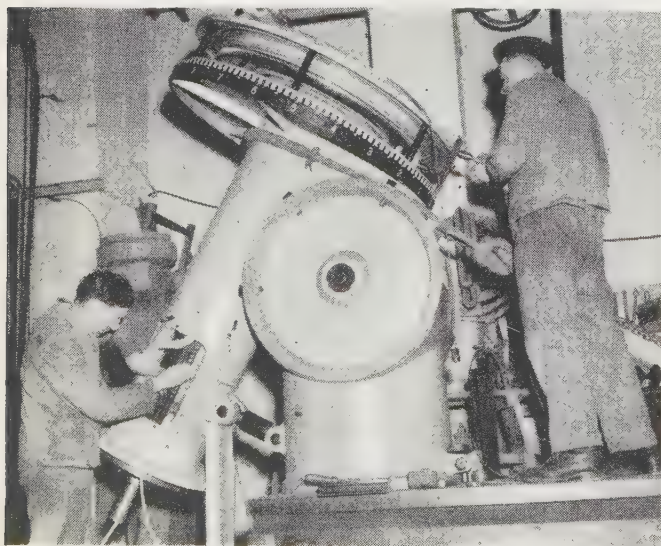
Microwave relay equipment, having a power output of approximately 100 milliwatts at 7,000 megacycles (mc.), was developed for relaying television signals from remote pickup points to the television broadcasting station. Such relay systems, together with coaxial transmission lines, were used for networking of television stations. Television programs from Washington were viewed through the use of such networks in Washington, Philadelphia, New York, Albany and Schenectady.

Power gains from four to eight in the frequency band assigned to commercial television broadcasting were obtained by use of various turnstile type antennas having the necessary wide-band frequency characteristics required for television broadcasting.

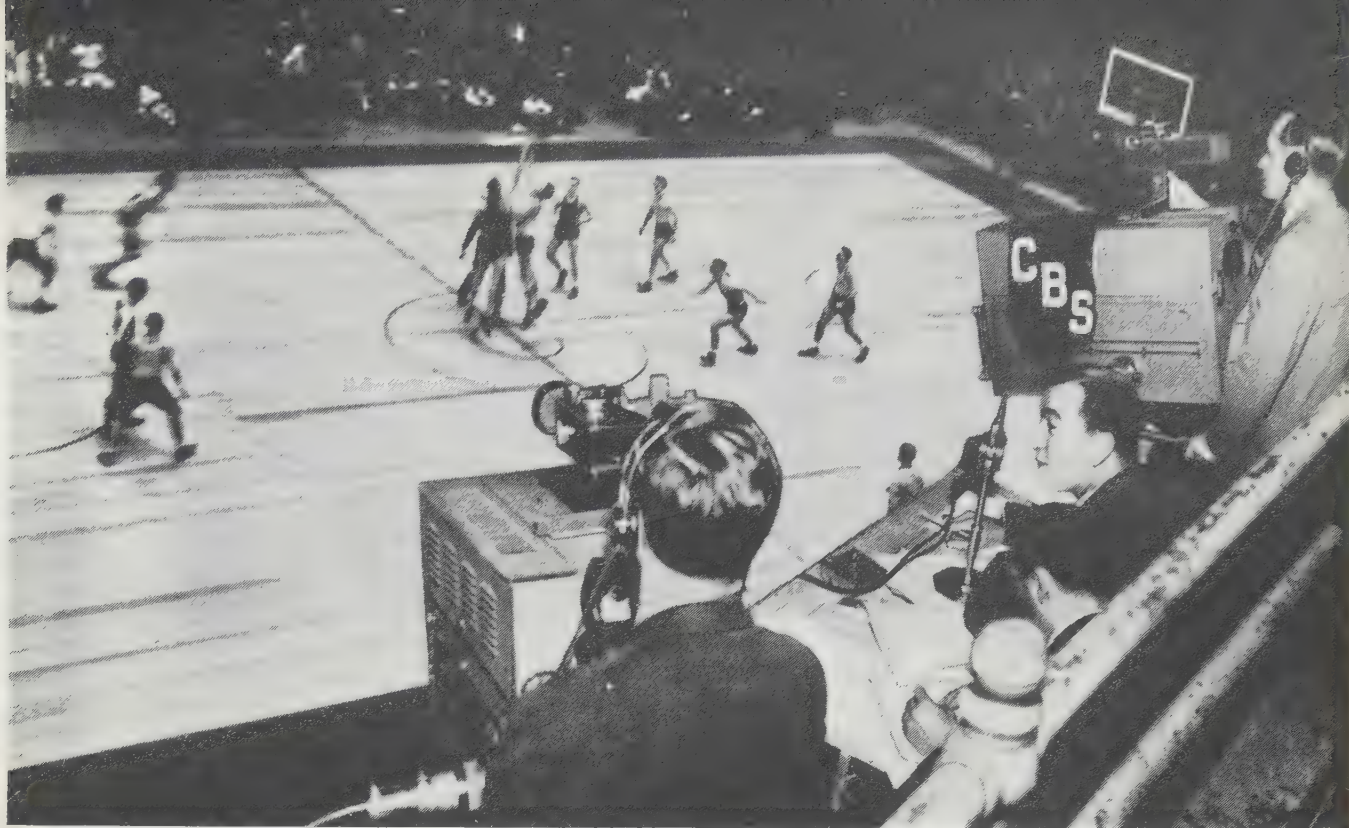
Postwar television receivers, introduced during 1946, incorporated a number of improvements including the use of more flexible tuning arrangements, the addition of a radio frequency amplifier stage giving acceptable pictures with signal strengths in the region of 200 microvolts and the incorporation of automatic frequency control synchronizing systems giving increased immunity to noise and interference.

Many developments were made in television transmitting equipment, including increase in power output especially at the higher frequencies. Development of special tubes was in large part responsible for these advances. (See *RADIO: Scientific Developments*.)

Developments in television picture tubes resulted in the availability of tubes providing a highlight brilliance in the range of 60 to 100 foot lamberts. Conducive to such an increase was the development of an aluminum coating which acts as a mirror to cause the light which normally would be lost inside the picture tube to be reflected through the tube face as useful light. Development of high voltage systems utilizing the "kick-back" pulses from the horizontal deflection circuits made the higher voltages required for the aluminum coated tubes available on an economical basis for commercial receivers. The aluminum coating makes it possible to eliminate "ion-spot," the small discolored area on the screen, by absorption of ions. Another method for eliminating "ion-spot," incorporated in 1946 receiver picture tubes, was the use of an ion-trap gun so designed that both



PART OF A TELESCOPE being built at the Zeiss optical works at Jena, Germany, during 1946. Originally ordered by Hitler as a gift to Mussolini, the telescope was being completed for the soviet observatory in Leningrad



TELEVISION pickup of a basketball game in Madison Square Garden in New York city in 1946, giving a play-by-play account for the television audience. During the year television branched out to include practically all sports, indoors and out

the ions and electron beam normally would strike the neck of the picture tube, the electron beam being redirected to the axis of the tube so that it can then be deflected over the picture area in the normal manner.

In the postwar period experimentation on colour television was again resumed. During 1946 colour television images were broadcast by CBS using a sequential method and a transmitter operating on 485 mc. The standards employed were changed during the year from 120 fields to 144 fields and the channel width requirements increased to 16 mc. In each case the images in the three primary colours were transmitted sequentially to form a two-to-one, interlaced, 525-line picture. On Dec. 9, 1946, the Federal Communications commission began hearings on a CBS petition requesting establishment on a commercial basis of a proposed set of standards for colour television.

In the fall of 1946 the R.C.A. laboratories of the Radio Corporation of America demonstrated a simultaneous system of tri-colour television in which images in three selected component colours were transmitted simultaneously and reproduced by superimposing three separately produced images on a viewing screen. This system operated at 60 fields in each colour and produced 525-line pictures.

During 1946 a Radio Manufacturers' association-Radio Technical Planning board committee was active in the study of the various elements which are essential to a colour television system from the standpoint of standards. (B. E. Sp.)

Great Britain.—The television system of the British Broadcasting corporation resumed transmissions after six years' suspension on June 7, 1946, and the following day the Victory parade was televised as it moved through the streets of London. With the reopening of the public service, slight alterations were made to the hours and two sessions of approximately one and one-half hours daily were instituted (3 P.M. to 4.30 P.M. and 8 P.M. to 10 P.M.). The following appointments were made: chief of the television service, Maurice Gorham; director of programs, Denis Johnston; senior producers, G. More O'Ferrall

and Mary Adams; superintendent engineer, D. C. Birkinshaw; studio engineer, H. W. Baker; outside broadcast engineer, T. H. Bridgewater.

At a dealers' convention held earlier in the year it was stated that 50,000 sets would be available by the end of the year, but this figure was contingent on supply of raw material being available. The first postwar commercial receivers were on the market at £42 inclusive of tax.

France.—Reports from France indicated that television transmissions would be revived on 400-lines definition, but experimental work had been carried out on 1,000-lines definition. The Compagnie Française de Télévision demonstrated this high-definition system on a cathode ray tube of 15-in. diameter, and at a distance of 8 ft. the quality was stated to be equal to that of an ordinary ciné film. The German occupying forces had built a television studio with seating for 250 people and had fitted it throughout with *Fernseh* equipment to give 441-lines definition. Public service was expected on 450 lines. (G. P.)

Tellurium. The production of tellurium in the United States increased from 69,025 lb. in 1944 to 80,750 lb. in 1945, but sales advanced only from 45,323 lb. to 60,328 lb. and stocks rose to 183,527 lb. In Canada production increased sharply from 10,166 lb. in 1944 to 42,000 lb. in 1945. Several other countries were producers on a smaller scale, but no figures were available in 1946. (G. A. Ro.)

Temporary Controls, Office of: see CIVILIAN PRODUCTION ADMINISTRATION, OFFICE OF; PRICE ADMINISTRATION, OFFICE OF.

Tennessee. A south central state, 16th to enter the union, called the "Volunteer state." Land area 41,961 sq.mi., water area 285 sq.mi. Population (1940) 2,915,841; rural 1,888,653; urban 1,027,206; rural farm 1,271,944; native white 2,395,586; Negro 508,736; foreign-born 11,320; other races, 199. The bureau of the census estimated the civilian population on July 1, 1945, at 2,832,480. Capital, Nashville (167,402). Other cities include Memphis (292,942); Chattanooga (128,163);

Knoxville (III,580).

History.—Governor of Tennessee in 1945-46 was James Nance McCord; secretary of state, Joe C. Carr; state treasurer, C. C. Wallace; comptroller of the treasury, J. J. Maddux; adjutant general, G. H. Butler; attorney general, Roy H. Beeler. Commissioners were as follows: agriculture, O. E. Van Cleave; conservation, Paul S. Mathes; education, Burgin Dossett (superintendent of schools, appointed by governor); finance and taxation, George F. McCannless; highways and public works, C. W. Phillips; institutions, Dr. W. O. Baird; welfare, William A. Shoaf; insurance and banking, James M. McCormack; labour, W. E. Jacobs, Sr.; public health, Dr. R. H. Hutcheson; railroad and public utilities, Andrew T. Taylor, Leon Jourlman, Jr., John Hammer; safety, Lynn Bomar; employment security, W. O. Hake. James N. McCord was re-elected governor in the 1946 elections.

Education.—In 1945, of 5,004 elementary schools, 1,367 had three or more teachers; the number of one-teacher schools declined from 3,555 in 1927 to 2,366 in 1945. Enrolment in elementary schools in 1945 was 498,724. There were 546 high schools with a total enrolment of 111,825; the number of teachers, 5,097.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Sept. 1946, the total amount of assistance was \$1,022,755; 38,974 old-age recipients received \$638,788; aid to dependent children, 31,726 (11,956 families), totalled \$351,630; aid to the blind, 1,605, amounted to \$32,337. In 1945-46 there were eight correctional institutions; expenditures \$1,740,978. Separate schools were maintained for the blind, the deaf and the underprivileged; three state hospitals for the insane; a home and training school for feeble minded.

Communications.—Of 64,204 mi. of public road, 7,541 mi. were state highways; state expenditures were \$13,057,861 for the year ending June 30, 1946. There were 3,513 mi. of railroads in Dec. 1945. As of Nov. 1946, there were 1,007 mi. of designated civil airways and 59 urban airports, of which one was class V, three class IV, six class III, 19 class II, and 30 class I—class V accommodating the largest planes. There were 369,100 telephones in the state, 247,700 residential and 121,400 business. Water-borne commerce on the Tennessee river in 1944 amounted to 2,347,667 short tons; Cumberland river 774,241, Mississippi river 13,115,914 short tons from Ohio river to Baton Rouge, La., and 3,437,270 at Memphis.

Banking and Finance.—In June 1946 there were 70 national banks, and 223 state banks; assets \$1,346,831,000 for national and \$611,018,732 for state banks; deposits \$1,277,381,000 for national banks and \$575,464,879 for state banks. Savings and loan associations, Dec. 31, 1946, numbered four with assets of \$555,779.

Total state revenue for the fiscal year 1945-46 was \$68,798,065; revenue shared with counties and cities, \$9,834,199; revenue for state purposes, \$58,963,867. Direct bonded debt for the state was \$73,440,000; highway reimbursement debt \$5,606,122; gross debt \$79,046,122; unencumbered surplus in sinking fund \$3,395,404; net debt \$75,650,718.

Agriculture.—There were 234,431 farms in 1945; 17,849,455 ac. in farms, and 5,845,145 ac. in harvested crops. Gross value of agricultural production in 1945 was \$435,833,000; cash

farm income, \$336,145,000 (including government payments); cash farm income from crops was \$162,395,000; from livestock and livestock products \$161,205,000; government payments to farmers \$12,545,000. Gross farm income from crops was \$197,288,000 in 1945. The forest area was about 14,000,000 ac.

Manufacturing.—In 1946 it was estimated that around 3,000 manufacturing plants yielded products valued at \$1,375,000,000 of which \$600,000,000 was added by manufacture. The number of wage earners increased from 107,645 in 1925 to 267,000 in 1945, wages paid in 1945, \$507,300,000. In June 1946, 234,900 persons were working in Tennessee factories.

Mineral Production.—The total value of principal minerals

Table II.—Principal Mineral Products of Tennessee, 1945 and 1944

Mineral	Value 1945	Value 1944
Coal	\$23,034,000	\$23,088,000
Stone	6,318,915	7,776,775
Zinc	2,969,801	9,309,468
Cement	4,669,330	6,080,921
Sand and gravel	2,578,379	2,314,478
Clays, bolls, fire, and miscellaneous	1,196,498	1,500,000
Lime	1,373,268	1,246,802
Barite	256,756	279,567

produced in Tennessee in 1945 was \$42,396,947. (C. E. A.)

Tennessee Valley Authority. The TVA multiple-purpose system of dams met its most severe test in flood control operation in Jan. 1946 when it reduced by 10 ft. the crest of a flood which, uncontrolled, would have been the fifth largest in the history of Chattanooga, Tenn., and probably the most destructive in the city's history. By holding the potential crest of 45.8 ft. to an actual stage of 35.7 ft., the TVA dams and reservoirs averted an estimated \$10,000,000 damage. Actual damage was about \$90,000. At the height of the flood, the reservoir system retained storage space to regulate even greater flows had the heavy rains continued.

A second flood of less magnitude in February was regulated to the point of no damage. Flood stages on the lower Ohio and Mississippi rivers were not excessive, but regulation of the flow of the Tennessee reduced crests at Paducah, Ky., and Cairo, Ill., by 1.5 ft. during the two floods.

The integrated resources development activities of TVA, under the TVA act passed in 1933, were reoriented fully to peacetime objectives of water control both on the land and in the river. At the TVA chemical plant at Muscle Shoals, Ala., emphasis again was placed on development and experimental production of soil mineral plant nutrients, principally phosphates, for use in soil and water conserving types of agriculture. However, heavy production of ammonium nitrate fertilizers was continued in order to help meet the demand for increased agricultural production in view of the world food shortages. It was revealed in 1946 that TVA had supplied about 60% of the 98,000 tons of elemental phosphorus made available to the armed forces in World War II and that TVA research in electric furnace production methods was largely instrumental in enabling industry to produce the other 40%. Only about 1,000 tons of phosphorus was available to the armed forces for munitions use in World War I.

The number of test demonstration farms using TVA phosphate fertilizers in readjusted farming systems designed to conserve water and soil resources increased to 38,900, located in 29 states. Among results reported by state agricultural extension services which supervise the test demonstrations was a study of 31 farms in north Georgia which in 1935 obtained their principal income from cotton. The study showed that in the ten-year period from 1935 to 1944 changes significant in the problem of reconversion of the cotton south had been made. Acreages of cotton and corn had been reduced but yields had increased.

Table I.—Leading Agricultural Products of Tennessee, 1946 and 1945

Crop	1946*	1945
Corn, bu.	72,810,000.	66,204,000
Tame hay, tons	2,455,000	2,658,000
Cotton, bales	540,000	566,000
Wheat, bu.	4,980,000	5,235,000
Tobacco, lb.	141,845,000	141,940,000
Potatoes, bu.	3,471,000	3,440,000
Sweet potatoes, bu.	2,800,000	2,850,000

*Estimated.

Pastureland and small grain acreages, conserving soil and water, had increased, and increasing feedstuff production was reflected in nearly double the number of cattle and increases in other livestock.

TVA power production fell off after V-J day, but by the middle of 1946 wartime peak records were being exceeded and total production in the fiscal year ended June 30, 1946, exceeded 12,-000,000.000 kw.hr. of electricity. Large amounts of hydro power were delivered to interconnected electric systems under interchange agreements. Gross power revenues were \$35,265,000, somewhat less than in the previous fiscal year. Net income from power operations was \$16,214,000. The return on the average net power investment was 4.2%.

The combined gross revenues of the 138 municipal and co-operative electric systems which distribute TVA electricity was more than \$43,500,000, and the net earnings were \$8,280,000. The locally owned and operated systems sold nearly 3,400,000,-000 kw.hr. The average use per residential consumer for the fiscal year was 1,902 kw.hr. and the average cost per kw.hr. was 1.78 cents, as compared with national averages of 1,290 kw.hr. and 3.31 cents. Plans had been made and embarked upon to construct about 35,000 mi. of line to serve 150,000 new consumers, most of them on farms. On June 30, 1946, 669,000 consumers were being served. Rate reductions saving consumers \$880,000 annually were made during the fiscal year.

More than 256,000,000 ton-miles of traffic moved on the Tennessee in 1945, 31% more than in the previous record year of 1943, and the construction of new terminal facilities on TVA reservoir shores by private interests indicated rapidly increasing future growth. Shipment of automobiles was resumed and traffic in coal, grain and petroleum products increased.

In forestry activities, 4 large forest demonstrations and 56 farm woodland demonstrations, emphasizing sustained yield forest management, were established by private owners with TVA and state assistance and considerable progress was made in extending forest fire control.

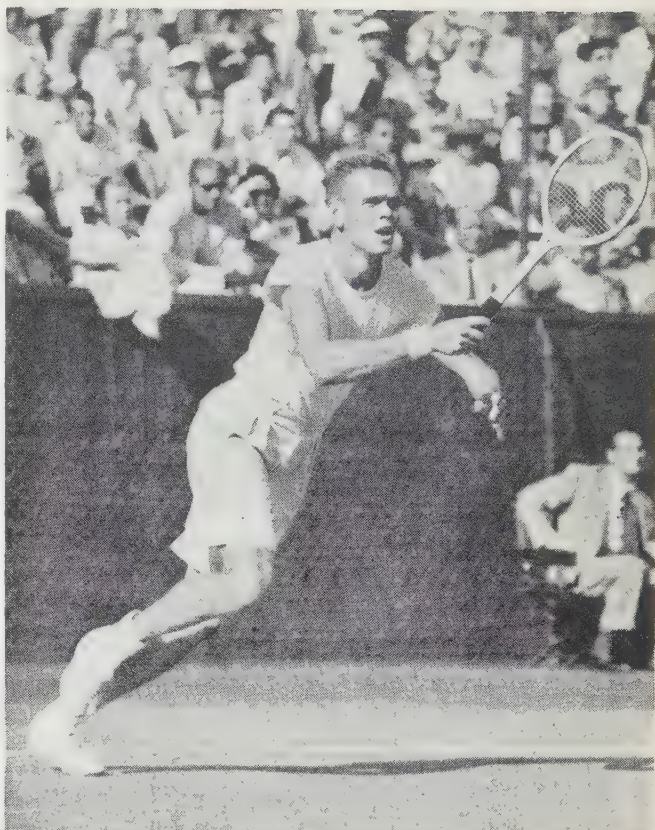
In Dec. 1945 TVA paid into the general fund of the U.S. treasury about \$12,600,000, representing excess of receipts over requirements of programs financed from revenues. For the 1947 fiscal year, congress appropriated funds to resume construction on Watauga and South Holston dams, which would be the 17th and 18th to be built by TVA. Total appropriations from 1933 to June 30, 1947, were \$717,523,270. TVA employment on June 30, 1946, totalled 11,169.

In Oct. 1946, President Harry S. Truman appointed Gordon R. Clapp, TVA general manager from 1939, as chairman of the board to succeed David E. Lilienthal, who was appointed chairman of the Atomic Energy commission. The other TVA directors were Dr. Harcourt A. Morgan and James P. Pope. (See also DAMS; ELECTRICAL INDUSTRIES; PUBLIC UTILITIES.)

(K. R. K.)

Tennis. Lawn tennis was completely resumed in most countries in the summer of 1946. The majority of prewar tournaments were held, and large crowds attended. The matches for the Wightman cup were contested at Wimbledon, England, after an interruption of six years, and won by the United States on June 14 and 15, seven matches to none. The English championships, held at the end of the month before large crowds, resulted in a victory for Yvon Petra, French star, in the men's singles. Petra was the first Frenchman to triumph at Wimbledon from the time Henri Cochet took the title in 1929. The men's doubles were won by John A. Kramer and Tom Brown of California, and the women's singles by Miss Pauline Betz, also of the United States.

For the first time after 1939, matches for the Davis cup were



JACK KRAMER, who won the national men's singles amateur tennis championship on Sept. 8, 1946, is shown racing in for a shot during the 20th annual Pacific Southwest tournament on Sept. 29, in which he also won the men's singles championship

also resumed. Sweden won the European zone, defeating Yugoslavia in the final round. The United States took the American zone, and then defeated Sweden five matches to none on Sept. 13, 14 and 15, at the West Side Tennis club, Forest Hills, L.I., N.Y.

The challenge round of the Davis cup was held at the Koo-yong stadium, Melbourne, Australia, on Dec. 26, 27 and 30, before crowds of 14,500. It resulted in an unexpected and decisive victory for the United States, the challenging nation, five matches to none. Not for years had a victory in international tennis been so one-sided.

The U.S. captain chose as his team two Californians, singles and doubles champions of the United States, Frederick R. Schroeder, who won the title in 1942, and John A. Kramer, who was victorious in 1946. Together they won four of the five matches. Schroeder began by defeating John Bromwich of Australia in five sets; the first and fourth being the only sets dropped by the United States in the three days' play. Kramer then beat Dinny Pails, and to the general surprise, the two Americans conquered the veteran Australian pair of Bromwich and Adrian Quist in straight sets on the second afternoon. It was the first defeat of an Australian team in doubles in a challenge round match from 1924.

The two remaining contests on the last day were easy victories for the U.S. side. Kramer beat Bromwich and Gardnar Mulloy, substituting for Schroeder, defeated Pails. Each match was won in three sets. Thus after an absence of seven years the Davis cup was again returned to the United States. It was the 13th time the United States had been victorious in the 34 years of play from the time the matches were started in 1900.

More than 62,000 spectators witnessed the 65th national singles championships held as usual at Forest Hills, L.I., beginning Aug. 31. Tom Brown, who was the tennis sensation of the sea-

son, defeated Frank Parker, champion in 1944 and 1945, in the round of eight, while Kramer defeated Don McNeill, champion in 1940, in the same round. In the finals, Kramer defeated Brown in straight sets, 9-7, 6-3, 6-0.

Mrs. Sarah Palfrey Cooke did not defend her title in 1946, and it was recaptured by Miss Pauline Betz who won it from 1942 to 1945 inclusive. She beat Miss Doris Hart in two sets, 11-9, 6-3. The doubles title of the United States was won by William Talbert and Gardnar Mulloy, who beat McNeill and Frank Guernsey, 3-6, 6-4, 2-6, 6-3, 20-18. (J. R. Tu.)

Texas. A west-south-central state of the United States, admitted to the union as the 28th state, Dec. 29, 1845. Popular name, "Lone Star state." Area, 263,644 sq.mi. of land, and 3,695 sq.mi. of inland water area. Population (1940) 6,414,824; white, 5,487,545; Negro, 924,391; other, 2,888. Native, 6,179,296; foreign born, 235,528. U.S. estimate of total population, July 1, 1946, 6,786,740. Principal cities with 1940 population: Houston (384,514); Dallas (294,734); San Antonio (253,854); Fort Worth (177,662); El Paso (96,810); Austin (capital) (87,930). Houston and Austin gained an estimated 30% and the other four cities about 25% after 1940.

History.—The year 1946 was characterized by continued readjustment of wartime to peacetime industry with reshifting of population to the rural areas, although the 500,000 migration from the country during the World War II period still remained largely concentrated in the cities. There was no session in 1946 of the biennial legislature. Chief political interest was in the governor's race in the Democratic primaries in which Beauford H. Jester was nominated in the runoff primary over Dr. Homer P. Rainey by a vote of 700,178 to 361,178. Because of the dominance of the Democratic party in Texas, nomination in it means election. There was intense public interest in the campaign because it was the culmination of a controversy between Dr. Rainey, who was deposed as president of the University of Texas in 1944, and the university board of regents.

At the general election, Nov. 5, and at a special election, Nov. 7, four constitutional amendments were adopted: (1) providing for issuance of \$25,000,000 in state bonds to assist war veterans to buy farms; (2) providing for a pension system for state employees; (3) restricting revenue from the gasoline tax to use in highway construction; and (4) allowing payment to a construction contractor for a state building whose contract had been voided by court decision. Principal state officers for the official biennium including the calendar years, 1947 and 1948, were: governor, Beauford H. Jester; lieutenant governor, Allan Shivers; attorney-general, Price Daniel; comptroller of public accounts, George H. Sheppard; treasurer, Jesse James; and superintendent of public instruction, L. A. Woods. Members of the state railroad commission, having jurisdiction over oil production and oil and gas pipelines, were Chairman Olin Culberson, Ernest O. Thompson and William J. Murray.

Education.—Scholastic population (6-17 years) was 1,498,306; average enrolment was 1,068,000. There were 1,075 independent and 4,500 common school districts. Total expenditures for public schools were \$157,000,000. The outstanding educational problem was the scarcity of teachers, resulting in an increase to \$1,500 of average salaries, a considerable advance over preceding years. There were approximately 37,000 classroom teachers. The state's higher educational system is headed by the University of Texas, and there are ten other state colleges of senior rank and a number of state and local supported junior colleges.

Social Insurance and Assistance, Public Welfare and Related Programs.—There were 185,983 persons on the old-age assistance rolls at the end of the fiscal year, Aug. 31, 1946.



BEAUFORD H. JESTER, elected governor of Texas on the Democratic ticket, Nov. 5, 1946

Payments averaged \$23.55. However, this was increased to \$27.35 at the beginning of the new fiscal year with provisions for another increase in early 1947. There was an average of approximately 24,000 children representing 11,000 families drawing assistance to dependent children, with an average per family of \$21. Approximately 4,800 blind persons drew an average pension of \$25. The state maintains institutions for blind, deaf and dumb and orphan children, in addition to a number of hospitals

for the insane and mentally handicapped.

Transportation and Communication.—In the fiscal year ended Aug. 31, 1946, the state expended \$43,315,184.94 for highway improvement and maintenance, and ended the year with a balance of \$23,808,348.88. The highway system of Texas consists of 25,000 mi. of improved designated highways and approximately 170,000 mi. of local roads in varying degrees of improvement. The rail system of the state at the end of the fiscal year ended Aug. 31, 1946, consisted of 15,591 mi. of first-main line and 21,454 mi. including second-main line and terminal facilities. Shipping through Texas ports during the calendar year 1945 amounted to 395,888 short tons of imports and 15,496,784 of exports; and 4,322,911 tons of receipts and 33,465,343 tons of shipments in coastwise trade.

Agriculture.—Texas had 384,977 farms; according to the census of 1945, with total acreage of 142,111,737, an average of 369.1 ac.

Table I.—Leading Agricultural Products of Texas, 1946

Crop	Acreage	Production	Value
Cotton lint (bales)	6,100,000	1,650,000	\$278,025,000
Wheat (bu.)	5,992,000	62,916,000	115,136,000
Corn (bu.)	3,236,000	55,012,000	83,618,000
Sorghum for grain (bu.)	4,613,000	73,742,000	103,976,000
Cottonseed (tons) . . . . .	...	681,000	49,032,000
Rice (bu.)	412,000	17,716,000	38,798,000
Oats (bu.)	1,653,000	36,366,000	33,457,000
Grapefruit (boxes) . . . . .	...	25,500,000	21,675,000
All other crops harvested	5,715,000	...	222,305,000
Total	27,721,000	...	\$946,022,000

Table II.—Number and value of Livestock in Texas, Jan. 1, 1946

Livestock	Number	Value
All cattle	8,058,000	\$453,459,000
Milk cows only	1,575,000	118,125,000
Hogs	1,857,000	34,005,000
Sheep	9,868,000	71,818,000
Goats	3,325,000	15,794,000
Horses	531,000	27,327,000
Mules	324,000	23,920,000
Chickens	34,134,000	36,523,000
Turkeys	959,000	4,699,000
Total	60,633,000	\$785,670,000

Mineral Production.—Total value of mineral production in 1946 was estimated at \$1,300,000,000. The bulk of this value came from petroleum production of 760,000,000 bbl. with an approximate value of \$920,000,000. Sulphur production was 2,945,199 tons. Other leading minerals were natural gas, natural gasoline, salt, stone and Portland cement.

Manufacturing.—The latest census, 1940, of manufacturing enumerated 5,376 manufacturing plants in the state with 126,996 wage earners drawing \$128,138,703 wages with a production

of \$1,530,220,676 total value of products. The industrial boom of the war period brought this to a peak of 380,000 wage earners and \$6,500,000,000 of products in 1944. Unofficial estimate for 1946 was 225,000 wage earners with \$4,100,000,000 value of products.

Banking and Finance.—Assets of Texas' 850 banks as of Sept. 30, 1946, were \$5,864,676,000. Of this total, 417 state banks had assets of \$1,041,390,000; 433 national banks, \$4,823,286,000. Total demand and time deposits were \$5,541,308,000, of which \$985,497,000 were in state banks; \$4,556,211,000 in national banks. (S. McG.)

Texas, University of. A coeducational institution of higher education at Austin, Tex., with seven schools and colleges and a graduate school. The 64th annual session opened Sept. 16, 1946, reverting to the two-semester prewar basis from the tri-semester wartime basis. There were more than 17,000 students enrolled, including more than 10,000 veterans of World War II. Emphasis was given to mathematics, natural sciences, engineering, business, law, social sciences and graduate work in all fields in which interest was shown by the veterans, and additional special housing was provided for this group within the resources of the institution. The navy V-12 training program in operation from July 1943 gave way to naval R.O.T.C. training on a prewar basis. The fourth co-operative summer field school was held in Mexico City in 1946 under the joint direction of the University of Texas Institute of Latin American Studies and the National university of Mexico, and the program of teaching of English as a second language was continued with a special six weeks' program for teachers. The medical school is located at Galveston, Tex., the dental school and the M. D. Anderson Hospital for Cancer Research are both in Houston, Tex., the college of mines and metallurgy is in El Paso, Tex., all of which are branches of the University of Texas. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (T. S. P.)

Textile Industry. The textile industry in the United States continued to enjoy a boom condition in production, prices and profits. It, in common with other consumer-goods industries, received more than its normal share of the national income. This was because of the still restricted output of durable goods, both consumer and capital, resulting from technical and labour difficulties involved in conversion of the latter industries from World War II status. Such problems were relatively minor in textile manufacture.

Textile-mill activity in 1946 increased approximately 5% over 1945. Profits of the industry showed a greater percentage gain than in any other major industry. That this could not be maintained indefinitely was apparent to students of the industry.

From the consumer's standpoint, the prospect was for more durable and versatile fabrics, at lower prices. Technical advance, through World War II research, promised more new fibres, and new mechanical and finishing processes, all of which were expected to react to the benefit of the consumer.

Within the industry, the march of the synthetics continued. Production of rayon and other synthetic fibres reached a new all-time high record in 1946. That even the relatively new but already old-line rayons faced increased competition themselves was indicated by the operation in 1946 of what was believed to be the first loom producing exclusively plastic-yarn fabrics.

From other countries, particularly those awakened to industrial consciousness, came the threat of sharp competition to the relatively high-wage textile industries of the United States. A typical example was Brazil, where approximately 400,000 work-

ers were engaged in textile manufacture and where production of fabrics for domestic use and for export assumed each year a more important role in the national economy. (D. G. Wo.)

Great Britain and Europe.—Before World War II, intensive research on the production of synthetic fibres had culminated in the synthesis of nylon in the United States. The remarkable properties of this new fibre stimulated research in other countries and, with the end of the war, an interesting new synthesis of nylon-like fibres in Germany was revealed. The name of the new material, which was similar to nylon in strength and dyeing properties, was Perlon L. Among other new fibres produced in Germany was Perlon U, a polyurethane; its chief use seemed to have been in the manufacture of bristles.

There was greater interest in modified nylons with high extensibility and an elasticity almost equal to that of rubber. Fibres of this type were likely to find extended use in the manufacture of underwear. Their elastic properties were similar to those of rubber but, unlike rubber, they absorbed and transmitted water vapour.

The Calico Printers' Association, Ltd., and Imperial Chemical Industries, Ltd., also announced the production of a new rayon, Terylene, from terephthalic acid and ethylene glycol. Fibres were obtained from the melted polymer by extrusion and subsequent cold drawing, just as in the case of nylon. Their properties were reported to be promising from a textile point of view.

As regards the older fibres, E. Race, following up earlier work on the proofing of cotton against attack by bacteria and fungi, developed a similar process for wool. It consisted in impregnating the material with a solution containing cuprammonium, potassium chromate and Permalin PW, followed by washing and drying at a moderate temperature.

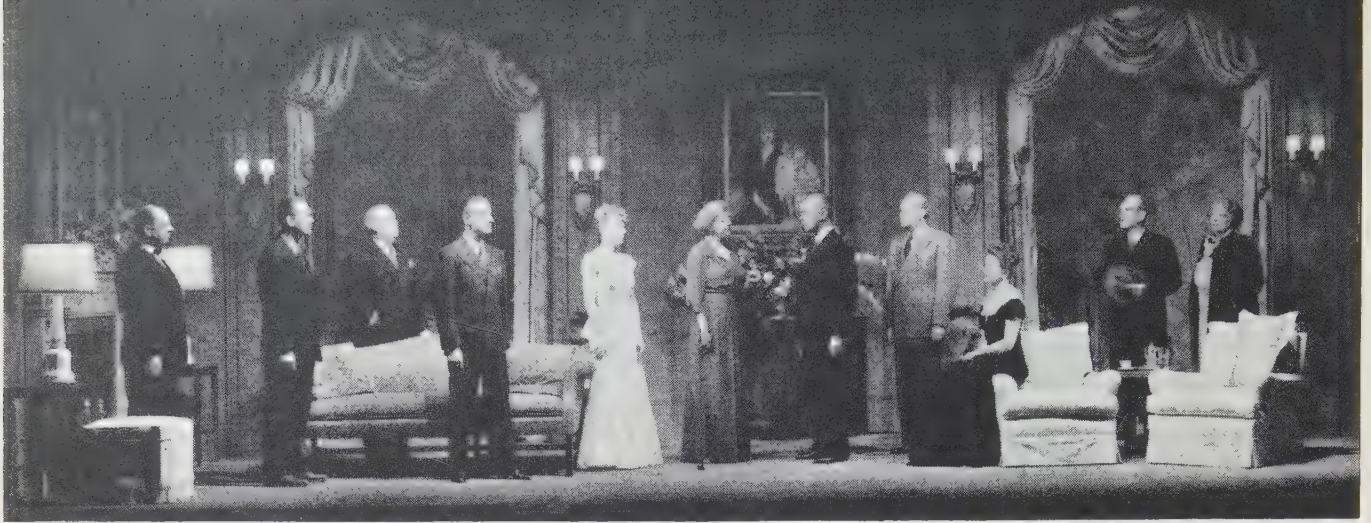
Interest in the treatment of wool to minimize shrinkage during laundering continued, the latest process being one in which the fabric was treated with an acid solution of potassium permanganate. (See also COTTON; RAYON AND OTHER SYNTHETIC FIBRES; WOOL.)

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Thailand: see SIAM (THAILAND).

Theatre. U.S.—The theatre in the U.S. in 1946 continued apace. Not only in New York but in the other cities was its prosperity undiminished. The small suburban and rural theatres which operated during the summer season reached the record number of 99; the college theatres bloomed afresh with the war now a thing of the past; the library theatres in the metropolis, designed to give the younger members of the Actors Equity association an opportunity to show their talents, proceeded happily about their business; and the impulse to create community and civic theatres in various sections of the nation indicated a hopeful resolve.

As in the directly previous years, the general quality of the new plays offered in the professional theatre left, however, much to be desired. Under the circumstances, the re-emergence of Eugene O'Neill after an absence of more than 12 years with one of the best plays of his career, *The Iceman Cometh*, came as a critical blessing. Dealing with social outcasts quartered in a low saloon in the New York of 1912 and vaguely suggesting the tone of Maxim Gorki's memorable *The Lower Depths*, it brought to the native drama the token of importance that latterly it had lacked, and reaffirmed its author's position as the foremost U.S. dramatist. Though nothing else was in any



SCENE from the third act of "State of the Union," a comedy by Russel Crouse and Howard Lindsay. It was awarded the Pulitzer prize on May 6, 1946, for the best original American play of the 1945-46 season

way dramatically comparable, there were several exhibits which were to be endorsed on a lesser level. Among these were a production of the Chinese classic, *Lute Song*, handsomely staged by Robert Edmond Jones; an amusing comedy, *Born Yesterday*, by Garson Kanin; one of George Kelly's intelligent and superior comedies on the fair sex, *The Fatal Weakness*; and at least, though critical failures, strivings toward merit by Maxwell Anderson and Lillian Hellman in, respectively, *Joan Of Lorraine* and *Another Part Of The Forest*.

In the alleged absence of new play manuscripts of worth, many revivals of old plays were rushed into production. Among these were George Bernard Shaw's *Candida*, with Katharine Cornell and Cedric Hardwicke; Molière's *The Would-Be Gentleman* in a very free version, with Bobby Clark; Oscar Wilde's *Lady Windermere's Fan*, Shakespeare's *The Winter's Tale*, along with a production of his *Henry VIII* by the newly founded American Repertory Theatre, which also offered Henrik Ibsen's *John Gabriel Borkman*, James Barrie's *What Every Woman Knows* and Shaw's *Androcles And The Lion*; Edmond Rostand's *Cyrano de Bergerac*, with José Ferrer; Aristophanes' *Lysistrata* with a Negro cast which woefully botched it; Leonid Andreyev's *He Who Gets Slapped*; John Webster's *The Duchess Of Malfi*, with Elisabeth Bergner; and John Synge's *The Playboy Of The Western World*, with Burgess Meredith. There were also such items as Ben Hecht's and Charles MacArthur's *The Front Page*, the Waters-Hopkins *Burlesque*, and Verneuil's *Jealousy*, retitled *Obsession*. The Old Vic Theatre company, imported from England, added to the revival list the two parts of *Henry IV*, *Oedipus*, Richard Sheridan's *The Critic* and Anton Chekhov's *Uncle Vanya*.

In the musical department, the better shows were Irving Berlin's and the Fields' *Annie Get Your Gun*, with Ethel Merman in the stellar role; *Call Me Mister*, an original and often witty affair involving former G.I.'s; an excellent revival of Jerome Kern's memorable *Show Boat*; and a likeable Negro show, *St. Louis Woman*. The general run, however, save for *Gypsy Lady*, which at least enjoyed a revival of Victor Herbert's scores for *The Fortune Teller* and *The Serenade*, were feeble and worse, embracing such lowlights as a snide revival of Sigmund Romberg's *The Desert Song*, a quick failure called *Nellie Bly* with William Gaxton and Victor Moore; a calamity known as *The Duchess Misbehaves* which expired after five performances; a minor revue, *Three To Make Ready*, relieved only by Ray Bolger's expert dancing; Orson Welles' poorly organized *Around The World* with a weak score by Cole Porter; a wretched revival of Franz Lehár's *The Land Of Smiles* renamed *Yours Is My Heart* which offered Richard Tauber as its

sole excuse; and the surprisingly inept *Park Avenue* by Nunnally Johnson and G. S. Kaufman.

The new foreign plays included Terence Rattigan's *O Mistress Mine*, a worthless comedy upon which the Lunts expended their talents; a modern paraphrase of Sophocles' *Antigone* by Jean Anouilh which failed to come off and which disappointed Katharine Cornell's high hopes for it; a juvenile treatment of the Mary Magdalen theme by Ernest Milton; a disastrous mystery play, *Hidden Horizons*, by Agatha Christie; a seedy sex comedy by Noel Coward called *Present Laughter*; and a study of tortured egos and sex in the Strindberg-Wedekind manner by the French apostle of Existentialism, Jean-Paul Sartre.

Of the better-known U.S. playwrights, Maxwell Anderson, in addition to the lacklustre *Joan of Arc* item called *Joan of Lorraine*, offered a windy, adolescent dramatic essay on the problems of returned servicemen titled *Truckline Café*. Robert Ardrey, treating in turn of the problems of a returned Negro serviceman, wrote in *Jeb* a moderately effective play, but one which suffered from thematic overdoing. Bella and Samuel Spewack came overnight croppers with a rubbishy farce called *Woman Bites Dog* satirizing an isolationist newspaper group; and Hecht and MacArthur hit the low watermark with *Swan Song*, a murder melodrama embroidered with schoolboy animadversions on art and criticism. A further contribution by Hecht, *A Flag Is Born*, was an overwrought, hysterical and tedious pageant designed in behalf of the American League For A Free Palestine. Moss Hart's appearance was with a highly emotional box-office excursion into the psyche of the child of divorced parents called *Christopher Blake*.

The two leading metropolitan experimental groups managed nothing of any account. In addition to the Milton failure noted, The Blackfriars offered a negligible "tragedy of manners" by Edwin M. Bronner titled *A Young American* and a feeble Irish comedy, *Derryowen*, by Michael O'Hara; while the American Negro Theatre contented itself with a wholly negligible item, *The Peacemaker*, by one Kurt Unkelbach.

That the public was beginning to be surfeited with propaganda drama became increasingly evident. S. N. Behrman's *Dunnigan's Daughter*, with its anticapitalistic theme, which was produced at the close of the previous year, managed to extend into 1946 with a total of but 37 performances, and to a heavy investment loss. *Home Of The Brave*, by Arthur Laurents, dealing with racial prejudice, collapsed despite a generally favourable critical press. The previously noted *A Young American*, inveighing against prejudice toward the Negro, lasted for only 22 performances, and the also noted *Jeb* for but 9. *Truckline Café* expired after 13 showings, and Don Appell's harangue against anti-Semitism, *This, Too, Shall Pass*, would have closed

overnight had not sympathizers rushed to its aid with sustaining funds, which at that prolonged its life but for a short time. And *On Whitman Avenue*, Maxine Wood's plea for equality for the Negro, survived only by the grace of cut-rate tickets.

Among the better-known actors and actresses, aside from those already mentioned, Helen Hayes reappeared in an indifferent comedy by Anita Loos called *Happy Birthday*; Louis Calhern made himself up to look like Oliver Wendell Holmes in a slipshod biographical play by Emmet Lavery titled *The Magnificent Yankee*; Walter Huston expended his efforts on a dated yokel comedy, *Apple Of His Eye*, by the Messrs. Kenyon Nicholson and Charles Robinson; and Cedric Hardwicke did himself proud in the Cornell productions of *Antigone* and *Candida*. Dennis King, essaying the role of the clown in *He Who Gets Slapped*, found himself at sea in it; Oscar Karlweis brought his comedy talents successfully to the unsuccessful *I Like It Here*, by A. B. Shiffren; Laurence Olivier and Ralph Richardson captured the public in the Old Vic repertory; Ruth Chatterton failed miserably in something called *Second Best Bed*; and Paul Muni, returning briefly from Hollywood, vouchsafed his vocal and manual undulations to *A Flag Is Born*.

Ferrer's *Cyrano* was of varying quality; Dudley Digges stood out from the rest of the cast of *The Iceman Cometh*; Elisabeth Bergner's Duchess in the Webster drama was a symposium of artificialities; Clifton Webb did what he could to imitate the Coward manner in the latter's *Present Laughter*; Eva Le Gallienne, Victor Jory and Margaret Webster exerted themselves in their customary manner in the interests of the newly founded American Repertory Theatre; Ina Claire turned in a brilliant comedy performance in *The Fatal Weakness*; and the screen actress, Ingrid Bergman, at least supplied visual beauty, if not experienced dramatic acting, to *Joan Of Lorraine*.

In conclusion, *Tobacco Road* played its 13th prosperous season on the road; *Life With Father* entered its eighth year of steady performances; and those old musical exhibits, *The Student Prince* and *Blossom Time*, continued still to operate at a profit outside New York after these many years. (G. J. N.)

Statistics of the Theatre in New York City, 1946 and 1945

	1946	1945
Productions	110	107
Musical comedies	28	29
Plays	82	78
Premieres	68	71
Successful productions	19	18
Performers employed	2,026	2,047
Tickets sold	8,600,000	8,840,000
Approximate cost of production	\$5,000,000	\$4,000,000
Number of shows booked for other cities	87	74

Great Britain.—To take light matters first, the events of the year were the triumphant return to revue in London of Beatrice Lillie in *Better Late*, the popular combination of Jack Hulbert and Bobby Howes in *Here Come the Boys*, the huge success of Cicely Courtneidge in a gay "musical" called *Under the Counter* and the intimate revue, *Sweetest and Lowest*, enjoyed the favour shown to its two predecessors.

In the more serious drama the "Old Vic" remained established at the New theatre, except for an early summer visit to New York which was successful. For its autumn program the "Old Vic" chose the bleakest of Shakespeare's tragedies, *King Lear*, a piece of rather faded French romanticism, Rostand's *Cyrano de Bergerac*, and a quiet piece of modern English realism, *An Inspector Calls*, by J. B. Priestley. This was a nicely balanced program and gave first-rate opportunities to its two leading players, Laurence Olivier as Lear and Ralph Richardson as *Cyrano* and the Inspector.

A feature of the year was the number of classical novels seen in dramatic adaptation. Of the English classics, versions of *Jane Eyre*, *Sense and Sensibility* and *Vanity Fair* were offered, and both the major Dostoevski stories, *The Brothers Karama-*



SCENE from "Lute Song," which was produced in the U.S. during 1946 by Michael Myerberg, showing part of the unusual scene design. It was adapted from the famous 14th century Chinese drama *Pi-Pa-Ki*

zov and *Crime and Punishment*, were presented. John Gielgud chose the latter for his main appearance of the year and gave a fine performance as the embittered student.

Terence Rattigan, a dramatist who rarely makes a mistake, contributed a dramatization of a well-known English law case under the title of *The Winslow Boy* and this was the "hit" of the year as far as straight plays were concerned. Plays of the seamy side of life included *No Room at the Inn*, an exposure of the modern baby-farmer, and *Pick-up Girl*, a relentless study of what is officially called "juvenile delinquency."

The Shakespeare festival at Stratford-on-Avon, under the direction of Sir Barry Jackson of the Birmingham repertory, proved very popular and new methods and personalities were employed to freshen and enliven what had come to be something of a cultural routine. It was plain, from his work elsewhere as well as at Stratford, that the name of Peter Brook was likely to become important in the English theatre.

The Liverpool repertory renewed its old existence under the direction of John Fernald and the "Old Vic's" provincial work was transferred to Bristol where its company was the tenant of the Theatre Royal, the very beautiful Georgian theatre preserved from destruction by the Arts council. (I. BR.)

Theatre Library Association: see SOCIETIES AND ASSOCIATIONS.

Therapy: see CHEMOTHERAPY; MEDICAL REHABILITATION OF DISABLED VETERANS.

Throat: see EAR, NOSE AND THROAT, DISEASES OF.

Thyroid: see ENDOCRINOLOGY.

Tibet. A country of central Asia, lying N. and N.E. of the Himalayas, mainly a high tableland. Nominally a

Chinese dependency, it is in practice independent. Area: c. 450,000 sq.mi. Estimates of the population vary, but 2,000,000 is a probable figure. The religion is Lamaism, a late form of Buddhism modified by animism and primitive magic, and education is in the control of the many monasteries. The ruler is the 14th dalai lama (born 1933) enthroned in 1940 as Lingerh Lamutanchu.

On March 3, 1946, a Tibetan good-will mission consisting of five monks and three lay officials was received in Delhi by the viceroy of India, through whom they conveyed to King George VI presents and congratulations on the Allied victory. The mission also called on the U.S. commissioner and sent through him a congratulatory message to President Truman.

(J. RA.)

Timber: see LUMBER.

Timor: see NETHERLANDS COLONIAL EMPIRE; PORTUGUESE COLONIAL EMPIRE.

Tin. Data on world tin production continued to be incomplete in 1946, with many gaps that could be filled only by approximations or estimates; mine production, as compiled and estimated by the U.S. bureau of mines, is shown in Table I.

Table I.—World Production of Tin, 1939–45

	(Thousands of short tons)						
	1939	1940	1941	1942	1943	1944	1945
Argentina	1.9	1.7	1.0	1.1	0.8	0.9	0.6
Australia	3.4	3.9	3.9	3.3	3.0	2.8	2.8
Belgian Congo	10.0	14.0	18.8	18.1	19.6	17.3	19.1
Bolivia	30.5	42.5	47.3	42.9	45.1	43.4	47.6
Burma	9.5	6.0	?	?	1.1	0.5	0.2
China	11.7	7.0	?	?	6	3	1.5
Indo-China	1.6	1.6	1.6	1.6	1.1	0.6	0.2
Malaya	57.9	95.6	87	17	17	11	2.2
Netherlands Indies	31.1	48.4	57	11	16.9	6.8	0.9
Nigeria	10.6	13.5	17	14	14.2	14.0	12.9
Portugal	1.7	1.9	2.6	3.0	3.9	2	0.7
Siam	19.4	19.5	18	13	8	6	3
Great Britain	1.8	1.8	1.7	1.5	1.5	1.4	1.1
Total	196	264	269	140	142	118	98

As is indicated by the 1945 total, production in areas occupied by the axis was even more disorganized at and after the close of the war than it had been during occupation, but most producers outside of the occupation areas maintained output. After reoccupation, small tonnages of tin were found in the occupied areas and shipped out to replenish the depleted stocks.

Production during the first half of 1946 showed a slight improvement over the 1945 rate, but readjustments toward normal operation were expected to be slow, especially where rehabilitation of mining and smelting facilities was required.

The salient features of the industry in the United States are shown in Table II.

Table II.—Data of the Tin Industry in the United States

	(Thousands of short tons)						
	1939	1940	1941	1942	1943	1944	1945
Imports, total	79.1	143.1	189.9	62.4	41.0	54.8	47.0
In concentrates	0.6	3.4	32.1	32.4	27.5	39.8	35.6
Metal	78.5	139.8	157.8	30.0	13.5	14.9	9.5
Smelter output	—	1.6	2.1	18.1	24.1	34.6	45.3
Secondary recovery	29.0	33.3	42.0	38.0	37.9	32.6	35.2
Consumption, total	92.3	108.8	150.9	96.0	90.0	100.8	93.6
Primary	74.6	81.0	115.5	63.0	51.8	66.3	62.3
Secondary	17.7	27.8	35.4	32.9	38.2	34.5	31.3
Stocks, total	?	133.3	147.5	149.6	130.9	111.8	95.4
In ore	?	—	26.0	41.1	45.1	46.0	36.4
Metal	?	133.3	121.5	108.5	85.8	65.6	59.0

Metal imports had almost ceased in 1946, except for small tonnages from the Belgian Congo and China. The Congo supplies both ore and metal, in almost equal amounts, but the bulk of the ore imports come from Bolivia. Stocks of metal had been declining from the beginning of the war, but ore stocks had been kept fairly uniform; 1945 was the first year to show a decline. It was believed the government-owned smelter in Texas would have to be kept in operation until smelting facilities in the orient and Netherlands Indies were restored to good working condition, but whether it would be maintained beyond that point would be the subject of international negotiation.

With the release of price control in Nov. 1946 the price of tin in the United States was advanced to 70 cents per lb., as compared with the controlled price of 52 cents. It was expected some controls on the use of tin would have to be maintained until the supply approached normal demand. (See also METALLURGY; MINERAL AND METAL PRODUCTION AND PRICES.)

(G. A. Ro.)

Titanium. In 1942 and 1943 the former heavy imports of ilmenite from India were largely replaced by domestic output, making the U.S. much more nearly self-sufficient in its supply of titanium. However, in spite of the heavy increase in domestic output, demand exceeded supply, and in 1945 imports were back almost to the prewar level. The salient statistics of the industry from 1939 are shown in the table.

Statistics of Titanium Industry, 1939–45

	Shipments		TiO ₂ content		Total	Imports	
	Ilmenite	Rutile	Ilmenite	Rutile		Ilmenite	Rutile
1939	16,872	?	7,668	?	?	287,191	787
1940	20,702	2,657	9,505	2,475	11,980	223,891	2,164
1941	21,526	3,431	9,930	3,192	13,122	170,689	6,291
1942	93,397	2,649	41,328	2,466	43,794	10,407	10,525
1943	211,715	3,941	94,283	3,639	97,922	78,093	14,338
1944	280,791	6,770	128,095	6,312	134,407	108,948	10,019
1945	308,518	6,837	141,852	6,414	148,266	210,066	10,602

Of the total ilmenite supply in 1945, 98% went into pigments, and most of the remainder into alloys and cemented carbides; of the rutile, 80% was used in welding rod coatings, and most of the remainder in alloys.

In the first half of 1946 the production of ilmenite dropped to 139,179 tons, but imports soared to 209,690 tons or almost as much as in the full year 1945. Consumption was 199,430 tons, leaving a considerable balance in stocks which increased to 397,430 tons. Rutile production dropped to 2,840 tons and imports to 2,759 tons; consumption was 2,994 tons, with stocks increasing to 12,643 tons.

Canada.—Production of ilmenite concentrates in Canada had been declining sharply with the passing of war demand. Output dropped from 69,437 short tons in 1943 to 33,973 tons in 1944, and 13,306 tons in 1945.

(G. A. Ro.)

Tito: see BROZOVICH, JOSIP (TITO).

Tobacco. Another all-time high record crop of tobacco was produced in the United States in 1946 following the large crops of 1944 and 1945. The harvested total of all types was estimated by the United States department of agriculture at 2,235,328,000 lb. compared with 1,997,808,000 lb. for 1945 and an average of 1,479,621,000 lb. 1935–44. This was the first crop to exceed 2,000,000,000 lb. The total acreage was 1,938,000 ac., 6.4% above the 1,821,000 ac. of 1945 and compared with an average of 1,554,000 ac. 1935–44. All types showed an increase. The average yield per acre of all types was also a record of 1,153 lb. per acre compared with 1,095 in 1945 and an average of 952 lb. 1935–44. The crop was divided between the types about as usual, more than 55% flue-cured, 30% air-cured and the rest in other classes.

The large crop raised the stock of tobacco to high levels although consumption was being well maintained. The large supply of flue-cured types was needed for cigarettes and at the same time exports of these types in June 1946 was the highest after 1931 at 487,000,000 lb. for the year. Exports were expected to continue large since Great Britain was the principal buyer and the British loan was expected to support buying in all sterling areas. Burley stocks were at the highest level on record in the fall months. Burley exports were far ahead of 1945 and expected to continue. Total supplies compared with a

year earlier were: fire-cured 7% above; burley 8%; Maryland 19%; cigar fillers 1½%; binders 6½%; and wrappers 2%.

The 1946 flue-cured crop was estimated at 1,322,000,000 lb., almost 150,000,000 lb. above the big crop of 1945. The average crop 1935-44 was 841,907,000 lb. The total of Kentucky-Tennessee fire-cured type was 96,264,000 lb. compared with an average of 89,642,000 lb. The yield averaged 1,085 lb. The air-cured or burley crop amounted to 580,509,000 lb. compared with 576,886,000 lb. in 1945 and 361,784,000 lb. average. Kentucky's crop was 403,025,000 lb. compared with an average of 252,610,000 lb. in 1935-44. Tennessee doubled its crop over the average of 69,024,000 lb., 1935-44 to 108,000,000 lb. in 1946 but was a little short of the 1945 crop. All of the dark air-cured types increased except that of Tennessee.

Cigar fillers, binders and wrappers all showed increases in 1946 over 1945. All cigar types amounted to 148,794,000 lb. in 1946, compared with 123,074,000 lb. in 1945 and an average of 120,071,000 lb. 1935-44. This was the first year of a decided gain in cigar types. Louisiana-grown Perique declined to 100,000 lb. from 192,000 lb. in 1945 and an average of 158,000 lb. 1935-44. The average farm price of all types of tobacco was estimated at 36.3 cents per pound on Jan. 15, 1946. By June this price had advanced to 59 cents, then declined slightly to 43.8 cents in November compared with 46.7 cents a year earlier. By types the prices varied through 1945 as follows: Flue-cured 43.7 cents per pound; burley 39.4 cents; Maryland 55 cents; dark 25 cents; and cigar 55.7 cents. The relatively high prices of tobacco in 1942, 1943 and 1944 were considered a factor in stimulating the increased acreage in 1946 as well as the sustained rate of consumption in the post-World War II period. The 1946 acreage was not a record however, having been exceeded in 1939, 1931 and 1929.

Consumption of tobacco continued to increase after World War II. The average of cigarette consumption in the fiscal years 1943-45 was 328,000,000,000 cigarettes and in 1945-46 331,000,000,000. Retail prices of cigarettes advanced slightly without checking consumption, principally because of the high rate of employment. Tax receipts for the first six months of 1946 were 33% greater than for the same period in 1945. In 1945 however, the amount of tax-free cigarettes distributed was much higher. Cigar consumption which had declined sharply in 1932 continued to recover and increased during the first half of 1946 over the same period in 1945. Consumption of smoking tobacco dropped sharply. In the first five months of 1946 production was cut about half as demand declined. This decline was attributed to the plentiful supply of cigarettes and the end of smoking regulations in war industries. The long time decline in the use of chewing tobacco which had been checked during World War II began again after hostilities ceased. Snuff consumption which had increased during the war also dropped in 1946. Warnings were issued looking to a reduced export demand for tobacco from the United States in a few years due to the competition of foreign grown tobaccos. Every government considers tobacco a good taxable product and is encouraging production. For the year 1946 exports were at the highest level in 15 years. Foreign governments were expected to encourage imports for a year or two as a source of tax revenue.

U.S. Tobacco Production by States, 1946 and 1945
(In Pounds)

State	1946	1945	State	1946	1945
North Carolina . . .	904,270,000	814,800,000	Ohio . . .	21,203,000	22,670,000
Kentucky . . .	475,535,000	437,695,000	Indiana . . .	12,440,000	13,540,000
South Carolina . . .	168,200,000	139,520,000	Massachusetts . . .	10,789,000	8,172,000
Virginia . . .	167,000,000	153,315,000	Missouri . . .	6,210,000	6,800,000
Tennessee . . .	159,949,000	141,940,000	West Virginia . . .	3,520,000	3,729,000
Georgia . . .	114,747,000	105,975,000	New York . . .	1,080,000	1,000,000
Pennsylvania . . .	58,808,000	46,355,000	Minnesota . . .	875,000	910,000
Wisconsin . . .	41,449,000	36,084,000	Alabama . . .	360,000	335,000
Maryland . . .	40,500,000	21,600,000	Kansas . . .	309,000	300,000
Connecticut . . .	25,733,000	22,830,000	Louisiana . . .	100,000	192,000
Florida . . .	22,251,000	20,082,000			

World tobacco production was estimated in July at 6,654,000,000 lb. for the season 1945-46 which was about 93,000,000 lb. larger than the 1935-39 average and 10% more than the 6,028,000,000 lb. crop of 1944-45. Production was restricted in Europe and Asia by the need for food crops. The greatest increases in 1946 occurred in the United States, Canada, Brazil, South Africa and the Philippines.

(J. C. Ms.)

Tobago: see TRINIDAD.

Togoland: see BRITISH WEST AFRICA; FRENCH COLONIAL EMPIRE; MANDATES.

Tokyo. The capital and largest city of Japan. Pop. (1940), 6,778,804; area, 223 sq.mi.; situated at 35° 45' N. and 139° 45' E. at the head of the bay of the same name on the southeastern coast of Honshu, largest of the Japanese islands. In 1938 there were 1,057,921 buildings in the city.

An official enumeration for the occupation authorities on Nov. 1, 1945, recorded a population of 2,777,000. A census taken April 26, 1946, showed a then-resident population of 3,442,000. Rebuilding of damaged structures, of an inferior temporary nature, proceeded more slowly than in other Japanese cities. Of 769,049 dwelling units (46.5% of the total) destroyed during World War II, 9%, or 65,157 units, had been rebuilt by Aug. 15, 1946, a year after the surrender. Comprehensive reconstruction plans were much debated but not implemented.

From Sept. 1945, Tokyo was the headquarters of General of the Army Douglas MacArthur as supreme commander for the Allied Powers (SCAP), advised in his wide executive powers over the Japanese government by a four-power (U.S., British, Chinese, Russian) Allied council in Tokyo. The International Military tribunal for the far east, with seven nations participating, was appointed in Feb. 1946 and began prosecution of Japanese leaders charged with war crimes. No serious incidents

JAPANESE MOTHER in Tokyo casting her ballot in the April 1946 national election while her baby slept in a sling on her back; in this first postwar election in Japan, women were allowed to vote for the first time



between occupation forces and the Japanese civilian population were reported during 1946.

Telephonic communication between Tokyo and the United States was resumed in Jan. 1946, and limited postal service with all countries (except Germany) in September.

Problems confronted on a nationwide scale by the new Japanese government organized in May, following the first post-war general election in April, were sharply instanced in Tokyo by black-market activities, food crises and economic and political protests. Cost of living indexes for Tokyo (using 1937 as a base) rose from 2,670 in January to 4,000 in June. By July the city's staple food stocks had fallen to a 4.2-day supply, black-market activities culminated in street fighting and for August, 90% of the ration was met by SCAP-released food imports. Newly permitted union organization and activity, notably among seamen and communications and transport workers, led to numerous strikes, usually peaceful, of short duration and frequently in the form of union assumption of production control rather than work stoppage.

Revised textbooks, purged of nationalistic material, made possible the resumption of history teaching in the schools in October. Before World War II there had been 107,302 students in Tokyo's 104 institutions of higher learning, including 22 universities. At the end of 1938, 45,573 factories employed 531,179 operatives; and of these 30,154 were small workshops with 5 or fewer workers employing 48,240. (T. F. M-O.)

Tomatoes. The tomato crop of 1946 reached a new high record. The production for the fresh market was estimated at 34,074,000 bu. compared with 32,169,000 bu. in 1945 and a 10-year average of 24,674,000 bu. 1935-44. The crop for processing was 3,194,800 tons compared with 2,688,400 tons in 1945 and a 10-year average of 2,343,200 tons 1935-44. This was about 19% above 1945 and 36% above the average.

The fresh-market tomatoes output was increased for the spring and summer crops while the late fall production was doubled in Florida where more of this crop is raised. The yield was below 1945 but the increase in acreage more than offset this reduction. The acreage was 301,270 ac. in 1945 compared with the 10-year average of 209,840 ac. 1935-44.

U.S. Tomato Production for Fresh Market 1946, 1945 and 10-year Average
(In bushels)

Crop	1946	1945	Average 1935-44
Winter	1,820,000	2,655,000	1,716,000
Spring	11,679,000	10,678,000	6,889,000
Summer	15,133,000	13,710,000	12,962,000
Fall	5,442,000	5,126,000	3,108,000
Total	34,074,000	32,169,000	24,675,000

The acreage of tomatoes grown for processing was 579,590 ac. in 1946 compared with the 10-year average of 470,000 ac. The yield was high, 6.09 tons per ac. compared with an average of 4.98 tons. California reported an average yield of 10 tons per ac. on an acreage of 132,000 ac. Better than average yields were harvested in Ohio, Michigan and Indiana. Considerable damage from blight reduced returns in some areas.

Prices of fresh tomatoes were lower in 1946 than in 1945 except for the winter Florida shipments. The average of all shipments was \$2.91 per bu. compared with \$3.32 in 1945. The average season prices for processing tomatoes was \$30 per ton compared with \$27.58 per ton in 1945. (See also VEGE-TABLES.) (J. C. Ms.)

Tongan Island Protectorate: see PACIFIC ISLANDS, BRITISH.
Tongking: see FRENCH COLONIAL EMPIRE.
Tornadoes: see DISASTERS.

Toronto. In 1793, in colonial days, the British governor, John Graves Simcoe, chose the present site of Toronto for the capital of the province of Upper Canada (now Ontario), and named it York. Earlier the British settlement had succeeded a French trading post called Fort Rouillé. In 1834 it was incorporated as a city and its name changed to Toronto, the old Indian name, meaning "a place of meeting." The city grew steadily and soundly until in 1946 it covered some 35 sq.mi. and had a population of about 700,000 persons. Toronto manufactures and distributes goods in a large way, having excellent advantages in location and communications; it is also the centre of the large mining industry of Ontario. The city corporation, in addition to the usual municipal services, owns and operates through commissions the city and suburban street railway and bus system and the local hydroelectric system, with exclusive distribution of electricity for light and power. Railway service and air service by trans-continental and local routes are good as are facilities for freight and passenger traffic by water. The Royal Agricultural Winter fair which was not held during World War II had a highly successful re-opening. It was expected that the Canadian National exhibition would resume operations in 1947; it was founded some 70 years before and was held annually, lasting for two weeks, until the exigencies of war necessitated the use of its large grounds and many buildings by the armed forces. (G. R. G.)

Toronto, University of. A provincial institution in Toronto, Ontario, Canada. The year 1946 marked the opening of Ajax division, a transformed munition plant, 30 mi. from the university campus, for students in engineering; the commencement of a \$7,000,000 building; special convocations for conferring honorary degrees on General of the Army Dwight David Eisenhower, Field Marshal Montgomery, His Excellency Viscount Harold Alexander, Governor-General of Canada, General H. D. G. Crerar, Air Marshal Leckie, Colonel Agnes Neill, Admiral Nelles, Captain Adelaide Sinclair, Lieutenant-General Montague. An Institute of Industrial Relations and courses in diplomacy were established and courses were organized in public safety. Many large benefactions were received, notably \$500,000 for the Faculty of Medicine by bequest of Dr. Chisholm of Saskatchewan. There was a notable expansion of research, especially in the Connaught Medical Research laboratories. Special courses in arts, commerce, engineering, business administration and institutional management were organized for ex-service personnel, as well as a new course for teachers in the conservatory of music, and post-graduate facilities were expanded. The departments of archaeology and fine art were combined and a new department of art and archaeology was established. There was a general increase of salaries and a new pension plan was arranged for staff members. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(S. E. SH.)

Torpedoes: see MUNITIONS OF WAR; NAVIES OF THE WORLD.
Totalitarian State: see GERMANY; SPAIN; UNION OF SOVIET SOCIALIST REPUBLICS.

Town and Regional Planning. The year 1946 saw a revival of town and regional planning activities in most of the nations of the western world.

In the United States 28 of the 48 states had passed urban redevelopment acts, 12 to authorize redevelopment corporations, 6 to authorize housing redevelopment agencies and 10 to provide redevelopment land agencies. Congress passed for the Dis-

trict of Columbia an urban redevelopment act of the latter type. Many cities issued plans (some listed below). Federal agencies extended services to local communities. In the Public Works agency the Public Roads administration extended federal aid for the first time for express highways in urban areas; the Public Buildings administration co-operated with local planning commissions in the location and design of federal buildings; the bureau of community facilities continued to advance funds for local planning and by 1946 had advanced more than \$2,600,000 to 2,174 public bodies entailing estimated construction costs of nearly \$1,000,000,000. In addition, state and local plan preparation, without federal aid, included plans for public works to cost approximately \$4,000,000,000. Most U.S. cities studied downtown congestion and plans for offstreet parking of automobiles. The American Institute of Planners held an annual meeting on Feb. 16 and 17 at Cleveland, O.; the American Planning and Civic association held a citizens' conference on planning at Dallas, Tex., on April 21-24, preceded by a city planning clinic at Oklahoma City, Okla. The American Society of Planning Officials met on May 6-8 in New York and the Community Building council of the Urban Land institute met Nov. 8-13 at Atlantic City, N.J.

In Great Britain, parliament in 1946 passed the New Towns act which provided for the establishment of about 20 self-dependent communities, 10 of them in the London area. The new communities were designed to decentralize congested urban areas and were to be limited to 60,000 population. The London County council proposed to reduce the population within its borders by removing industries and about 600,000 or 700,000 workers to areas outside a green belt which was to surround the metropolitan area. Among official plans were those for Bath, Belfast, Canterbury, Cork, Dublin, Durham, Edinburgh, London county and Manchester. In September more than 400 town planners attended the summer school of the Town Planning institute at Durham university. On Oct. 7-12, after a lapse of seven years, the International Federation for Housing and Planning held a congress at Hastings, England.

Most of the devastated countries in Europe were working on plans but shortages of materials and labour prevented much permanent building. In the Netherlands an effort was being made to reduce the congestion of the population. In an area in Rotterdam devastated by nazi air attack, only 4,500 families were to replace the 20,000 who lived there before World War II, but Dutch cities lay so close together that it was difficult to provide adequate green belts and to find space for displaced populations. In Italy an effort was made in 1946 to place the planning of devastated areas under a single joint commission which would revise national planning laws. In Poland the entire land area of Warsaw was being taken over by the city government. The War Reconstruction office was trying to preserve certain historical buildings and, at the same time, to build a modern city on the ruins of ancient Warsaw. In the soviet union at the end of 1945 a Council of People's Commissars (later changed to Council of Ministers) approved plans for many towns and during 1946 architects and engineers were busily working on details of residential sections. Most buildings were to contain two, four or eight flats, built on standard designs but with various architectural treatments. Every house was to have its own garden, large enough for vegetables and fruit trees as well as flower beds. It was expected to house 60 families to the acre. Residential sections were planned to be separated from main arterial highways by a protective belt 330 ft. wide. Public gardens would be provided. In France all during World War II many architects and planners worked on plans for reconstruction. Some of the plans were prepared by modernists, some were the result of superimposing a regional pattern on tradi-

tional plans. Since little permanent construction was accomplished, it was too soon to predict the result in 1946. In Sweden, immune from war damage, cities continued to utilize a modern architecture of better-than-average appearance. In Switzerland, also untouched by the ravages of war, a clearinghouse for information on all European construction was established.

The Pan American union in 1946 issued a *Provisional Directory of Housing & Planning Agencies* in the United States and Latin America which listed a growing number of official planning agencies. (See also HOUSING; RECONSTRUCTION PLANNING.)

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(H. Js.)

Track and Field Sports. With athletes returning to their prewar form and eyeing the Olympic games of 1948, track and field competition received great impetus during 1946. Although Gunder Haegg (Haäg) and Arne Andersson, the Swedish middle distance stars, were barred from amateur competition, Sweden contributed another miler, Lennert Strand, to dominate U.S. competition.

One world record for a standard event was toppled in 1946. Bob Fitch of the University of Minnesota threw the discus 180 ft., 2 $\frac{3}{4}$ in. for a new mark in the Northwest Amateur Athletic Union meet at Minneapolis, Minn., and added a 179 ft., $\frac{1}{8}$ in. toss in the national A.A.U. tournament at San Antonio, Tex. Both throws shattered the former world mark, set at 174 ft., 10 $\frac{3}{4}$ in. by Adolfo Consolini of Italy in 1941.

Two other track performances stood out in 1946. Harrison Dillard of Baldwin-Wallace, Berea, O., tied the world 220-yd. low hurdle record of 22.5 seconds, and scored the only double of the National A.A.U. outdoor championships. Herbert McKenley of the University of Illinois, Urbana, a native of Jamaica, was timed in 46.2 seconds in the 440-yd. dash, but his possible world record was disallowed because of a favouring wind. Later McKenley set a 300-yd. record of 29.8 seconds in a special meet at Randall's Island, N.Y.

Strand, making his first track appearance in the United States, easily won the A.A.U. 1,500 metre title, defeating Leslie MacMittell by 30 yd. He wound up his U.S. tour by winning the mile event of a special meet at Randall's Island, N.Y., in four

minutes, nine seconds, fastest of the season.

Other outstanding track performances in the United States included: a toss of 71 ft., $\frac{7}{8}$ in. for the 8-pound shot by Bernie Mayer, New York university, N.Y., for a U.S. record; a mark of 14.1 seconds in the 150-yd. dash by Bill Martinson of Baylor university, Waco, Tex., equalling the world record set by Herbert Thompson in 1938; a jump of 6 ft., $6\frac{3}{4}$ in. by Kenneth Wiesner of Marquette university, Milwaukee, Wis., in the high jump, setting an intercollegiate record.

The University of Illinois stood out in collegiate track, winning the Big Nine and National Collegiate Athletic Association titles and capturing three events in the Pennsylvania relays. The New York Athletic Club won both the A.A.U. indoor and outdoor championships. Climaxing three years of service-team monopoly in the Intercollegiate Association of Amateur Athletes of America championship, Army won indoors and Navy outdoors.

On the European front, Sydney Wooderson, veteran British distance star, set a three-mi. British record of 13 minutes, 53.2 seconds. Sweden won the first European track meet after 1938, while the U.S.S.R., competing for the first time after 1923, captured the women's title. The International Amateur Athletic federation listed Haegg's world record of 4:01.4 despite charges he was a pro. Later both Haegg and Andersson were ruled professionals and barred for life by the Swedish Athletic association.

Charles Beaudry of Marquette won the national A.A.U. pentathlon title with 2,885 points, while Irving Mondschein of New York university was returned the decathlon victor with 6,466 points. Stylianos Kyriakides, 35-year-old bill collector from Athens, Greece, won the Boston marathon in 2 hours 29 minutes and 27 seconds. John Kelley of West Acton, Mass., and

Gerald Cote of Montreal, Que., both former winners, finished second and third, respectively. Cote won the National A.A.U. marathon at Yonkers, N.Y., in 2 hr. 47 min. and 53 sec.

Indoor Track.—Two middle distance stars, Leslie MacMitchell and Fred Sickinger, highlighted indoor track and field competition for 1946. Both returned from the wars to dominate their respective divisions, MacMitchell in the mile and Sickinger in tests from 600 to 1,000 yd.

MacMitchell established himself as the United States's number one miler with seven straight firsts in his specialty, including the National A.A.U. event. Sickinger also won 7 races during the 1946 indoor season—four 1,000-yd. events; 2 half miles, and the I.C.A.A.A. 600-yd. crown.

Eddie Conwell of Shore A.C. dominated the dash events and wound up with a tie for the world record in the 60-yd. dash at 6.1 seconds. Army won its third straight intercollegiate indoor track title with 53 $\frac{1}{2}$ points to 35 for New York university. The New York A.C. won the team championship of the A.A.U. tournament with 28 points to 26 for N.Y.U.

Women.—Once again Alice Coachman and her Tuskegee Institute, Ala., team dominated the women's A.A.U. track and field championships in 1946. Miss Coachman repeated her triple triumphs in the 50 metre, 100 metre and high jump to assist in Tuskegee's accumulation of 95 team points. Cleveland's Polish Olympics were second with 64 $\frac{1}{4}$ points.

Dorothy Dodson became the other triple champion of the tournament with firsts in the eight-pound shotput, discus and javelin. Stella Walsh, 35-year-old veteran of 20 years of track competition, scored firsts in the 220-yd. dash and broad jump and also added a second place in the 100-yd. dash to the Cleveland Polish Olympics' team total. (M. P. W.)

Outstanding U.S. Track and Field Performances (Outdoor), 1946

100 Yards

9.5 sec.—Martinson, Baylor; Lawlor, Texas
9.6—Guilbeaux, Nederland H.S.; Beaumont, Tex.; Pettit, Navy; LaBeach, Wisconsin; Dillard, Baldwin-Wallace; Mathis, Illinois

220 Yards

20.6 sec.—McKenley, Illinois
21—Patton, U.S.C.; LaBeach, Illinois
21.1—Ewell, Shannah Catholic club
21.2—Pierce, Illinois

440 Yards

46.2 sec.—McKenley, Illinois
47.8—Cochran, Los Angeles; Short, Michigan
48.4—Bolen, Southern univ.
48.5—Kash, Navy
48.7—LeLoach, U.S.C.; Ockert, Illinois

880 Yards

1 min., 51 sec.—Fulton, San Francisco Olympic club
1:52.3—Rehberg, Illinois
1:52.6—Smith, Virginia Union
1:53.4—Meeker, Colgate
1:54.8—Pearman, Pioneer club

One Mile

4 min., 12.3 sec.—Walsh, Manhattan
4:12.5—Dodds, Boston A.A.
4:12.6—Quinn, New York A.C.
4:15.2—Rehberg, Illinois
4:15.3—Sink, U.S.C.

Two Mile

9 min., 22.4 sec.—Sink, U.S.C.
9:23.1—Feiler, Drake
9:26—Mitchell, Indiana
9:29.5—Martin, New York univ.
9:32.8—Drygall, Millrose, A.A., New York City

120-yard High Hurdles

14 sec.—Tate, Oklahoma A. & M.
14.2—Dillard, Baldwin-Wallace; Erfurth, Rice; Walker, Illinois
14.4—Dixon, U.C.L.A.

220-Yard Low Hurdles

22.5 sec.—Dillard, Baldwin-Wallace
23.2—Walker, Illinois; Lawrence, U.S.C.
23.3—Tate, Oklahoma A. & M.
23.4—Rowland, So. Methodist

440-Yard Low Hurdles

55.1 sec.—DiCarlo, Villanova
55.8—Slade, Lincoln H.S., Jersey City
56.4—Gates, Hamton College
56.8—Eggers, Army

Two Mile Walk

14 min. 37.3 sec.—Webber, German-American A.C.
15:00.7—Sharaga, New York City
15:44.7—Bleifer, Maccabi A.C.
15:56.5—Frauaff, New York A.C.

High Jump

6 ft., $8\frac{3}{8}$ in.—Wiesner, Marquette
6:7 $\frac{3}{8}$ —Sheffield, Utah; Scofield, Kansas
6:6 $\frac{7}{8}$ —Eddleman, Illinois; Vislocky, Jr., New York A.C.; Albritton, Dayton, O., A.C.

Broad Jump

25 ft., $17\frac{1}{8}$ in.—Steele, San Diego State
24:11 $\frac{1}{2}$ —Lawrence, U.S.C.
24:10 $\frac{1}{2}$ —Robertson, Texas
24:10 $\frac{1}{4}$ —Douglas, Pitt
24:10—Peterson, Iowa State

Discus Throw

180 ft., $2\frac{3}{4}$ in.—Fitch, Minneapolis, Minn.
164:2—Bangert, Purdue
162:1 $\frac{1}{2}$ —Donaldson, Rice Institute
161:4 $\frac{3}{4}$ —Gordien, Minnesota
158:7—Kadera, Randolph Field

Hammer Throw

169 ft., 8 in.—Folsworth, New York A.C.
168:7 $\frac{1}{2}$ —Bennett, Providence, R.I.
168:2—J. Fisher, Harvard
165:7—Rameka, Holy Cross
164:10—Dryer, New York A.C.

Javelin Throw

213 ft., 7 in.—Adair, Austin A.C.
211:2—Morales, Los Angeles
210:11—Peoples, Los Angeles A.C.
210:3 $\frac{1}{4}$ —Chynoweth, Army
209:9 $\frac{1}{2}$ —Biles, Olympic club, San Francisco

Pole Vault

14 ft., $4\frac{3}{4}$ in.—Moore, Olympia club, San Francisco
14:1 $\frac{3}{4}$ —Smith, Olympic club
14:1 $\frac{1}{2}$ —Winter, U.S.C.
14—Hart, U.S.C.
13:9—Moore, Northwestern; Kring, College of Pacific

Shot Put

54 ft., $7\frac{1}{4}$ in.—Coulter, Army
54:1—Bangert, Purdue
53:8—Mayer, N.Y.U.
53:3 $\frac{3}{8}$ —Thompson, U.S.C.
53:3 $\frac{1}{2}$ —Michaels, San Francisco Olympic club

ANNA LARSON out in front during a 400-metre race at Stockholm, Sweden, on May 26, 1946, in which she set what was claimed to be a new world record for women by covering the distance in 61.4 seconds



Trade Agreements: see INTERNATIONAL TRADE.

Trade Commission, Federal: see FEDERAL TRADE COMMISSION.

Trade Unions: see LABOUR UNIONS.

Traffic Accidents: see ACCIDENTS.

Trailers. Early in 1946 the trailer coach industry was requested by the U.S. government to help in providing living units for returning soldiers. How well the industry met this request is indicated by the fact that of all agencies, it came the closest to reaching the desired quota. It was estimated that 53,671 units were produced during the year 1946 by 96 trailer manufacturers reporting to the department of commerce.

Some 50 new manufacturers entered the trailer coach field in 1946 and the older manufacturers, for the most part, increased their production facilities. Production of the industry has increased 10% per month consistently. Trailer coach population, at the end of 1946, was known to be more than 300,000. Statistics show that 89% of trailer coaches in use were used as residences, whereas 11% were used as travel vehicles, either pleasure or business. The trend in size was in 1946 toward smaller coaches, that is, trailer coaches of 24 feet overall or less.

Ownership by occupational groups shows: 35.3%, production workers; 15.6%, sales and services; 15.4%, executive and professional; 12%, miscellaneous; 8% retired; 6.9 construction; 6.6%, government; .02%, unemployed.

During 1946 the Trailer Coach Manufacturers association carried on an extensive educational campaign in national magazines to improve trailer park accommodations.

A survey by the industry among people living in trailer coaches indicated that 75% preferred them to a return to living in apartments. Of the trailer coach owners, 54% either owned their own homes before buying trailers or still owned them, while 46% were renters.

The National Trailer Coach show was held in March 1946 with the largest display of equipment and house trailers in the industry's history. (P. E.)

Trans-Jordan. An Arab kingdom, bounded on the west by Palestine, on the north by Syria, on the northeast by Iraq, on the southeast and south by Saudi Arabia. Formerly a British-mandated territory, it was declared independent on March 22, 1946. Area 35,135 sq.mi.; pop. c 370,000; all Mohammedans except for c. 30,000 native Christians. Capital: Amman, the ancient Rabbat Ammon. Chief cities: Amman (45,000), Es-Salt (14,500), Ma'an (8,000). King: Abdullah ibn Hussein; prime minister (1946): Ibrahim Hachem Pasha.

History.—Trans-Jordan, formerly a part of the Ottoman empire, entered its formal existence as a political entity in 1922 when it was constituted an Arab principality under Emir Abdullah ibn Hussein under the British mandate over Palestine. The mandate, being an A mandate, obliged Great Britain to prepare the country for independence. This purpose was realized on March 22, 1946, when Great Britain recognized Trans-Jordan's full independence and signed a treaty of mutual assistance and alliance with the new state. Great Britain also promised to sponsor Trans-Jordan's application for membership in the United Nations organization. This application was transmitted on June 26 but was rejected for the time being.

The emir adopted the title of king at the declaration of independence.

The new kingdom was an active member of the Arab league and participated in all its meetings and deliberations. King Abdullah visited Iraq in September to prepare a scheme for closer

collaboration between these two neighbouring lands whose rulers were closely united by family ties. The scheme foresaw the closest possible collaboration in military, cultural and foreign affairs. A council of the two states would meet alternately in the two capitals to consider problems affecting both countries.

On Aug. 8 an agreement was signed in Amman between the government and the Trans-Arabian Pipeline Co. of America permitting the latter to construct and maintain an oil pipe line from the U.S. oil wells in Saudi Arabia through Trans-Jordan to Palestine and the Mediterranean; Trans-Jordan would receive an annual payment of \$250,000. (H. Ko.)

Communication, Finance, Trade and Agriculture.—There were 202 mi. of railroads in 1945. In 1946 there were 344 mi. of asphalt roads and 854 mi. of semi-macadamized roads passable in the dry season, and a total of 1,354 telephones, 305 mi. of telegraph lines and 900 radio receiving sets. Government revenues in 1945 amounted to \$11,518,000; expenditures \$10,401,000; national debt \$1,251,000. (Palestine £=British £=403.5 cents U.S.). Exports (1942) totalled \$3,124,000; imports \$8,874,000. Crop production in 1944 included 121,253 short tons of wheat, 44,092 tons of barley, 23,148 tons of grapes and raisins. Livestock numbered 560,000 poultry; 304,107 sheep; 349,323 goats. Exclusive of the products of the Dead sea, mineral production in 1944 amounted to 6,322 short tons of phosphate, 2,428 tons of kaolin, 198 tons of silica, 63 tons of ochre, 33 tons of manganese.

(See also ARAB LEAGUE.)

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Transportation: see BUSINESS REVIEW; DEFENSE TRANSPORTATION, OFFICE OF; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; RAILROADS.

Transylvania: see HUNGARY; RUMANIA.

Trap-shooting. Capt. Frank Bennett, 36-yr.-old Miami, Fla., air line pilot, captured the \$10,000 Grand American handicap in a three-way shoot-off. Bennett, making his first appearance in the big event, tied with J. L. Nicolai, 66-yr.-old Denver, Colo., garageman, and John J. McHale, 33-yr.-old shoe manufacturer from London, Ont., with 98 targets out of 100. Bennett narrowly missed elimination because he shot from the 18-yd. line instead of his handicap of 21 yards. In the shoot-off he missed the first bird and hit the next 24 for win by 2. In a second shoot-off McHale defeated Nicolai, 23 to 22 out of a possible 25.

Almost every event required a shoot-off, and it was the first time in 47 years that the Grand American had to go an extra day. Walter Beaver of Conshohocken, Pa., won the North American championship by scoring a possible 25 in a shoot-off. He was tied at 199 with Fred Harlow of Newark, O., the Grand American champion in 1908, Don Engleby of Vermilion, O., Grand American champion in 1945 and Sterling Matson of Racine, Wis., in the regular shoot.

Mrs. Roy Meadows of Grimes, Ia., won the women's Grand American in a shoot-off after tying Rose E. Waite of Lakewood, O., with 94 out of a possible 100. Mrs. Rose Potter Palmer III, Chicago socialite, won the North American women's title in a shoot-off with Mrs. Frances Lee of Fayette, N.Y., after they had tied with 95 out of 100. Ruth Knuth of Indianapolis, Ind., defended her title as champion of champions with 96 out of 100.

Vic Reinders of Waukesha, Wis., University of Wisconsin biology professor, won the men's champion of champions with a perfect 100 and won the open title in a shoot-off with Herschel Cheek of Clinton, Ind., after each had scored 99 out of 100. Albert Peterson of Virginia, Ill., won the preliminary handicap in three extra shoot-offs against four other challengers.

Cliff Doughman of Morrow, O., won the doubles target event in a shoot-off with Mercer Tennille of Shreveport, La., and Julius and Paul Petty of England, Ark., topped the brothers' competition. Other winners were: father and son, Homer Clark, Jr. and Sr., of Alton, Ill., 194 out of 200; husband and wife, Mr. and Mrs. Clyde King of Atlanta, Ga., 190 out of 200; veterans, J. W. Braderick of Richmond, Ind., 97 out of 100; national juniors, Fred D. Waldock of Sandusky, O. Illinois won the team title in a shoot-off with Wisconsin, and Joe Hiestand of Hillsboro, O., had the best score for all events, missing 37 out of 800. A field of 1,487 competed, firing 1,317,500 shells.

(M. P. W.)

Treason: see FEDERAL BUREAU OF INVESTIGATION.

Treasury, U.S. Department of: see GOVERNMENT DEPARTMENTS AND BUREAUS.

Trieste. A city and port on the northeastern Adriatic (pop. 248,379 in 1936), and the chief city of the Italian province of Venezia Giulia e Zara (area 3,456 sq.mi.; pop. 977,257). This territory had formed part of Austria (Trieste from 1382) before World War I. It was then called Küstenland. After World War I the territory was claimed by Yugoslavia and by Italy. The Italian population was preponderant in the cities, the Yugoslav population, Croat and Slovene, in the rural districts. According to the census of 1910 there were 387,000 Italians and 435,000 Slavs.

The control of the territory was settled by the treaty of Rapallo of Nov. 12, 1920, between Italy and Yugoslavia, which gave the whole territory to Italy. After the collapse of the German armies in April 1945 Marshal Tito's Yugoslav forces occupied the territory, determined to unite it with Yugoslavia. Italy protested against this annexation of Venezia Giulia and especially of Trieste with its large Italian population and historical and emotional ties with Italy. In an agreement of June 9, 1945, the larger part of Venezia Giulia, and Fiume and Zara, were placed under Yugoslav administration, the smaller part, including Trieste, was put under Allied administration. The dividing line was known as the Morgan line.

The fate of Trieste formed one of the most disputed points in the long deliberations of the Council of Foreign Ministers during 1946. The Russian spokesmen backed the Yugoslav demands for the annexation of the whole of Venezia Giulia by Yugoslavia; the U.S. and British representatives suggested an ethnographic line which would leave predominantly Italian parts to Italy and give the predominantly Croat and Slovene parts to Yugoslavia. Finally, a French compromise plan was adopted which gave to the Yugoslavs the predominantly Italian cities of western Istria, among them the naval base of Pola, but formed of the other predominantly Italian parts, which consisted of the city and surrounding territory of Trieste, the Free Territory of Trieste.

This free territory was to have its integrity and independence guaranteed by the Security council of the United Nations which would also be responsible for maintenance of public order and security and for the observance of the entire permanent statute, in particular the protection of the basic human rights of the inhabitants. The governor of the free territory was to be appointed by the Security council after consultation with the governments of Yugoslavia and Italy, but he could not be a citizen of either country nor of the territory. The Security council of the United Nations voted on Jan. 10, 1947, to assume these responsibilities.

In the debates over the future of Trieste in Paris in Sept. 1946 the Yugoslavs demanded at least a customs and monetary union of the free territory with Yugoslavia and their control over its foreign policy. Sen. Tom Connally on behalf of the



THE DISPOSITION OF TRIESTE was one of the points of difference among the delegates who met at Paris in 1946 to discuss the proposed treaties with the axis countries. Leo Joseph Roche of the *Buffalo Courier-Express* points up this issue in "Hot Stew Coming Up"

United States replied that Trieste must be not merely a paper state but it must be free, free from Yugoslavia and free from Italy. This attitude was finally approved by the full conference of the 21 powers for drawing up the peace treaty with Italy on Oct. 10 by a vote of 15 to 6. The points still remaining in dispute were referred to the meeting of the Council of Ministers in New York in the late fall.

The statute of the free territory provided for democratically elected legislative and executive authorities and for full safeguards of the civil and political rights and freedoms of the citizens. The governor of the free territory was to be responsible for the maintenance of public order and security and for the observation of the constitution. He was to submit annual reports to the Security council.

At the end of November the Council of Foreign Ministers agreed that the occupation forces would be withdrawn from the free territory within 90 days after the signing of the treaty should the governor and the military experts of the Big Four regard the step as safe. The number of troops was to be limited to 15,000 men, of whom the United States, Britain and Yugoslavia would each furnish one-third. The troops were to be under the direction and at the disposal of the governor.

The Free Territory of Trieste was prohibited from entering into economic union or any exclusive association with any other nation. Its free port was to be administered by a director appointed by the governor from a list of candidates submitted by the Council of Government of the free territory. The director could not be a citizen of Yugoslavia or Italy. He was to appoint the other employees of the free port with preference to free territory citizens. He would be assisted by an international commission comprising one representative each from the free territory, Italy, Yugoslavia, Russia, United States, Britain, France, Czechoslovakia, Austria, Hungary, Poland and Switzerland. This commission would have the right to investigate and consider all matters relating to the operation and administration of

the free port and the transit between the free port and the states served by it. The Italian lira was to be the monetary unit.

(See also COUNCIL OF FOREIGN MINISTERS; PARIS PEACE CONFERENCE.) (H. Ko.)

Trinidad. An island and British crown colony situated a few miles off the South American mainland north of the Orinoco river delta. The separate island of Tobago, situated northeast of Trinidad, forms a part of the colony. Area (including Tobago, 116 sq.mi.), 1,978 sq.mi.; pop. (1946 census), 556,700. The population includes more than 180,000 East Indians, and the chief element other than the East Indian is Negroid. The capital and principal city is Port of Spain (pop., 1946 census, 92,368). The only other town of importance is Arima (pop. est., 7,500). A new constitution entered into force March 21, 1946. Governors and commanders in chief in 1946: Sir Bede Clifford, until Nov. 3; Sir John Shaw, following that date.

History.—The first census in a number of years was taken April 9, 1946. Trinidad early in 1946 adopted a bill for registration of voters in anticipation of legislative elections July 1. These elections, the first after 1938, resulted in capture of eight of the nine seats by left-wing party candidates. The government established a microbiological research station near Port of Spain during 1946 and also laid plans to try to eradicate leprosy, especially prevalent among the East Indian element, in from 15 to 20 years. A civil aviation conference met at Port of Spain, beginning June 1, with representatives from Trinidad, British Guiana, St. Lucia, the Leeward Islands, Jamaica, the Bahamas and Bermuda.

Education.—Trinidad and Tobago at the beginning of 1944 had 291 primary and intermediate schools with an enrolment of 82,137. Plans were advanced during 1946 for establishing a teacher training college in Trinidad, designed to serve the Windward and Leeward Islands as well.

Finance.—The monetary unit is the Trinidad or West Indian dollar, equivalent to 4s. 2d. and exchanging for approximately 84 cents U.S. Budgetary appropriations for 1946 were \$30,772,768 and a deficit was anticipated by late in the year. Revenues were ultimately expected to reach about \$31,000,000 and expenditures about \$31,400,000. The government decided during the year, as an incentive to industry and business, to abolish the excess profits tax; the anticipated revenue loss was approximately \$500,000. The West Indian monetary conference in Barbados in mid-May, in which Trinidad participated, recommended establishment of a common decimal currency, based on the Trinidad dollar, for the eastern group of British Caribbean colonies. Trinidad during the latter part of 1946 anticipated a sharp increase in its cost of living because of the Canadian decision to bring its exchange rate to par with that of the United States.

Trade and Communication.—Cacao exports in the first 11 months of the crop year (Oct. 1, 1945–Aug. 31, 1946) were 7,631,767 lb., of which 3,837,600 lb. went to the United States and 2,444,979 lb. to the United Kingdom. Venezuela early in 1946 suspended cattle exports to Trinidad because of increased demands in the republic. Trinidad's petroleum exports in 1945 were valued at \$43,600,000.

Trinidad had in 1946 approximately 123 mi. of railway and 1,067 mi. of roads. The British West Indian Airways began providing weekly plane service to Trinidad during the year and in July Pan American Airways inaugurated 12-hour flights from New York city. Plans developed in 1946 for improved communications, called for an expanded telephone system, an expenditure of \$4,800,000 on the Port of Spain airport, and \$1,000,000 to be spent on roads.

Agriculture.—Sugar production in 1946 was 109,602 long tons (1945: 76,347 tons). Citrus production in 1945 was estimated at 7,263 long tons (1944: 5,469 tons) and an increase was expected for 1946. Rice production in 1945 was 15,000 short tons, about the same as in 1944, but the annual consumption was about 30,000 short tons. The estimate of cacao production for 1947 was 10,000,000 lb. Copra production in 1945 reached the record figure of 35,000,000 lb.

Mining.—Crude petroleum production figures, withheld during World War II, were revealed during 1946 to have been as follows: 1939, 19,741,616 bbl.; 1940, 22,226,876 bbl.; 1941, 20,505,980 bbl.; 1942, 22,069,178 bbl.; 1943, 21,385,240 bbl.; 1944, 21,634,965 bbl. Trinidad and Venezuela took steps during 1946 to delimit the respective portions of the Gulf of Paria, between the two, in which each could undertake submarine drilling for petroleum.

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Tripoli: see ABRASIVES.

Trolley Coaches: see ELECTRIC TRANSPORTATION.

Trucial Sheikhs: see ARABIA.

Truck Crops: see VEGETABLES.

Trucks: see AUTOMOBILE INDUSTRY; MOTOR TRANSPORTATION.

Truman, Harry S. (1884–), 33rd president of the United States, was born on May 8 in Lamar, Mo. See *Encyclopædia Britannica* for an extended biography. President Truman underwent an understandable but, nonetheless, a far-reaching transformation during his first full year in the White House—1946. Whereas he had followed the Roosevelt (New Deal) program closely and faithfully in the earlier months, he subsequently made such sweeping changes in policies and personnel in both the domestic and foreign realms that the presidential family had become a "Truman administration" by the end of that period.

The November congressional elections, which returned house and senate control to the Republicans in a remarkable upset, undoubtedly hastened and influenced the president's decision. Indeed, he appeared to view the outcome as a mandate for his reversal. He said, in effect, that henceforth he meant to be president in his own right and that he would not feel himself beholden to any individual or faction.

His shift on major foreign and domestic questions antagonized Roosevelt liberals, who protested that he was scrapping his predecessor's program. In retaliation, they formed several so-called "progressive" organizations toward the end of the year with the expressed purpose of forcing a return to New Deal fundamentals. There was even talk of formation of a third, anti-Truman party for the 1948 presidential election.

In the domestic field Truman removed almost all price-fixing and priority controls over the U.S. economic system—food, clothing, housing construction, manufacture, etc. He proclaimed the end of "hostilities," which meant that many other wartime laws and restrictions were headed for discard.

He deemed it necessary to adopt a much firmer attitude toward organized labour. When the railroad brotherhoods threatened a nation-wide tie-up of the transportation system in August, he asked congress to enact a law drafting into the armed services members of unions who refused to work for key industries after they had been taken over by the government. His proposal angered labour leaders, but they cancelled plans for a strike.

When John L. Lewis, president of the United Mine Workers, set in motion strike machinery in bitter December weather, Truman invoked the injunction process against the coal miners. Lewis was found guilty of breaking a contract with the government. The U.M.W. was fined \$3,500,000, and Lewis was held personally liable for \$10,000 by the U.S. court of appeals of the District of Columbia. The mine leader appealed to the supreme court, but he halted the strike movement temporarily.

Truman immediately instructed his advisers to frame a legislative program for more drastic curbs on labour, which he submitted to the new, Republican-controlled congress early in 1947. It seemed clear that the prolonged honeymoon between the Democratic administration and organized labour had come to an end.

The principal change in foreign affairs concerned the soviet union. After pursuing a policy labelled by critics as "appeasement" of Moscow Pres. Truman and former Secretary of State James F. Byrnes voiced numerous protests at United Nations sessions on the soviet attitude on atom bomb control, general world disarmament, Poland, Germany, the Balkans and other international problems.

The impression that Truman had drawn away from the U.S.S.R. and closer to England was strengthened by an incident at Westminster college in Fulton, Mo. With Truman sitting on the platform Winston S. Churchill, Britain's wartime prime minister, urged an Anglo-U.S. alliance. His further reference to a "Russian iron curtain" over Europe and the Balkans suggested that he meant his proposed alliance to be directed against Moscow.

Truman refrained from any comment on the Churchill scheme. The White House, however, denied that the president had known in advance of the contents of his British guest's speech.

Washington's sterner policy toward the Kremlin helped to precipitate one of two cabinet rows and resignations. Speaking before an extremely pro-U.S.S.R. gathering at Madison Square garden in New York city, Henry A. Wallace, then secretary of commerce, seemed to criticize the Byrnes program. Wallace

PRESIDENT HARRY S. TRUMAN signing the \$3,750,000,000 loan to Great Britain on July 15, 1946, with one of the 26 pens he used to write the word "approved," the date and his signature. On the right is Lord Inverchapel, British ambassador to the U.S.



added that Pres. Truman had approved his utterance in advance.

Truman at first endorsed this statement. After a few days, however, he explained that he had merely approved the cabinet member's "right to make the speech." When Wallace subsequently made public a letter to the president, in which he had criticized the administration's soviet policy in great detail, the president asked for his resignation.

The other cabinet disagreement involved Harold L. Ickes, former secretary of the interior. When Pres. Truman named Edwin W. Pauley, a California oil man, to be under secretary of the navy, Ickes opposed the nomination. He testified before a senate committee that Pauley in the 1944 presidential campaign had told him that certain oil interests would contribute more generously to the Democrats if the government abandoned its suits claiming title to tidewater petroleum properties.

Ickes also said that, when he informed Truman of his plan to speak against the nomination on Capitol Hill, the president replied, "Go ahead and testify, but be as kind as you can to Ed Pauley." The chief executive declared that Ickes had been mistaken, whereupon the latter quit. Summoning one of the best-attended press conferences in Washington history, he assailed the calibre of Truman's more recent appointments.

The senate refused to confirm Pauley, who was then named as Truman's reparations agent. Ickes became a newspaper columnist and also took a leading role in the establishment of progressive movements.

When deaths and resignations provided vacancies, Truman turned for new men to personal friends of a generally conservative character. He replaced Wallace with W. Averell Harriman, former ambassador to the U.S.S.R. and a railroad magnate. Ickes' successor was J. A. Krug of Wisconsin, public power expert and former chairman of the War Production board. He appointed George E. Allen to a directorship of the Reconstruction Finance Corp., an appointment that provoked criticism.

When Justice Harlan F. Stone died in June, Truman chose Fred M. Vinson, then secretary of the treasury and an experienced Kentucky legislator and administrator, as supreme court chief justice. He gave the treasury post to John W. Snyder, a St. Louis banker and old friend.

The most important cabinet shift affected the state department. In a surprise move, Byrnes resigned because of ill health, and his place was given to Gen. George C. Marshall, World War II chief of staff and later special emissary to China.

Pres. Truman took hardly any part in partisan politics in 1946. He told party leaders as early as March that he would not participate in the November campaign, and he kept his word save for his home state of Missouri.

There, in the fifth congressional district, he openly opposed renomination of Roger C. Slaughter, Democratic representative, because the legislator had fought the White House program on Capitol Hill. Slaughter was defeated in the primary by the presidential entry, Enos Axtell, but the latter lost to his Republican opponent in the general election.

Relations between the White House and congress remained comparatively harmonious, although less than 50% of the original presidential proposals became law. But it was generally conceded that his stock in that body and throughout the nation rose after his quick response to November's ballot-box mandate and his removal of irksome, wartime restrictions. (See also UNITED STATES.)

(R. Tu.)

Tsaldaris, Constantin (1884-), Greek politician, was born in Alexandria. Graduated from the University of Athens law school, he studied law and political science at universities in France, England and Germany. He entered the government as minister in Crete (1920-

22). A royalist by conviction, he was imprisoned in 1926 for plotting against the republic. Elected to the Greek parliament in 1932, he was re-elected in 1933 and 1935.

Tsaldaris fled to Egypt after the German occupation. Returning to his homeland toward the end of World War II, he became one of the leaders of the pro-Royalist Populist party. He held five ministries in the short-lived Panayotis Poulitsas cabinet and on April 18, 1946, formed his own cabinet.

He submitted Greece's territorial and reparations claims before the Council of Foreign Ministers and the 21-nations peace conference in the summer and fall of 1946. The Big Four agreed to return the Dodecanese to Greece, but rejected his claims for territorial acquisitions at the expense of Albania and Bulgaria.

At home Tsaldaris was confronted with an incipient revolt in late 1946. His suspension of civil liberties and suppression of trade union activities resulted in leftist resentment which increased with the return of King George II. Popular unrest was climaxed in the fighting between leftist guerrillas and government forces in the border areas. As the fighting grew in intensity and scope, Tsaldaris notified the soviet *chargé d'affaires*, Nov. 30, 1946, that he would lodge a protest with the U.N. against the "foreign sources" that were fomenting disorders in Greece.

Tuberculosis. Tuberculin testing indicated that from 40% to 80% of the children of Poland and Czechoslovakia had primary tuberculosis in 1946. In Canada the mortality rate definitely decreased during the period of World War II, from 54.7 in 1938 to 45.8 in 1945.

W. S. Gilmour found that in the West Indies nearly 100% of adults and 20%-60% of children in urban areas reacted to tuberculin. In the rural areas 7%-33% of children reacted. In most Central and South American nations the rates remained high. In the United States the Metropolitan Life Insurance company's experience showed a mortality of 37.9 per 100,000 for the first three-quarters of the year, the same as in 1945.

In the United States in 1944, during the most productive age period of life, 15 to 44 years, almost 27,000 died from tuberculosis and slightly less than 26,000 from heart disease.

Diagnosis and Case Finding.—During the past few years slipshod and short-cut methods of diagnosis resulted in large numbers of diagnostic errors. As many as 15%-25% of the patients admitted to sanatoriums were found to have some other disease, or if tuberculosis was present it had already been controlled by nature. This was largely because of diagnoses made from X-ray shadows alone.

Ira Lewis demonstrated that films made through ordinary clothing are entirely satisfactory. This eliminates much waste of time. E. M. Schleicher presented a method of diagnosing generalized miliary tuberculosis from the bone marrow before it could be detected by any other phase of the examination. C. A. Palmer re-emphasized the importance of differentiating when possible, between calcification caused by primary tuberculosis and that resulting from other conditions, such as fungus infection.

R. J. Dubos *et al.*, described a liquid medium in which tubercle bacilli grew much more rapidly than in the media previously used. Growths had developed from specimens of sputum, blood, spinal fluid and urine in which it had not been possible to find acid-fast bacilli by microscopic examination of concentrated material. Thus, specific diagnostic evidence of tuberculosis might be obtained in a few days rather than several weeks.

In Kansas City, Mo., 17,000 persons, mostly children, received histoplasmin and tuberculin tests and X-ray inspection of the chest. About 2% of the six-year-old white school children reacted to tuberculin. Throughout the school years a slow

rise was observed to slightly more than 10% by the age of 18 years. Among Negro children the incidence of tuberculin reactors was three times as high. About 5% reacted to histoplasmin at the age of 2 years, and 60% at 18 years. Definite or probable evidence of pulmonary calcification was found in 23.8% of those who reacted to both histoplasmin and tuberculin and 26.4% of those who reacted to histoplasmin but not to tuberculin and 11.4% of those who reacted to tuberculin but not to histoplasmin. Among the children who did not react to either of these tests only 2.6% showed evidence of calcification.

The Committee on Tuberculosis of the American Student Health association reported that during the year 1944-45, 312 colleges had some type of tuberculosis program, where 389 cases of tuberculosis were discovered. More than 12 times as many cases of tuberculosis were found in schools which had a regular tuberculosis program as in those which had not yet participated in this work. The committee strongly recommended testing with tuberculin all entering students and annual retesting of nonreactors.

Treatment.—O. A. Sander pointed out that tuberculosis complicated by silicosis is not so serious as was believed. Not all such cases are rapidly progressive. There are times when tuberculosis is held in check by the fibrous tissue caused by silicosis. A number of silicotic foundrymen made satisfactory arrest of their tuberculosis while working in departments where they were not exposed to excessive amounts of silica dust.

A. L. Barach reported good results in the treatment of pulmonary tuberculosis through the use of residence of patients in the equalizing pressure chamber. This results in continuous immobilization of the lungs, which permits so much local lung rest as to promote the process of healing in areas of disease. Favourable response was observed in patients for whom no other form of treatment was possible or who had not responded to other forms of treatment.

H. C. Hinshaw, W. H. Feldman, K. H. Pfuetze and others found that streptomycin definitely suppresses certain forms of tuberculosis, such as meningitis, miliary and even chronic pulmonary disease. No definite proof was adduced that it destroys all tubercle bacilli.

Richard Davison reported 1,868 thoracoplasty operations on 933 patients. Among 888 patients operated on before Jan. 1, 1945, of those that could be traced, 64% were classified as apparently arrested. This is an excellent result, since all patients were in an advanced stage before operation. The surgical removal of lobes and entire lungs for tuberculosis was employed in a number of centres. However, Duane Carr *et al.*, warned against overenthusiasm and insisted that these procedures be reserved for those patients in whom the various lung collapse procedures would obviously prove ineffective.

Control.—Approximately one-third of all deaths from tuberculosis in the United States occurred in homes. In nine southern populous states this was true of 55%-77% of deaths.

About 30,000 veterans of World War II developed tuberculosis. There were 9,425 beds available through the Veterans' administration. Plans were in progress which would provide for a total of 14,600 beds by Jan. 1, 1948. Dr. John Barnwell, of the University of Michigan, was appointed director of the tuberculosis division of the Veterans' administration. The National Research council organized a subcommittee on tuberculosis which would have an important function in advising the federal agencies in a broad program of professional conduct and research in the field of tuberculosis. The division of tuberculosis of the United States public health service estimated a sanatorium bed deficiency of 44,388. This did not apply everywhere. For instance, in one state there were 600 vacant beds

in 1946.

The committee on tuberculosis of the American School Health association continued to promote the certification of schools on the basis of tuberculosis control work in progress. In Minnesota approximately 200 schools were certified during 1946, and it was anticipated that all schools in the state would be certified in approximately five years. Committees were drawing up qualifications for certification in other states.

Sarah I. Morris reported the results of a case-finding and follow-up study among women medical students over a period of 12 years and presented an effective control program. The total number of students observed was 449, of whom 12.5% developed clinical tuberculosis while under observation. All the students who entered this school as nonreactors to tuberculin became reactors before graduation. In one class of 36 students, 27% developed clinical tuberculosis and 5.5% died.

The controversy regarding the efficacy of BCG (*Bacillus Calmette Guérin*) in immunizing against tuberculosis continued. J. D. Aronson, R. G. Ferguson and S. R. Rosenthal reported results of observation which indicated that a smaller number of vaccinated children die from tuberculosis than the unvaccinated, while M. I. Levine observed no difference whatsoever in the mortality among vaccinated and unvaccinated children. In September, H. E. Hilleboe arranged a conference on this subject. From all of the reports throughout the world it was evident that no well-controlled study over a sufficient period of time had been reported. Therefore, the subject was still in the experimental stage. It was decided that a scientific and well-controlled study of a limited group should be instituted in the United States.

In 1946 there were national tuberculosis associations in 33 nations, 27 of which used seal sales in their fund-raising campaigns. In the United States the gross income from the Christmas seal sale in 1945 was \$15,638,755.37, and more than \$16,000,000 was expected in 1946. Hilleboe pointed out that more than \$100,000,000 was spent annually to maintain sanatorium beds in the United States. This, plus other actual expenditures for the tuberculous, amounted to about \$150,000,000 per year. Congress appropriated \$7,994,000 for federal tuberculosis control in the fiscal year 1946-47. Of this amount, \$6,880,000 was allocated to states and the remainder used for program operation of the division of tuberculosis of the United States public health service. *Public Health Reports*, the weekly bulletin of the United States public health service, issued one all-tuberculosis number each month after March 1. These contained excellent and timely information. In the province of Quebec the government granted \$10,000,000 to combat tuberculosis. The International Union Against Tuberculosis suspended its meetings in 1939 and held its first postwar session in Paris on Nov. 7.

Tuberculosis in Animals.—At the end of the fiscal year, June 30, 1946, the total number of tuberculin tests that had been administered from 1917 to the cattle of the United States in the tuberculosis eradication program of the United States bureau of animal industry was 287,689,953. The number of reactors slaughtered from 1917 to 1946 was 3,911,414. In the fiscal year ending June 1946, 8,454,463 cattle were tested with tuberculin and only 0.23% reacted. This was the most effective tuberculosis control program among animals that had ever been conducted.

On Jan. 14, Dr. M. P. Ravenel died. He was the first person to prove conclusively that the bovine type of tubercle bacillus causes serious disease in man. A problem confronting the veterinarians was that humans with tuberculosis infect cattle. It was suggested that adequate examinations be made of owners, farm hands and all others who come in direct contact with or handle the food of cattle. An extensive campaign was also waged against tuberculosis in other domestic animals, particularly in swine and poultry. (See also X-RAY and RADIOLOGY.)

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Tulane University. This coeducational institution, located in New Orleans, La., was founded in 1834. It includes the colleges of arts and sciences, engineering, law, commerce, Newcomb College for Women, the graduate, social work and medical schools, University college (the night division) and the summer session.

In 1946 the academic structure had been reorganized on the divisional plan, including the undergraduate colleges and the graduate school, but not the professional schools of medicine, law and social work. Five divisions were created, the Humanities, the Fine Arts, the Social Studies, the Physical Sciences and the Biological Sciences, each to be headed by a director.

With the termination of the navy V-12 program in July 1946, the university returned to the regular two-semester schedule with the opening of the 1946-47 session on Sept. 23, 1946. Registration reached a new high, and more than one-half of the students were veterans. Because of crowded conditions, the university inaugurated a "swing shift" which held classes from 4 p.m. to 10 p.m. and offered a full program for 300 freshmen in the colleges of engineering and arts and sciences, who could not be accommodated in the regular classes.

To relieve the housing situation, emergency housing units were erected on the campus by the Federal Public Housing authority and administered by the university. Plans for many physical improvements on the campus were made, though actual building could not begin. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. C. H.)

Tung Oil: see VEGETABLE OILS AND ANIMAL FATS.

Tungsten. The output of tungsten concentrates containing 60% WO₃ for the major producing countries is shown in Table I, so far as data were available in 1946.

Table I.—World Production of Tungsten Concentrates (Short tons)

	1937	1939	1941	1943	1944	1945
United States . . .	3,500	4,287	6,566	11,945	10,283	5,715
Canada	—	4	35	681	517	—
Argentina	955	1,443	1,896	2,668	2,743	577
Bolivia	1,986	3,678	4,798	7,608	8,747	4,245
Brazil	7	8	39	1,393	2,448	2,471
Peru	86	187	371	796	700	349
Portugal	2,281	4,245	6,431	8,242	4,506	—
Spain	276	406	457	4,301	2,638	237
Burma	7,599	9,081	?	?	?	?
China	19,726	12,765	?	13,272	9,906	?
Total	43,124	44,000	?	?	?	?

In order to cover a longer period, data are shown for alternate years previous to 1943. The extent to which production was built up in so many countries is one of the marvels of the war production program. The results in the U.S. are especially noteworthy since, so far as is known, the U.S. became the leading producer in 1944. In the earlier years of World War II, Portugal and Spain furnished most of the German supply, but later the buyers of the United Nations adopted the policy of outbidding the German buyers, to reduce the German supply, thus accounting for the marked rise and abrupt fall of output in these countries. When the Burma road was closed, and it was necessary to fly war supplies to China, considerable

Table II.—U.S. Tungsten Statistics, 1939-45 (Short tons of metal content)

	1939	1940	1941	1942	1943	1944	1945
Production . . .	1,715	2,436	3,210	4,489	5,736	4,882	2,696
Shipments . . .	2,040	2,531	3,125	4,441	5,684	4,893	2,720
Imports	1,556	4,833	6,576	7,705	9,339	9,119	4,320
Consumption . .	?	4,978	8,350	8,695	9,657	9,583	7,073
Stocks	1,548	4,157	5,393	6,652	11,988	14,920	12,388

amounts of tungsten were brought out on the return trips.

United States.—Statistics of the tungsten industry in the U.S. are shown in Table II.

The newly discovered deposits which supplied most of this increase were mostly mined out to supply war demand, and production was expected to drop back to something like the prewar level. The figures for 1945 show the beginning of this break, which continued into 1946. Production of concentrates dropped from 1,693 tons in the first quarter of 1946 to 625 tons in the third quarter, with a total of 3,297 tons, in three quarters, as compared with 4,371 tons in the same period of 1945. Imports dropped about 20% below the 1945 rate, but consumption declined by 60%. (See also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

Tunisia: see FRENCH COLONIAL EMPIRE.

Tunnels. Tunnel work throughout the world slowly resumed in 1946 following virtual cessation, except for military projects, during World War II. Progress resumed on some shut-down operations, numerous new bores were started and a great many were planned as near-future construction projects.

Work continued on the 1.2-mi. Brooklyn-Battery twin-bore vehicular tunnel in New York. Shields driving the south half from Brooklyn approached Governors Island, midway in the project and northern terminus of the south section, at the end of the year. In the north section, all in rock, the contractor worked mostly on enlarging the centre pioneer bores, completed prior to the war shut down, to full size and the shields were being erected to place the permanent cast-iron lining.

In Colorado, the 13.1-mi. Alva B. Adams tunnel under the Continental divide was completed with the finishing of the concrete lining. This was the longest tunnel in the world driven from two portals. Two other tunnels on this same Colorado-Big Thompson irrigation project were started on the east side of the divide: Rams Horn (6,924 ft.) and Prospect mountain (5,650 ft.), both scheduled for completion in 1947.

San Diego joined the Metropolitan Water district of Southern California and started a 71-mi. aqueduct to bring Colorado river water into the city from the existing metropolitan system. Included in the aqueduct were seven tunnels: San Vicente, Fire Hill, Poway, Rainbow, Lilac, Red Mountain and Oats Hill. These ranged from 500 to 5,700 ft. in length.

In Chicago, work continued on a 23,000-ft. section of a 12x 20-ft. intercepting sewer, started late in 1945, and contract was let in September for an additional 17,000 ft. of similar tunnel on the same project. Bids were taken on extending the Dearborn street subway tunnel in Chicago but were rejected as too high. New bids were to be asked under a revision of plans.

A mile-long sewer tunnel was completed in Baltimore and work started on a 5.5-mi. water tunnel in Boston.

The Columbia basin irrigation project in Washington would eventually call for 14 tunnels. Bacon tunnel, 1.9 mi. long, was started in 1946 and 3 more were included in the first phase of the project under way.

Greatest of all tunnels outside the United States under way in 1946 was sec. 4 of the Moscow subway, a 12.5-mi. loop intersecting the previous 3 routes. Shields, compressed-air drills, pneumatic spades, electric locomotives and other modern equipment were being used on this project. In London, the eastward extension of the Central London subway was resumed. Sidney, Australia, started work on a 7-mi. extension to its subway.

In Mexico, driving was completed on the 7-mi. El Mirador tunnel on the Valsequillo irrigation project near Puebla. Only connecting work remained to be done on this 16-ft. bore. The Tequiquiac sewer tunnel, also 7 mi. long, was 80% complete

at the end of the year. Longest of all Mexican tunnels, the 10-mi. Lerma tunnel for Mexico City's water supply was 50% finished. Work started in 1946 on the Cañon del Pato hydroelectric project in Peru, which included a 5.7-mi. tunnel to be driven through extremely hard rock.

Driving of Blackwell No. 2 tunnel in London and the Thames Estuary tunnel below the city was resumed. Progress on both of these vehicular tunnels was disrupted by World War II.

Contract was let for a 2-mi. water tunnel on Oahu to supply additional water for Honolulu. Before work got under way the contractor revoked because of adverse labour and materials conditions induced by several strikes. The project was expected to be readvertised in 1947. (H. W. RN.)

Turkestan, Chinese: see SINKIANG.

Turkey. A republic in the southeastern Balkans and in Asia Minor. Area, 296,185 sq.mi.; pop. (Oct. 20, 1940) 17,820,950. Capital: Ankara. Chief cities: Istanbul (Constantinople) 793,949; Izmir (Smyrna) 183,762; Ankara (Angora) 157,242; Seyhan (Adana) 88,119; Bursa (Brusa) 77,598; Eskişehir 60,742; Gaziantep 57,132. Religion: predominantly Mohammedan. President: Ismet İnönü. Prime minister (1946) Recep Peker.

History.—During 1946 Turkey found itself in the centre of international attention as a result of soviet Russia's demand for the annexation of Turkish territory and for the establishment of Russian military bases in the Turkish straits dominating Constantinople. This demand was consistently rejected by the Turks. Internally Turkey ended the one party system which Mustapha Kemal, the great renovator of Turkey, established when the country was transformed from an empire into a national republic. In Jan. 1946 a new Democratic party under the leadership of Jelal Bayer, who was Turkish premier from 1937 to 1939, was formed and entered the electoral campaign against the Republican People's party which was backed by the government. The elections were held on July 21 based on universal suffrage and the secret ballot. In the large cities the Democratic party was favoured. Both parties were agreed upon the country's foreign policy. Both rejected not only Russia's

RUSSIAN demands for military bases on the Dardanelles were the subject of "Peace Meal," drawn in 1946 by Carl Somdal of the *Chicago Tribune*





MILITARY HONOURS being accorded the body of Mehmet M. Ertegun, former Turkish ambassador to the U.S., in Istanbul during April 1946. He had died in the U.S. in 1944, and his body was returned aboard the U.S. battleship "Missouri"

territorial demands but also Russian suggestions to adopt a pro-Russian line as Bulgaria and Yugoslavia had done and to join with those states against Greece and the western democracies, whereupon Russia would abandon its territorial claims. In domestic policy, however, the two parties were violently opposed and the Democrats accused the government party of undue influence on the electorate. The government party won an overwhelming victory at the polls, with 396 seats against 62 for the opposition.

At the beginning of August the cabinet of Sükrü Saracoğlu resigned and was replaced by one headed by Recep Peker, a former minister of the interior who retained in his cabinet Hassan Saka as foreign minister.

The new government rejected Russian proposals for establishing joint Russian-Turkish defense of the Dardanelles and for the narrowing of the control of the Dardanelles to the Black Sea powers alone. To the Russian note of Aug. 7 the Turks replied on Aug. 23 that the United Nations should be trusted to guarantee the straits' security; that changing the existing form of defense of the straits would be a denial of the existence and aims of the United Nations charter and would imply a distrust of the efficacy of the United Nations to which Turkey declared itself firmly attached. On the other hand the Turks agreed to the rewording of the convention of Montreux of 1936, though the pact had been intended to live unchanged at least until 1956. The pact had been signed by Russia, Turkey, Britain, France, Rumania, Bulgaria, Yugoslavia and Japan. Turkey insisted that in any new negotiations the United States must take part.

The United States, in its notes of Aug. 19 and Oct. 9 to the soviet foreign office, supported the Turkish point of view. It emphasized that the regime of the straits was a matter of concern not only to the Black sea powers but also to other powers,

including the United States, and that the Potsdam agreement between Russia, the United States and Britain had contemplated a conference of all the interested powers, including the United States, to consider the revision of the Montreux convention. It pointed out that in the opinion of the U.S. the Turkish government should continue to be primarily responsible for the defense of the straits. Should they become the object of attack or threat of attack by an aggressor, the resulting situation should be dealt with by the Security council of the United Nations. Britain and France, who were signers of the Montreux convention, supported the U.S. point of view. Turkish friendship towards the United States was marked at the time of the visit of the U.S. battleship "Missouri" in Istanbul.

Even more determined was Turkish resistance to Russia's territorial demands. The Russian government demanded on behalf of soviet Armenia and of soviet Georgia large parts of northeastern Anatolia and of the Turkish Black sea coast. There were also reports of Russian support for Kurdish autonomy demands, for the Kurds in Turkey as well as for those in neighbouring Iran. The Russian advance in Iranian Azerbaijan was also felt as a threat to Turkey. All these claims were, however, not officially raised by the soviet government, and by the end of 1946 Russia seemed, at least for the time being, to have dropped them. The withdrawal of Russian troops from Iranian Azerbaijan which flanks Turkey also helped to ease the situation considerably.

Education.—In 1942 there were 11,413 schools with 29,854 teachers and 769,555 male and 331,706 female students. The total expenditure on education by the government in 1941-42 was \$32,837,515. There were 20 institutions for higher education with 11,779 male and 3,011 women students.

Finance.—Government revenues for 1945 were \$721,209,000, expenditures \$761,948,000; the national debt (1943) amounted to \$1,114,010,000. The monetary unit is the Turkish pound (£ T), divided into 100 piastres. The Turkish pound was

stabilized on the basis of 521 piastres to the English pound and was valued at approximately 80 cents (U.S.).

Trade and Communication.—In 1943 imports to Turkey amounted to \$162,400,000; exports from Turkey to \$197,600,000. Before World War II the chief exporters to Turkey were Germany, followed by the United States, Italy and Great Britain. The same order prevailed among the countries to which Turkey exported. There were 4,551 mi. railroads in 1944; 25,393 mi. highways (1942); 28,857 telephones (1945); 18,795 mi. telegraph lines (1944); 176,262 radio sets (1945).

Agriculture and Minerals.—Production of principal crops (1944) included: wheat 3,525,592 short tons; sugar beets 676,101 tons; barley 1,546,581 tons; potatoes 211,352 tons. There were 22,450,000 sheep; 12,250,000 goats (ordinary); 4,975,000 goats (mohair); 9,549,000 cattle. Mineral production was: coal 4,099,454 short tons (1944); cement 299,689 tons (1945); chrome 86,313 tons (1945); mineral water 173,708 gal. (1945).

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(H. Ko.; X.)

TVA: see TENNESSEE VALLEY AUTHORITY.

Twentieth Century Fund: see SOCIETIES AND ASSOCIATIONS.

Uganda: see BRITISH EAST AFRICA.

Ukraine. The Ukrainian Soviet Socialist Republic was one of the 16 constituent members of the Union of Soviet Socialist Republics. In 1939 its area was 170,998 sq.mi. with a population of 30,960,221. Capital: Kiev (pop. 846,293). Other important cities: Kharkov (833,432), Odessa (604,223), Dnepropetrovsk (500,662). The Ukrainian Soviet Socialist Republic later extended its territory by about 50,000 sq.mi. through the annexation of southeastern Poland (1939), of parts of Rumania's eastern provinces (1940) and of Czechoslovak Carpatho-Ukraine (1945).

The Ukrainian Soviet Socialist Republic formed, in number of population and in economic importance, the second of the 16 constituent republics, ranking immediately after the Russian Socialist Federal Soviet Republic, though having only about one-third of the latter's population and only one-thirty-fifth of the latter's territory.

During 1946 the Ukraine took a very active part in all the United Nations deliberations. The chairman of its delegation, Dmitry Zackarovich Manuisky, one of the well known old bolshevik leaders and prominent member of the former Communist International, could be always relied upon to present with great skill and ability the soviet and communist point of view.

The Ukraine and the neighbouring Byelorussian Soviet Socialist Republic received valuable assistance during 1946 from the U.N.R.R.A. The U.N.R.R.A. program of relief and rehabilitation included foodstuff, farm tools of all kinds, repair tools, small plants and medical supplies.

In March 1946 a number of members of the Ukrainian Uniate Church in the territories annexed by the soviet union after the outbreak of World War II decided to dissolve their ties with the Catholic Church in Rome and to join the Russian Orthodox Church of Moscow. In a letter sent to Generalissimo Joseph Stalin the 216 delegates of the Uniate Church of the western Ukraine gathered in Lwow (Lemberg), Poland, declared on March 8 that they abandoned the Brest union with the Vatican which had been concluded in 1595 and that they returned "to the bosom of the Holy Russian Orthodox Church of our forefathers, whose light shone from Russia's Kiev, the historic cradle of the Russian, Ukrainian and Byelo-Russian peoples." The letter accused "proud and power-loving Rome" of dreaming of

establishing "its own dictatorship in the Christian world."

The Ukrainians and even many of their Communist leaders had for many years fought for greater national independence against Moscow centralization. After World War II Ukrainian nationalism and striving for independence again agitated the country violently. On behalf of the Moscow politbureau of the Communist party, Nikita Khrushchev visited Kiev at the end of Aug. 1946, and under his leadership a thorough purge of the Ukrainian Communist party was carried through. About one-half of the Communist leaders in the Ukraine were replaced. It was found that the central committee of the party in the Ukraine had failed to resist "a hostile bourgeois nationalist ideology."

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(H. Ko.)

Unemployment: see EMPLOYMENT.

Unemployment Insurance: see SOCIAL SECURITY; VETERANS' ADMINISTRATION.

Unemployment Relief: see RELIEF.

Unfederated Malay States: see MALAYAN UNION AND SINGAPORE.

Union of South Africa: see SOUTH AFRICA, THE UNION OF.

Union of Soviet Socialist Republics. The former Russian empire, an Eurasian state covering the whole of eastern Europe and Northern Asia and much of central Asia, is a federation of soviet socialist republics. In 1939 its area was 8,173,557 sq.mi., its pop. (Jan. 17, 1939, census) 170,467,486. The union then consisted of 11 republics of which the Russian Soviet Federated Socialist Republic was by far the largest (78% of the whole territory and 64% of the population). Of the remaining 36% of the population, almost one-half lived in the Ukrainian S.S.R. (2% of the territory) and the other half in the 9 other union republics (20% of the territory). The soviet union is inhabited by almost 100 different nationalities speaking different languages. In Jan. 1939 Great Russians constituted 58.4% of the population, Ukrainians 16.6% and Byelorussians 3.1%. None of the other nationalities, all of them non-Slavic and most of them non-European, reached 3% of the total population.

In 1939 the U.S.S.R. consisted of the following union republics: Russian S.F.S.R. (capital Moscow; area 6,372,860 sq.mi.; pop. 109,278,914); Ukrainian S.S.R. (Kiev; 171,777 sq.mi.; pop. 30,960,221); Byelorussian S.S.R. (Minsk; 49,022 sq.mi.; pop. 5,567,976); Azerbaijan S.S.R. (Baku; 33,196 sq.mi.; pop. 3,209,727); Georgian S.S.R. (Tiflis; 27,020 sq.mi.; pop. 3,542,289); Armenian S.S.R. (Erivan; 11,580 sq.mi.; pop. 1,281,599); Turkmen S.S.R. (Ashkhabad; 171,384 sq.mi.; pop. 1,253,985); Uzbek S.S.R. (Tashkent; 145,908 sq.mi.; pop. 6,282,446); Tadzhik S.S.R. (Stalinabad; 55,584 sq.mi.; pop. 1,485,091); Kazakh S.S.R. (Alma-Ata; 1,059,184 sq.mi.; pop. 6,145,937); Kirghiz S.S.R. (Frunze; 76,042 sq.mi.; pop. 1,459,301). In the years between 1939 and 1945 the U.S.S.R. expanded its territory considerably. It annexed in Europe the three Baltic republics of Estonia (18,353 sq.mi., pop. 1,126,413), Latvia (20,056 sq.mi., pop. 1,950,502) and Lithuania (22,959 sq.mi., pop. 2,879,070) and acquired from Finland 16,173 sq.mi. with a pop. of c. 500,000; from Poland 77,703 sq.mi. with a pop. of c. 12,775,000; from Rumania 19,300 sq.mi. with a pop. of c. 3,500,000. In 1945 the U.S.S.R. added to its territory the Carpatho-Ukraine from Czechoslovakia (12,617 sq.mi. with a pop. of 725,357) and the northern part of eastern Prussia from Germany (c. 7,000 sq.mi. with a pop. of c. 1,000,000). From Japan the U.S.S.R. acquired in 1945 Karafuto (southern Sak-

halin), an area of 13,935 sq.mi. with a pop. (1935 census) of 331,943, and the Chishima or Kurile Islands (47 islands of 3,944 sq.mi.). In addition the formerly "independent" republic of Tannu Tuva in Outer Mongolia (64,000 sq.mi.) was annexed and transformed into the Tuvan Autonomous Region.

As the result of the territorial expansion and of events of World War II the U.S.S.R. formed in 1946 a federation of 16 republics. To the 11 republics existing in 1939 were added: the Karelo-Finnish S.S.R., consisting of the territory ceded by Finland and of the former autonomous S.S.R. Karelia (cap. Petrozavodsk; area 75,656 sq.mi.), the Moldavian S.S.R. consisting of most of Rumanian Bessarabia and the former Moldavian autonomous S.S.R. (area 13,124 sq.mi.), the Estonian S.S.R., the Latvian S.S.R. and the Lithuanian S.S.R.

On the other hand several former autonomous republics and regions in the U.S.S.R. were liquidated during World War II as a result of the disloyalty of the populations who found their national aspirations not satisfied within the U.S.S.R. and, therefore, when the opportunity offered itself, collaborated with the invading Germans. These regions were the Crimean Tatar A.S.S.R., the Kalmyk A.S.S.R., the Chechen-Ingush A.S.S.R. and the Karachaev Autonomous Region. The populations were dispersed, the indigenous languages doomed, the towns and places received Russian names. In the belief that race is stronger than class allegiance and indoctrination, the U.S.S.R. government liquidated the German Volga A.S.S.R., one of the oldest autonomies in the soviet union, although the German invaders never reached the territory.

In addition to the vastly increased territory of the U.S.S.R. proper the soviet union exercised in 1946 an ideological, political and military sway as a result of World War II over the people's republic of Bulgaria, the federated people's republic of Yugoslavia, the people's republic of Albania and the people's republic of Mongolia, and to a lesser degree over the kingdom of Rumania and the republic of Czechoslovakia. The influence of the soviet union expanded widely partly through communism (*q.v.*), partly through pan-Slavism and in some cases through their combined appeal.

The capital of the U.S.S.R. and of the Russian S.F.S.R. is Moscow (pop. 4,137,018). Ten other cities had a population of more than 500,000 in 1939: Leningrad, formerly St. Petersburg

(3,191,304); Kiev (846,293); Kharkov (833,432); Baku (809,347); Gorki, formerly Nizhni Novgorod (644,116); Odessa (604,223); Tashkent (585,005); Tbilisi or Tiflis (519,175); Rostov-on-Don (510,253); Dnepropetrovsk (500,662). In 1939 there were 81 cities in the U.S.S.R. with a population of more than 100,000 inhabitants and 92 cities with a population of 50,000 to 100,000 inhabitants.

On Feb. 10, 1946, the first elections after 1937 were held throughout the soviet union for the supreme soviet, the bicameral highest legislative body. In each electoral district only one candidate was presented. No opposition was allowed. Nevertheless, a great official propaganda extolling the achievements of the Communist party was made, and the voting day was celebrated as a public holiday. Generalissimo Joseph Stalin himself and other leaders agreed to stand for election in various districts where the people received the news with "enormous enthusiasm and unlimited happiness." The members of the Politburo, the supreme political body of the Communist party, delivered election addresses on the newly gained strength of the U.S.S.R. L. M. Kaganovich warned in a speech in Tashkent, however, that "we must always remember, our country continues to be within a capitalist encirclement. Therefore we should not relax but strengthen Bolshevik vigilance."

Generalissimo Stalin himself reviewed in a glowing tribute the tremendous military strength gained by the U.S.S.R. under Bolshevik leadership. He predicted a number of five-year plans to strengthen further the soviet union. As was expected the elections resulted in an overwhelming national plebiscite confirming practically unanimously the policy of the party in power and the only party in existence. Of the registered voters 99.7% actually did vote, and 99.18% voted for the only candidate officially presented.

On Feb. 25 the U.S.S.R. unified its armed forces and transformed the People's Commissariat for Defense into the People's Commissariat of the Armed Forces of the U.S.S.R., uniting thus the land armies, air forces and the navy. Commissar of the armed forces remained Generalissimo Stalin, who had been appointed people's commissar of defense on July 19, 1941. In March Gen. N. A. Bulganin was named vice-minister of the

WOMEN FARMERS stacking hay on a collective farm in the Moscow region during 1946





CHILDREN playing outside the nursery of Borets Collective farm near Moscow in the U.S.S.R., during 1946

armed forces and the command was divided into four units—land, air, navy and rear—each one under a vice-minister. On the soviet union's Navy Day, Sunday, July 28, the official speeches emphasized the need for a strong navy in the Pacific and Arctic oceans and in the Baltic sea. The soviet union had gained in the annexations of World War II new important naval bases in Port Arthur and the Kurile Islands in the Pacific, in Koenigsberg and Memel in the Baltic and in Petsamo in the far north.

When the supreme soviet met after the elections, it decided to change the title of people's commissar introduced by Lenin's revolution into the old title of minister. Generalissimo Stalin who had been chairman of the council of people's commissars from May 27, 1941, now became chairman of the council of ministers or prime minister; Foreign Commissar Vyacheslav Molotov became foreign minister. The same change of title was also carried through in the various constituent republics and autonomous parts of the soviet union. Mikhail Ivanovich Kalinin resigned as the result of illness as chairman of the praesidium of the supreme soviet, a position corresponding to that of a president of the soviet union (Kalinin died soon afterwards) and was replaced by Nikolai Mikhailovich Shvernik. Kalinin had filled his position for 27 years. Molotov and seven other leading members of the party were elected deputy prime ministers. The whole tendency was to fuse more and more the supreme command of the party with the supreme administration of the state. The same process was followed in all the constituent republics and autonomous parts. All elections were unanimous.

On March 14 the supreme soviet received a report on a new five-year plan for reconstruction and development of the national economy for the years 1946-50. The plan called for an all-round increase of the nation's production and wide scientific research. In his report N. A. Voznesensky, head of the state planning department, stated that by taking advantage of the superiority of the soviet system, the U.S.S.R. could outstrip the capitalist countries in all types of progress, including technology.

Throughout the year the soviet government, engaged in a tremendous task of reconstruction and of stepping up production in all fields, was most anxious to combat shortcomings in the realization of its plans. How much production of some of the most essential primary materials suffered as a result of World War II could be seen from the fact that the new five-year plan foresaw as its goal for 1950 a yearly production of 35,400,000 tons of oil, while the third five-year plan had demanded for 1942 a yearly production of 48,500,000 tons, and the actual production in 1940 reached 31,147,000 tons. Yet in addition to the older oil fields in the Caucasus and along the Caspian sea the discovery of new oil and natural gas fields in the territory between the Ural and the Volga and in the Middle Urals was reported.

Though the new five-year plan would devote much attention to housing and consumer goods, the greater stress continued upon heavy industry, military preparedness and transportation. But the progressive demobilization of the soviet army would help the reconstruction of the country by reinforcing the available labour force. Housing and agricultural machinery especially were found lacking. The managements of many industries and of the collective farms were thoroughly overhauled and many leaders were purged for grave violations of the laws, for fraud or graft or gross inefficiency.

The new five-year plan found its concrete expression in the new budget submitted to the supreme soviet by Minister of Finance A. G. Zverev on Oct. 15. According to it, total expenditure in 1946 would reach 319,269,000,000 rubles. Of this amount, 102,237,000,000 rubles were for the national economy: 63,806,000,000 for industry, 12,552,000,000 for agriculture, 10,841,000,000 for transport and communication, 3,877,000,000 for municipal economy and 3,153,000,000 for trade stocks and grain deliveries. For social and cultural purposes 83,294,000,000 were earmarked, of which 35,160,000,000 were for education, 5,000,000,000 for scientific research, 14,823,000,000 for health and physical culture and the remainder for social insurance and pensions. The military budget for 1946 amounted to 72,208,000,000. Income in the new fiscal year was estimated at about 335,-

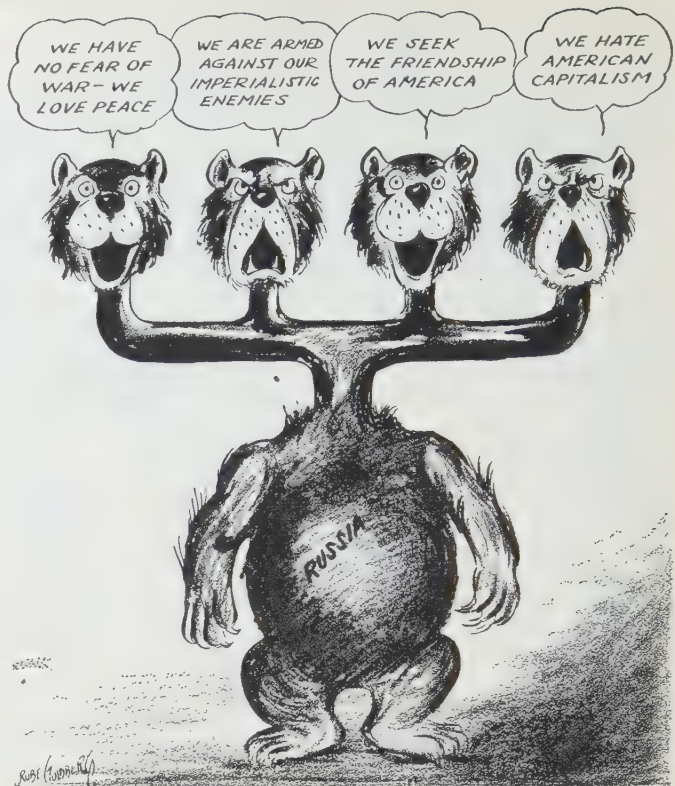
000,000,000, of which more than 60% was derived from a turnover tax on all economic enterprises, the tax on industry and the income tax on individuals playing a minor role.

The growing anxiety in the soviet union over the international situation was relieved when Generalissimo Stalin answered on Sept. 24 questions by an English newspaper correspondent. In his answers he declared that he did not believe in a real danger of a new war and repudiated the widely-held and expressed belief of a "capitalistic encirclement" of the U.S.S.R. by the democracies. "I do not think," he was quoted as saying in the official statement, "the ruling circles of Britain and the U.S.A. could create a capitalistic encirclement of the soviet union even if they wanted to do this which, however, we cannot affirm." Premier Stalin expressed his unconditional belief in the possibility of a friendly and lasting collaboration of the soviet union and western democracy despite ideological discord and his faith in the possibility of "communism in one country." Regarding the atomic bomb he did not share the widespread exaggeration of its importance for war or peace and for international relations. He did not think it "to be as serious a force as certain politicians are inclined to regard it. Atomic bombs can not decide the outcome of war, since they are by no means sufficient for this purpose."

These reassuring declarations were especially welcomed because they came after the dismissal of Maxim Litvinov, well known as an adherent of collaboration with democracy, from his post as deputy minister of foreign affairs on Oct. 24 and after a mass purge of many Communist leaders in the Ukraine, the soviet's most important economic bastion. Their removal was explained by their support for Ukraine's national aspirations as against the official Communist ideology. On the other hand, however, the official soviet press continued to maintain the thesis that capitalism by necessity breeds imperialist aggression and world wars. The "inevitable" depression in the United States, it was declared, would sharpen the class struggle and thus force the country into "imperialist reaction." Col. Gen. Andrei Alexandrovich Zhdanov, secretary of the Central committee of the Communist party, chairman of the supreme soviet and a member of the Politburo, declared on Nov. 6 in celebration of the 29th anniversary of the Bolshevik revolution, that the soviet union was unafraid of any exponents of aggressive expansionism who were undermining international collaboration. He pointed proudly to "the invincibility of our cause and the strength of our system." On the same day Generalissimo Stalin, who personally did not participate in the celebrations, told the armed forces that during World War II the soviet order "has proved quite obviously its uncrushable might and its excellence over the capitalistic order."

A definite improvement, however, came in the international atmosphere by the end of the year. Minister of Foreign Affairs Molotov and his deputy, Andrei Vishinsky, showed at the conclusion of the meetings of the United Nations assembly and of the Council of Foreign Ministers in New York in Dec. 1946 a more conciliatory attitude toward collaboration with the democracies than had been visible throughout the year.

Efforts to broaden contact between the U.S.A. and the U.S.S.R. were not very successful in 1946. The U.S.A. was represented in the U.S.S.R. only by the embassy in Moscow and the consulate in Vladivostok and a temporary attaché in Odessa dealing with United Nations Relief and Rehabilitation administration deliveries to the Ukraine and Byelorussia. Upon soviet request the U.S. naval attachés were withdrawn from Archangel and Vladivostok in August. By the end of the year the soviet authorities had not yet agreed to the request for the opening of U.S. consulates in other cities. At the beginning of 1947 the U.S.A. made a third effort to induce the U.S.S.R. to



"FOUR-HEADED BEAR," a cartoon by Rube Goldberg which appeared in the *New York Sun* on Nov. 19, 1946

settle its lend-lease account of more than \$11,000,000,000 as Britain, France and other countries had done. Two previous efforts in that direction in the fall of 1946 had received no reply from the soviet government. (See also UNITED NATIONS.)

The close co-operation of the soviet government and of the Russian Orthodox Church continued in 1946, not only in the soviet union but also among the members of the Orthodox faith abroad. When the head of the Russian Church in western Europe, Metropolitan Eulogius died in France, the patriarch of Moscow appointed Metropolitan Serafim as his successor though Serafim had during World War II worked for Hitler's victory over the soviet union and only afterwards submitted to Moscow. Most of the Russian Orthodox Christians in France refused to recognize Serafim who wished to co-ordinate the church of western Europe completely with Moscow's policy. They followed Archbishop Vladimir who requested, instead of the Moscow patriarch, the oecumenical patriarch of Constantinople to approve his election. Generally, the soviet government made persistent efforts to induce Russian émigrés living outside the soviet union to accept soviet citizenship. Even more than on the Russian Church the Soviet government relied upon pan-Slavism and appeals to racial loyalty for extending its influence abroad. A pan-Slav congress in Belgrade in Dec. 1946 tried to mobilize not only the public opinion of the various Slav nations (Poland, Yugoslavia, Bulgaria and Czechoslovakia), but also of citizens of Slav descent or race in non-Slav countries, especially in the United States, Canada, Latin America and Australia, for support of, and loyalty to, the pan-Slav movement under soviet leadership and Communist inspiration.

In its domestic policy the soviet union continued to re-emphasize the Communist doctrine of Leninism and Stalinism but did not abandon the more conservative appeal of national traditional pride, praise of large families, of discipline in education and of patriotic work. A new amalgam seemed to emerge in which soviet nationalism with many of its historical values and aspirations was closely fused with Communist ideology.

They seemed to strengthen each other. They were united in promoting the struggle against "alien" or "western" ideas and their penetration into the U.S.S.R. The return to the traditional militancy and strictness of Communist ideology was carried on above all by the organ of the propaganda bureau of the Communist party, *Culture and Life*, which in 1946 devoted much of its attention to warning representatives of all branches of culture and public life—writers and poets, musicians and dramatists, producers in theatres and movie studios—against imitation of "alien" examples, accusing them of lack of political understanding, of disinterestedness in the great constructive tasks of the soviet union and of indulgence in "decadent" interest in artistic forms. Even the leading official newspapers did not escape sharp censure.

On May 21 a comprehensive five-year plan for soviet film production was announced. The new films were to stress the advantages of the soviet regime over capitalism, the role of the Communist party, the people's vigilant patriotism and duties to the state. They were to praise the soviet way of life, the family, mothers who had ten children or more and to commemorate outstanding war heroes. For not fulfilling these tasks the editors of the leading movie magazine, among them S. M. Eisenstein and V. I. Pudovkin, were dismissed in Sept. 1946. The soviet theatre was asked not to present plays which would demoralize the audiences with bourgeois ideology like Somerset Maugham's *The Circle* and Moss Hart's *The Man Who Came to Dinner*, or would encourage escapist tendencies. The deficiency was not confined to the artistic professions. The Moscow board of attorneys was dissolved on Nov. 15 for failing to halt "grafting and other amoral acts" which stemmed from an "almost complete absence of ideological political work" among Moscow's attorneys. Even Dmitri Shostakovich, who was highly praised for his Fifth and Seventh symphonies, was condemned in *Culture and Life* for the ideological emptiness of his Ninth symphony which to the critic seemed to reflect the "unwholesome influence" of Igor Stravinsky, "an artist without a fatherland." Thus the soviet union found itself at the end of the year in an energetic campaign for the elimination of ideological deficiencies and for the unceasing perfection of political knowledge. The whole cultural and intellectual life of the vast and victorious land was mobilized, together with all its social energies and economic resources, for the great goal of the fulfilment of the new tasks set by the man who was incessantly praised as the unique and infallible leader, Generalissimo Stalin, and by the Communist party, the undisputed and absolute master over the destinies of its almost 200,000,000 inhabitants. (See also BULGARIA; FINLAND; POLAND; RUMANIA; UNITED NATIONS.)

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Unitarian Church. The year 1946 was marked by rapid extension of the influence of the Unitarian faith in many parts of the world, along lines laid down during the years before World War II. Notably the work of the Unitarian Service committee, with branches in Canada, Great Britain, the Netherlands, Czechoslovakia and Hungary, and with programs of nonsectarian, nonpolitical humanitarian service in many other lands, showed evidence of growing effectiveness. It became apparent during 1946 that the work of this committee, organized in Boston, Mass., in 1940, had become the permanent service arm of Unitarianism on a world-wide scale.

The most important single project of the Unitarian Service committee in 1946 was the Medical Teaching mission to Czechoslovakia, of which Dr. Paul D. White, of Boston, was chairman and Dr. Erwin Kohn was administrative officer. The influence of this mission upon medical education, not only in Czechoslovakia but in time throughout central Europe, was likely to prove of great value.

On the American continent, where the American Unitarian association was the central organization of the Unitarian churches of the United States and Canada, the outstanding record of 1946 was in the field of publications, especially the inauguration of a new program of book publishing, with volumes such as *Together We Advance* and *Liberal Voices* giving new and forceful expression to the growing sense of power within the denomination.

An item of basic importance for the Unitarian movement during 1946 was the successful completion of the United Unitarian appeal, an incorporated body that directs the co-operative campaign to raise funds for the annual operations of all Unitarian agencies in the United States and Canada. In 1946 the amount raised was approximately double that of 1945.

Within the organizational structure of the American Unitarian association, the election of Dr. Winfred Overholser, superintendent of St. Elizabeths hospital, Washington, D.C., to the position of moderator, is noteworthy. This was the first time a physician had been chosen as the lay head of the denomination. It is also important to note that 1946 saw a reorganization of the work of the general alliance, the Unitarian women's society, and a marked increase in the effectiveness of its program.

(F. M. E.)

United Church of Canada. The United Church of Canada, which in 1925 united the Presbyterian Church in Canada, the Methodist Church (Canada) and the Congregational Churches of Canada, reported for 1945 a membership of 749,374 with 1,771,966 persons under pastoral oversight, a Sunday school enrolment of 474,248 and 6,784 preaching places. The church owned property worth more than \$89,253,554 and raised a total of \$16,021,138 for all purposes. The missionary and maintenance givings of the church in 1945 totalled \$1,872,363, an increase of \$132,571 over the previous year. It was estimated that the church would need a budget of \$2,750,000 by 1950.

Among the important features in the life of the United Church during 1946 was the commendation for study of a report whereby the ministries of the Church of England in Canada and the United Church of Canada can be conferred each upon the other; the adoption of a "Basis of Agreement" whereby the Canada Conference of the Evangelical Church may enter the United Church; the raising of \$4,450,000 for the capital of the pension fund; the provision for a full-time secretary to promote lay activities; the reappointment of an Inter-Board Committee on Radio with necessary budget; and the adoption and publication of a notable report of a commission on "Christian Marriage and the Christian Home."

Rev. T. W. Jones, of Montreal, was elected moderator for the biennium.

(G. A. St.)

United Kingdom: see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

United Nations (U.N.). **Initial Organization.**—The preparatory commission created to make provisional arrangements for the first sessions of the principal organs of the United Nations met in London, Nov. 23–Dec. 23, 1945. Its report provided the basis for subsequent

decisions regarding the permanent organization of the United Nations, including the relation of the United Nations to the League of Nations. The first meeting of the general assembly was held at Church house in London on Jan. 10, 1946. The Security council held its initial meeting on Jan. 18 and the Economic and Social council on Jan. 23 in London. The International Court of Justice held its first meeting on April 3 in the Peace palace at The Hague. The Trusteeship council was not constituted until December. Under arrangements approved early in the year the League buildings in Geneva, including the library, were transferred to the United Nations on Aug. 1, 1946. Since it was found impracticable to transfer League functions and personnel *en bloc*, it was decided to make transfers on a selective basis, each case being covered by a special arrangement.

Membership.—The original members of the United Nations (article 3 of the charter) were as follows: Argentina, Australia, Belgium, Bolivia, Brazil, the Byelorussian Soviet Socialist Republic, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, the Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, India, Iran, Iraq, Lebanon, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Panama, Paraguay, Peru, the Philippine Commonwealth, Poland, Saudi Arabia, Syria, Turkey, the Ukrainian Soviet Socialist Republic, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom, the United States of America, Uruguay, Venezuela and Yugoslavia.

The following nine states, in the order of the receipt of their applications, applied for membership during 1946: The People's Republic of Albania, the Mongolian People's Republic, Afghanistan, the Hashemite Kingdom of Trans-Jordan, Eire, Portugal, the Republic of Iceland, Siam and Sweden. Afghanistan, Iceland, Siam and Sweden were admitted to membership by vote of the general assembly during the second part of the first session following recommendation by the Security council. The other applicants failed to receive the approval of the Security council.

General Assembly.—The preparatory commission recommended that the first session of the general assembly should be divided into two parts—the first part to be devoted primarily to organizational matters and the second part to the consideration of substantive items on the agenda. It was found impossible in practice to adhere closely to this division of labour.

The first part of the first session was held in London, Jan. 10–Feb. 14, 1946. The permanent organization of the general assembly was determined and its rules of procedure adopted. Paul-Henri Spaak of Belgium was elected president. The chief



PRIME MINISTER CLEMENT ATTLEE addressing the first session of the general assembly of the United Nations in Central hall, Westminster, London, Jan. 11, 1946

delegates of China, France, the Union of South Africa, the Soviet Union, the United Kingdom, the United States and Venezuela were elected vice-presidents. Six main committees, with elected chairmen as indicated, were established to consider items on the agenda and make recommendations to the general assembly: (1) Political and Security (Dmitri Z. Manuisky, the Ukrainian S.S.R.); (2) Economic and Financial (Waclaw Kondorski, Poland); (3) Social, Humanitarian and Cultural (Peter Fraser, New Zealand); (4) Trusteeship (Roberto MacEachen, Uruguay); (5) Administrative and Budgetary (Fares el Khoury, Syria); and (6) Legal (Roberto Jimenez, Panamá). A general committee was established, consisting of the seven vice-presidents, the chairmen of the main committees and the president of the general assembly, to serve as a steering committee.

In addition, two *ad hoc* committees were established: a headquarters committee to consider the permanent site of the United Nations, and a League of Nations committee to consider the possible transfer of League assets and functions to the United Nations.

The general assembly performed certain elective functions necessary to the constitution of other principal organs of the United Nations. These included the appointment, upon recommendation of the Security council, of a secretary general; the election of 6 nonpermanent members of the Security council and the 18 members of the Economic and Social council; and the election, concurrently with the Security council, of the judges of the International Court of Justice.

In addition the general assembly adopted resolutions providing for the establishment of "a commission to deal with the problems raised by the discovery of atomic energy," reminding members of their obligations under chapters XI and XII of the charter dealing with non-self-governing territories and trusteeship matters, reasserting previously adopted principles governing relations with the Franco government in Spain, supporting the work of the United Nations Relief and Rehabilitation administration, urging all governments and peoples to take immediate and drastic action to conserve food supplies and to ensure maximum production of grain and referring the problems of refugees and displaced persons to the Economic and Social council for examination and report with specific recommendations as to principles to be applied.

The general assembly also adopted resolutions setting forth rules and principles to govern the organization and functioning of the secretariat, establishing necessary budgetary and financial arrangements, approving a draft convention on the privileges and immunities of the United Nations and establishing the permanent headquarters of the United Nations "near to New York city," and the interim headquarters in New York city.

The second part of the first session of the general assembly was held Oct. 23—Dec. 15 at Flushing Meadows, Long Island. The date originally set for the opening meeting was Sept. 2, but a postponement was found to be necessary because the peace conference was in session in Paris. During the second part of its first session the general assembly admitted 4 new members, thus increasing total membership to 55, approved the revised estimate of \$19,390,000 for its 1946 budget and the estimate of \$27,740,000 for the 1947 budget, determined the scale of contributions of member states and finally decided upon the location of permanent headquarters in New York city. In addition it discharged its elective functions by choosing three new members of the Security council to succeed those whose terms would expire at the end of 1946, six new members of the Economic and Social council and two elected members of the Trusteeship council.

Within the general field of peace and security the general assembly adopted a resolution recommending that the Security council give prompt consideration to formulating practical and effective measures for the general regulation and reduction of armaments and armed forces. As an essential step to this end the general assembly urged the expeditious fulfilment by the Atomic Energy commission of its terms of reference and the expeditious consideration by the Security council of the reports of the commission and the preparation of a convention effectively controlling atomic energy to the extent necessary to ensure its use only for pacific purposes. The general assembly recognized the problem of security as closely connected with that of the regulation of armaments and recommended that the Security council accelerate the conclusion of agreements for placing armed forces at its disposal. It also recommended that members undertake the "progressive and balanced withdrawal" of forces stationed in former enemy countries and the immediate withdrawal of forces stationed in the territory of members without their consent.

On the question of Security council voting procedure the general assembly recommended the early adoption by the Security council of practices and procedures, consistent with the charter, to assure the prompt and effective exercise of its functions. All proposals to amend the charter in this connection were rejected. The general assembly adopted a resolution expressing sympathy with the Spanish people and recommending that the Franco government be debarred from membership in United Nations agencies and conferences and that members immediately recall

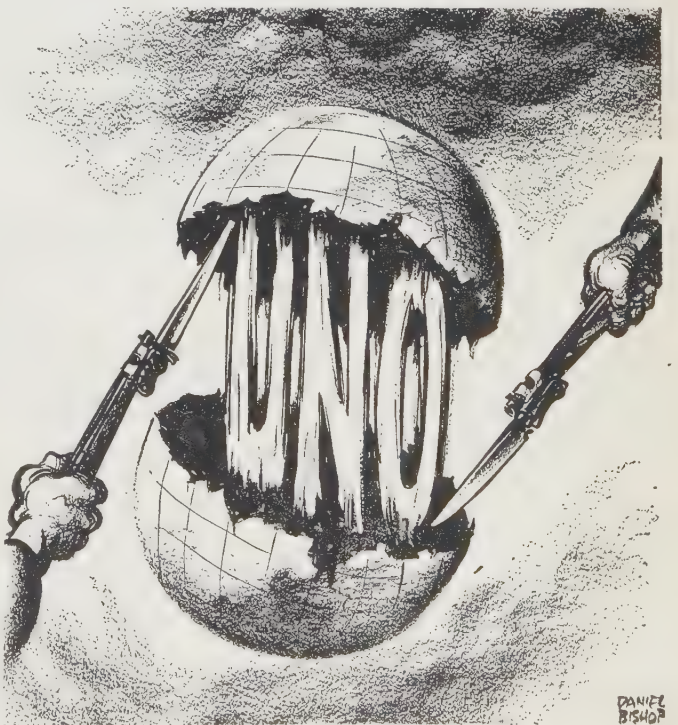
from Madrid their ambassadors and ministers plenipotentiary stationed there.

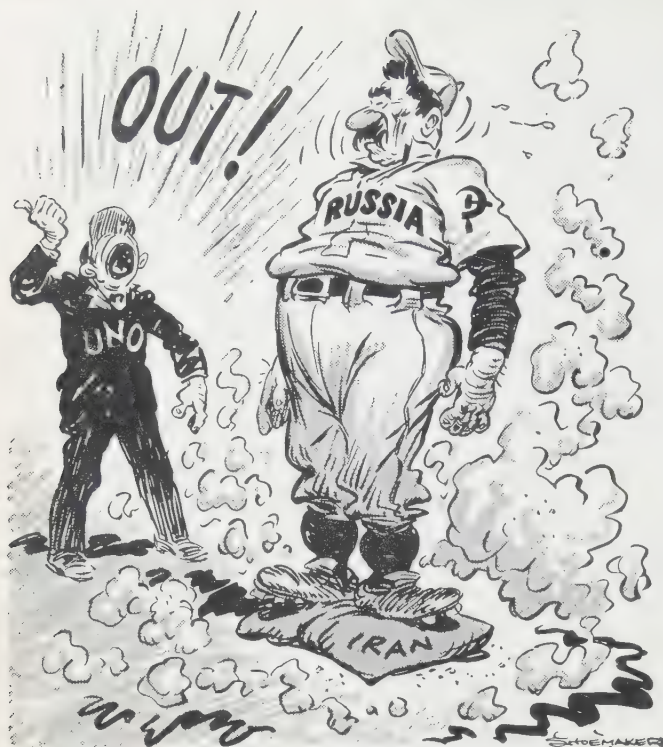
The general assembly gave much time to urgent economic and social problems. By a majority vote it approved the constitution of a temporary specialized agency to assist refugees and displaced persons, to be known as the International Refugee organization. Recognizing the continued seriousness of the world food situation, it recommended specific measures to increase world food production. To fill the gap which would be created by the termination of U.N.R.R.A. relief activities at the end of 1946 the general assembly recommended the establishment of a special technical committee of ten governments to study relief needs and ways of meeting them. It unanimously decided to take over from U.N.R.R.A. its advisory social welfare functions and voted to establish the International Emergency Children's fund for the rehabilitation of children and adolescents of countries victims of aggression. On the question of alleged discriminatory treatment of Indians in South Africa the general assembly affirmed that the treatment of Indians should conform to charter provisions and requested that the governments of India and South Africa report at the next session on measures adopted.

Important action was taken on trusteeship matters. Draft trusteeship agreements were submitted to the general assembly by Australia for New Guinea, by Belgium for Ruanda-Urundi, by France for Cameroun and Togoland under French mandate, by New Zealand for Western Samoa and by the United Kingdom for Tanganyika, the Cameroons and Togoland under British mandate. These territories were formerly administered as mandated territories under the League of Nations. The eight agreements, as modified in the course of committee consideration, were approved by the general assembly. This made possible the constitution of the Trusteeship council. The general assembly declared itself unable to accede to a request of the Union of South Africa that it be allowed to incorporate South-West Africa into its territory and instead recommended that the territory be placed under trusteeship.

Various legal and administrative matters were considered. A committee was established to study methods to be followed in

"BEFORE THE GLUE HAS TIME TO SET." Daniel Bishop of the *St. Louis Star-Times* saw a lack of cohesion among the United Nations during 1946





"CAUGHT STEALING BASE," comment by Shoemaker of the *Chicago Daily News* on Russia's international policy in 1946

encouraging the development and codification of international law. A resolution was adopted condemning genocide as a crime under international law. Agreements with four specialized agencies were approved. The secretary general was authorized to investigate possible arrangements for common fiscal controls and budgetary practices with the specialized agencies. The transfer to the United Nations of several of the nonpolitical functions of the League of Nations was approved. The date of the yearly session of the general assembly was set at the third Tuesday of September.

Security Council.—Under the charter the Security council was primarily responsible for the maintenance of international peace and security. It was composed of five permanent members—China, France, the soviet union, the United Kingdom and the United States—and six nonpermanent members elected by the general assembly. At the beginning of its first session in London the general assembly elected Egypt, Mexico and the Netherlands for one-year terms, and Australia, Brazil and Poland for two-year terms. In the second part of its first session at Flushing Meadows the assembly elected Belgium, Colombia and Syria for two-year terms to succeed Egypt, Mexico and the Netherlands, whose terms expired at the end of the calendar year 1946.

The first 23 meetings of the Security council were held in London. Subsequent meetings were held at Hunter college, N.Y., and at Lake Success, Long Island. The first president of the council was the Australian representative (Norman J. O. Makin) who presided for one month. He was followed by representatives of other members in alphabetical order (by country), each serving one month. The Security council conducted its business under provisional rules of procedure drawn up by the preparatory commission until its own committee of experts presented drafts of additional provisional rules.

During the year 1946 the Security council was called upon to consider several disputes and situations brought before it under articles 6 and 7 of the charter on the ground of endangering in some degree international peace and security. The first of these

was the Iranian question raised by the Iranian government in the form of an allegation, addressed to the council on Jan. 19, that the soviet union was intervening in the internal affairs of Iran. The charge, subsequently repeated, was denied by the soviet representative, who, for a period, withdrew from the council in protest against continued consideration of the matter. The council decided to keep the matter before it even after the Iranian government had withdrawn its complaint and reports indicated that soviet troops had been withdrawn from Iranian territory.

The Greek question was first brought before the council on Jan. 21 by the soviet representative who alleged that the presence of British troops in Greece endangered peace and security. After being temporarily concluded it was raised again by the Ukrainian representative who, in a telegram of Aug. 24, charged Greek violation of the Albanian frontier and persecution of minorities. After the council had acted inconclusively on this claim the Greek government on Dec. 3 requested council consideration of alleged support given by Albania, Bulgaria and Yugoslavia to guerrilla warfare in northern Greece. The council decided on Dec. 19 to appoint a commission of investigation to establish the facts.

On Jan. 21 the Ukrainian government presented to the council the claim that the presence of British troops in Indonesia and their use against the local population endangered peace and security. Ernest Bevin, the British foreign minister, vigorously defended the British position. A proposal that a commission of investigation be appointed was defeated and the matter was declared closed.

On Feb. 4 the heads of the Lebanese and Syrian delegations to the general assembly asked that the presence of British and French troops in their countries be brought before the Security council for action. After becoming involved in some particularly difficult procedural questions the council was unable to take any decision because of the refusal of Andrei Y. Vishinsky, the soviet representative, to accept the U.S. proposal expressing confidence that the troops would be withdrawn as soon as practicable, though it received the necessary majority support. The British and French representatives stated that their governments would give effect to the majority view, which was subsequently done.

The Spanish question had been a recurring topic of discussion since the drafting of the charter at San Francisco. On April 9 the Polish representative charged that the activities of the Franco government endangered international peace and security. He asked that the council call upon members to sever diplomatic relations with Spain. After extended discussion the council decided to appoint a subcommittee to consider the charges and report on what practical measures might be taken. The subcommittee, reporting on May 31, did not find that a threat to peace existed, but recognized a potential menace, and suggested recommendations to improve the situation which the Security council finally accepted in substance. On Nov. 4 the Security council voted to remove the Spanish question from the list of questions before it in order that the matter might be brought before the general assembly for action.

While actual disputes and situations involving some degree of threat to the peace occupied most of the time of the Security council during 1946, other important matters were before it for consideration. The council considered nine applications for membership and recommended favourable action on four. At its second meeting on Jan. 25 the council adopted a directive to the military staff committee, and the committee was organized when representatives of the chiefs of staff of the permanent members of the Security council met in London on Feb. 4. Numerous meetings, all secret, were held after that date. No substantial

progress was apparently made in the drafting of special agreements regarding military forces to be placed at the disposal of the Security council. On Aug. 29 Andrei A. Gromyko, the soviet representative, proposed that members make available complete information regarding locations and sizes of armed forces and facilities in the territory of other states. The proposal was interpreted by other members of the council as political in purpose and was not adopted.

Atomic Energy Commission.—The Atomic Energy commission was established under the terms of the general assembly resolution of Jan. 24, 1946. It was composed of one representative of each member of the Security council and Canada. It reported to and in general was responsible to the Security council. The commission was charged to enquire into all phases of the problem of atomic energy and specifically to make definite proposals for: (a) the exchange of basic scientific information; (b) the control of atomic energy to the extent necessary to ensure its use only for peaceful purposes; (c) the elimination of national armaments, atomic or other, adaptable to mass destruction and (d) effective safeguards by inspection or other means to protect against the hazards of violation or evasion. Chairmanship of the commission was held by members in rotation in the alphabetical order of their names.

The commission had before it two principal proposals: (1) a U.S. proposal, presented by Bernard Baruch, calling for the creation of an International Atomic Development authority to be entrusted with all phases of the development and use of atomic energy, and for the establishment of a rigorous system of inspection and enforcement and (2) a soviet proposal, presented by Gromyko, envisaging an international convention prohibiting the production and employment of weapons based on the use of atomic energy for purposes of mass destruction and providing

for domestic enforcement. After general discussion the commission decided on June 25 to form a working committee "to examine the various proposals and make recommendations to the Commission."

In the discussion of the U.S. and soviet proposals there was fundamental disagreement between the U.S. and soviet representatives on the question whether or not the great-power veto might be invoked in connection with enforcement action. The soviet position was that the charter provision should be respected, while the U.S. representative, supported by the great majority of the members of the commission, took the view that no single state should have a veto over any action of the proposed authority, including enforcement action. On Dec. 30, with the soviet union and Poland abstaining, the commission approved a report incorporating the U.S. proposals for submission to the Security council.

Economic and Social Council.—Under the charter responsibility for discharging the functions of the United Nations in the field of economic and social co-operation was vested in the general assembly and in the Economic and Social council, acting under the authority of the general assembly. The council consists of 18 members elected by the general assembly—6 being elected each year for 3-yr. terms. In the first part of its first session in London the general assembly elected the 18 members of the council as follows: for 3-yr. terms—Belgium, Canada, Chile, China, France and Peru; for 2-yr. terms—Cuba, Czechoslovakia, India, Norway, the soviet union and the United Kingdom; for 1-yr. terms—Colombia, Greece, Lebanon, the Ukrainian S.S.R., the United States and Yugoslavia. In the second part of the first session the general assembly elected the following six states to succeed those whose terms expired at the end of 1946: the Byelorussian S.S.R., Lebanon, New Zealand, Turkey, the United States and Venezuela.

The council held its first session in London from Jan. 23 to Feb. 16. Sir Ramaswami Mudaliar (India) was elected president

REPRESENTATIVES of the 12 nations on the atomic energy commission listening to the U.S. plan for world atom control presented by Bernard M. Baruch at the United Nations council chamber at Hunter College, N.Y., in June 1946



to serve for the year; Dr. Andrija Stampar (Yugoslavia) and Dr. Lleras Restrepo (Colombia) were chosen first and second vice-presidents. The second session was held in New York from May 25 to June 21 and the third at Lake Success, Long Island, Sept. 11–Oct. 3.

The council set up nine permanent commissions to advise it on matters within their particular terms of reference: the Economic and Employment commission, the Transport and Communications commission, the Fiscal commission, the Statistical commission, the Population commission, the Social commission, the Commission on Human Rights, the Commission on the Status of Women and the Commission on Narcotic Drugs. Members of the United Nations were chosen to nominate the individuals who served on these commissions. To secure balanced representation in all fields the secretary general was directed to consult with governments chosen for membership before their representatives were finally nominated. States entitled to nominate commission members were chosen at the third session of the council, and these nominations were confirmed at a special meeting of the council on Dec. 10.

The work of the Economic and Social council during 1946 covered a wide and varied range of matters, many of them of an urgent character. The Sub-Commission on Reconstruction of Devastated Areas of the Economic and Employment commission prepared a detailed report on war devastation and the progress of recovery in Europe and made recommendations with a view to the reconstruction of Europe as a whole. The report was approved by the council and forwarded to the general assembly and members of the United Nations, together with specific recommendations. On Feb. 18 the council approved a resolution proposing an international conference on trade and employment. A preparatory committee was established which met in London

from Oct. 15 to Nov. 26 and agreed upon proposals for an International Trade organization.

In the field of transportation and communications important preliminary work was done better to co-ordinate various activities already in progress. The council decided to convene a meeting of experts to prepare for a world conference on passport and frontier formalities. It also drew the attention of interested governments to the need of improved international machinery for the better co-ordination of European railways. The council also pointed out the need of improvement in Europe's inland waterways and recommended the holding of a conference of representatives of interested states to discuss resumption of international traffic on the Danube and the establishment of provisional regulations. The soviet union and Yugoslavia refused, however, to take part in such a conference.

The proposed termination of U.N.R.R.A. activities at the end of 1946 raised some important questions with regard to the transference of certain functions to other agencies. The Economic and Social council, at the request of the director general of U.N.R.R.A., recommended to the general assembly that the United Nations assume the social welfare functions of U.N.R.R.A. and that an International Children's Emergency fund be established to assist in the rehabilitation of children and adolescents in countries victims of aggression. Following the general assembly resolution of Feb. 12 on refugees and displaced persons the council established a special committee to make a thorough investigation and report at its next session. The committee recommended the creation of an international refugee organization to take over the work of U.N.R.R.A., the Inter-

SECURITY COUNCIL of the United Nations, in session on March 29, 1946. At the far right is Hussein Ala, Iranian delegate, who had been invited to the council table to present his country's case in the Iranian-soviet dispute



governmental Committee on Refugees and the high commissioner of refugees of the League of Nations. The program which the council finally approved and recommended to the general assembly embodied in general the committee's recommendations.

Establishment of an international health organization was envisaged in a resolution adopted by the council on Feb. 15. A preparatory committee of experts was appointed which met in Paris in March. An international health conference was called to meet in New York on June 19 and was in session until July 22. The participants in the conference agreed to the establishment of a world health organization and the representatives of 61 states signed the proposed constitution.

In the field of human rights important preliminary work was done under the council's direction by the Commission on Human Rights on the subjects of civil liberties, freedom of information and protection of minorities. The general principle was adopted that, pending the adoption of an international bill of rights, "international treaties involving basic human rights, including to the fullest extent practicable treaties of peace, shall conform to the fundamental standards relative to such rights set forth in the Charter."

The functions of the League of Nations in connection with the control of narcotics were taken over by the United Nations. The Commission on Narcotic Drugs was empowered, when first established, to carry out the functions of the League Advisory Committee on Opium and Other Dangerous Drugs. By resolution of Feb. 16, 1946, the Economic and Social council empowered the secretary general to take necessary steps for the assumption and continuance of the work of the Opium section of the League and of the Permanent Opium board and the Drug Supervisory body. Full responsibility for the administration of international narcotics control was assumed on Sept. 1.

Taking note of a resolution adopted by the general assembly in London, the Economic and Social council took steps to establish suitable arrangements for consultation with nongovernmental agencies. Under the arrangements adopted on June 21 organizations were divided into three categories: (a) those with a basic interest in most of the activities of the council; (b) those concerned with only a few of the activities of the council; and (c) those primarily concerned with development of public opinion and the spreading of information. All might send observers to public meetings and consult with a standing committee of the council, but only those in category (a) had the right without special invitation to circulate written communications to members. The World Federation of Trade Unions, the International Co-operative alliance, the American Federation of Labor and the International Chamber of Commerce were admitted to category (a).

Trusteeship Council.—Article 86 of the charter provided for a Trusteeship council to assist the general assembly in the performance of its functions with regard to trusteeship matters and further provided that the council should consist of members of the United Nations administering trust territories, permanent members of the Security council and as many additional members elected by the general assembly as might be necessary to create an equal division between members administering trust territories and those who did not. Because no trust agreements existed at the time the general assembly met in London, it was impossible then to set up the Trusteeship council on the charter basis. A proposal to establish a temporary trusteeship committee was not accepted, and consequently it was not until December, after the general assembly had approved the trusteeship agreements submitted by members responsible for the administration of League-mandated territories, that the Trusteeship council could be constituted. Its composition was as follows: (1) members administering trust territories—Australia, Bel-

gium, France, New Zealand, United Kingdom; (2) other permanent members of the Security council—China, soviet union, United States; (3) elected by the general assembly for three years—Iraq and Mexico.

The general assembly voted that the Trusteeship council should meet not later than March 15, 1947.

International Court of Justice.—The International Court of Justice was one of the principal organs of the United Nations. At the United Nations conference at San Francisco it was decided to set it up as a new court, though in all essential respects it was to be the same as the Permanent Court of International Justice.

The court consisted of 15 judges, elected by the general assembly and the Security council voting independently. Following the initial elections judges would be elected for 9-yr. terms with the terms of 5 judges expiring every 3 yrs. As the result of the elections of the general assembly and the Security council on Feb. 6, the following judges were chosen: for three-year terms—Badawi Pasha (Egypt), Hsu Mo (China), J. E. Read (Canada), Bogden Winiarski (Poland) and Milovan Zoričić (Yugoslavia); for six-year terms—Fabela Alfaro (Mexico), Green H. Hackworth (United States), Helge Klaestad (Norway), Sergei B. Krylov (soviet union) and Charles de Visscher (Belgium); for nine-year terms—J. Philadelpho de Barro Azevedo (Brazil), Alejandro Alvarez (Chile), Arnold D. McNair (United Kingdom), Jules Basdevant (France) and José G. Guerrero (El Salvador).

The first meeting of the court was held on April 3 at the Peace palace at The Hague and the inaugural sitting on April 18. The court elected Judge Guerrero as president and Judge Basdevant vice-president. Edvard Hambro was appointed registrar. The court formed a chamber of summary procedure consisting of the following members: Guerrero (president), Basdevant, McNair, Krylov and Hsu. The court adopted rules of procedure based largely upon the 1936 rules of the Permanent Court of International Justice.

The Security council, at its meeting of Oct. 15, determined that states not parties to the statute may have access to the court if they accept the court's jurisdiction, undertake to comply with the decisions of the court and accept the obligation of members of the United Nations under article 94 of the charter.

Secretariat.—The secretariat was headed by the secretary general, who, by the terms of the charter, was the principal administrative officer of the United Nations. He served in this capacity to each of its organs, had important political functions and had responsibilities in connection with the co-ordination of the work of the United Nations and the specialized agencies. The secretary general was appointed by the general assembly, upon the recommendation of the Security council, for a term of five years. He received an annual tax-free salary of \$20,000 with an additional \$20,000 for expenses. Trygve Lie of Norway was elected the first secretary general.

The secretariat was divided into eight departments for purposes of administration, each headed by an assistant secretary general. For 1946 these were as follows: Administrative and Financial Services (John Hutson, United States); Conference and General Services (Adrian Pelt, the Netherlands); Department of Security Council Affairs (Arkady Sobolev, soviet union); Department of Economic Affairs (David K. Owen, United Kingdom); Department of Social Affairs (Henri Languier, France); Department of Trusteeship and Information from Non-Self-Governing Territories (Victor Hoo, China); Department of Public Information (Benjamin Cohen, Chile); and Legal department (Ivan Kerno, Czechoslovakia).

During the first part of the first session of the general assembly the secretariat was in London. It was then moved to Hunter

college, N.Y., and in August was again moved to Lake Success, Long Island.

Specialized Agencies.—The charter of the United Nations envisaged that economic and social co-operation would to a large extent be carried out through specialized agencies; *i.e.*, intergovernmental organizations with wide international responsibilities set up for special purposes, but that these agencies should be brought into relation with the United Nations by agreements negotiated by the Economic and Social Council and the appropriate organ of the specialized agency in question and approved by the general assembly.

During 1946 the constitutions of seven of these agencies were actually in force: the International Labour organization (I.L.O.), the Food and Agriculture organization of the United Nations (F.A.O.), the International Bank for Reconstruction and Development, the International Monetary Fund, the Provisional International Civil Aviation organization (P.I.C.A.O.), the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.) and the United Nations Relief and Rehabilitation administration (U.N.R.R.A.). Instruments were drafted, adopted and signed calling for the establishment of two additional specialized agencies: the World Health organization (W.H.O.) and the International Refugee organization (I.R.O.). Preliminary work was done looking to the establishment of the International Trade organization (I.T.O.).

Agreements were negotiated by the Economic and Social Council with the I.L.O., the F.A.O., P.I.C.A.O. (applicable to I.C.A.O.) and U.N.E.S.C.O. These agreements were approved by the general assembly with the provision that they should be reviewed at the end of three years. They defined working relationships in respect to such matters as representation at meetings and exchange of information and envisaged increasing administrative co-operation in personnel, budgetary and other matters.

International Labour Organization.—See separate article.

Food and Agriculture Organization.—See FOOD SUPPLY OF THE WORLD.

International Monetary Fund.—See separate article.

International Bank for Reconstruction and Development.—See separate article.

Provisional International Civil Aviation Organization.—The organization was set up following the Chicago 1944 conference to start work, pending the establishment of a permanent organization and for a period of not more than three years, on the complex issues arising from the extension of air routes over the world. Edward Warner (United States) was elected president of the interim council. The organization consisted of an interim assembly, an interim council and a secretariat. The council, because of the technical character of its work, was in almost continuous session during 1946. The assembly met in Montreal, Quebec, on May 21. Its deliberations covered general policy, technical aspects of air navigation and transport, legal questions, administration and finance. In addition, a series of regional conferences were held during 1946: a North Atlantic Regional conference in Dublin, Eire, March 4–28; a European and Mediterranean Regional conference in Paris, France, beginning April 24; a Caribbean Regional conference in Washington, D.C., beginning Aug. 26 and a Near Eastern Regional conference in Cairo, Egypt, beginning Oct. 1. Numerous meetings of technical subcommittees were also held.

United Nations Educational, Scientific and Cultural Organization.—The constitution of U.N.E.S.C.O. was signed by delegates of 44 nations at London, Nov. 16, 1945, as the concluding acts of a conference called for the purpose of setting up an organization to promote international co-operation in educational and cultural matters. At the same time a preparatory

commission was established to work out plans for putting the constitution into effect. The preparatory commission subsequently held a series of meetings in London in the course of which a detailed program was developed. This program was submitted to the general conference which met in Paris, the permanent headquarters of the organization, from Nov. 19 to Dec. 10 and was accepted as the basis of discussion. The conference acted on a wide range of organizational and substantive matters. The internal organization of the conference was completed. The 18 members of the executive board were chosen. Dr. Julian Huxley (United Kingdom) was elected director general. A \$6,000,000 budget for 1947 was approved. The conference approved a program for 1947 which placed special emphasis upon the development of a world-wide program in fundamental education, the exploration of the possibilities of a world-wide network for radio broadcasting and reception and a survey of existing channels of world communication with a view to determining their adequacy.

United Nations Relief and Rehabilitation Administration.—See separate article. (See also SPAIN; TARIFFS.)

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United Nations Monetary and Financial Program: see INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND.

United Nations Organization: see UNITED NATIONS (U.N.).

United Nations Public Information Services.

The establishment of a department of public information was the subject of expert examination by the special Technical Advisory Committee on Public Information set up by the preparatory commission of the United Nations in London. On the basis of its recommendations, which were approved by the general assembly on Feb. 13, 1946, and submitted to the secretary general for his guidance, the policies, functions and organization of the Department of Public Information were defined.

The Department of Public Information, like the other departments of the secretariat, was headed by an assistant secretary general who advised the secretary general on all problems of information policy of the United Nations and who maintained continuous liaison with the other departments concerning information problems.

The policy of the department was to publicize fully the aims and activities of the United Nations and of the specialized agencies, in order to promote an informed understanding of them among the peoples of the world. The media of information developed considerably, and the department was called upon to work not only through the press, but through radio, films and all the most modern media of information. All these media were therefore given every facility at the U.N. headquarters both for gathering and distributing information. The department, however, did not limit itself to making facilities available to correspondents at the U.N. headquarters; it complemented the work of the press, radio and film representatives accredited to the United Nations by itself distributing information away from headquarters.

The Department of Public Information was organized into five divisions: press, radio, film and visual information, liaison and reference and publications. The divisions were further subdivided into sections. By resolution of the general assembly

there was to be established an Information Advisory committee, composed of expert representatives of the various media of information of the member states, which would be in a position to reflect the needs and desires of the general public for information on the aims and activities of the United Nations. The Consultative Committee on Public Information for the United Nations and the Specialized Agencies was established. This committee provided machinery for co-ordination of information activities and for certain general joint services.

In order to ascertain how the various divisions of the Department of Public Information were carrying on their tasks, a more detailed outline of their functions and activities follows.

Press Division.—The Press division was the official link between the United Nations and the press of the world. It arranged facilities for news correspondents representing newspapers and press associations in nearly all of the member nations.

The division was composed of a director and a staff of press officers assigned in groups to cover the activities of the general assembly, the councils, the commissions and committees and the departments of the secretariat.

The division issued an average of 10 or 15 press releases daily, ranging from brief announcements of forthcoming events to comprehensive background papers on the principal and subsidiary organs of the United Nations. The division also arranged general press conferences with delegates to the United Nations and with key figures in the secretariat.

There was established at the headquarters a teletype system which made it possible for the press releases and other informative material to be sent simultaneously to the participating agencies at any hour of the day or night.

Primarily for newspapers which had no correspondents at the U.N. headquarters and no wire service coverage, the division issued in English, Spanish and French a weekly clip-sheet containing a variety of articles about the work of the United Nations. Along with the clip-sheet the division provided plastic plates and matrices to editors who requested them.

Radio Division.—The Radio division was guided by a director and a chief radio officer who supervised the activities of the Liaison section and the Production section. To the Radio division was attached the Advisory committee on Tele-communications for the United Nations. After the convening of the second part of the first session of the General assembly on Oct. 23, 1946, the Department of Public Information was broadcasting in the name of the United Nations and using U.N. personnel. The meetings of the General assembly, the councils, commissions and committees were broadcast in the two working languages (English and French) and in addition there was a daily broadcast in Chinese, Russian and Spanish.

The British Broadcasting Corp., the Canadian Broadcasting Corp. and the Office of International Information and Cultural Affairs of the U.S. department of state provided the transmission and relay facilities necessary to broadcast U.N. programs. The programs included accounts of proceedings of conferences, background information on the United Nations, reports on activities of the various specialized agencies and interviews with delegates of member states and members of the secretariat. Broadcasts in 1946 went out over 11 transmitters.

Film and Visual Information Division.—The Film and Visual Information division made arrangements for and promoted the production of documentary films, newsreels, photographs and visual information materials illustrating the work of the United Nations and promoted the use in periodicals, books and other media of photographs, charts, etc., relating to the activities of the United Nations. The division was organized into the Film and Television section and the Section of Graphic and Photo-

graphic Media.

The division saw to it that all important meetings of the organs of the United Nations were filmed. The meetings were covered by newsreel companies working in rotation; the resulting footage, both silent and sound, was pooled and made available to film companies of any of the member nations. Local television companies provided coverage for live audio-video broadcasts.

The division also produced posters and poster charts describing the activities of the various organs of the United Nations and gave advice on display material, visual education and the setting up of private exhibits. The division had its own official photographic unit, and documentary photographs were taken of the meetings of the various organs of the United Nations and also of the general activities of the United Nations.

Liaison Division.—Liaison division provided for overseas information services and maintained liaison with nongovernmental organizations, educational institutions and the general public. It provided lecturers, schools and nongovernmental agencies with information about the United Nations.

The Liaison division was organized into Headquarters Services and External Services. The Headquarters Services covered liaison with voluntary organizations, youth groups and speakers. The External Services was divided into a European section, a near, middle and far east section, a Latin-American section and also operated through information centres which would eventually form a world-wide network.

Information centres were established in London and Washington and were opened in Geneva, Paris and Copenhagen (Denmark). The objectives of these information centres were, *inter alia*, to provide reference centres for background and documentary information on the United Nations and the specialized agencies, to answer questions on day-to-day activities of the organization and to maintain files of photographs, films and radio recordings, etc., made at the headquarters by representatives of the countries in the region where the centres were situated. The centres were not only concerned with the dissemination of information to the public, but also transmitted to the headquarters material for the survey of public opinion taken from local press and radio comments on questions concerning the United Nations.

Reference and Publications Division.—The Reference and Publications division was a very important division in the Department of Public Information. The duties of the division fell into two classes. First, it aided authors, publishers, governmental agencies and individuals who produced or planned to produce books, pamphlets or articles relative to the activities of the United Nations or of the specialized agencies. Secondly, it supplemented the publication of official documents issued by the various organs of the United Nations by producing its own publications and similar material. To achieve these results, the division was organized into four sections—Publications section, Reference section, Opinion Survey section and Research section.

The Publication section was responsible for all publications of the Department of Public Information. The section issued in French, English and Spanish a magazine called the *United Nations Weekly Bulletin* which constituted a progress report of the activities of the organization and of the specialized agencies.

The Reference section was responsible for maintaining full files of official documents of the United Nations and of the specialized agencies. The section had taken over from the former New York United Nations Information office its library of information and further developed it. All of the material of the library was available to the general public.

The Opinion Survey section compiled a weekly survey of opinion on the United Nations.

The Research section prepared and edited information papers on the purposes and principles, structures and procedures, functions and powers, resolutions, reports and activities of the organs of the United Nations and the specialized agencies; on the history and evolution of international organizations; and on international political, economic and social problems. It assisted writers and publishers in writing articles and books dealing with the United Nations; it wrote articles on the United Nations for magazines, encyclopaedias, annuals, almanacs, etc. The Research section prepared the *United Nations Yearbook*. (B. Cn.)

United Nations Relief and Rehabilitation Administration.

The United Nations Relief and Rehabilitation administration (U.N.R.R.A.) was organized to provide relief and rehabilitation to the people of the liberated countries of Europe and the far east. Established Nov. 9, 1943, as the first service agency of the United Nations, it was primarily devoted to assisting those nations with inadequate foreign exchange resources for the financing of their own relief imports. This assistance took the form of relief supplies such as food and clothing, health and welfare services. The U.N.R.R.A. services were also extended to assist in the repatriation of displaced persons and to furnish rehabilitation supplies

and services, such as basic farm tools, transportation and raw materials, as well as numerous other items and services.

U.N.R.R.A. was expanded to 48 nations by 1946, and each member state participated in the policy-making council. A central committee comprising the United States, the United Kingdom, the U.S.S.R., France, China, Canada, Australia, Brazil and Yugoslavia was empowered to make emergency decisions affecting policy whenever the council was not in session.

U.N.R.R.A.'s executive branch consisted of a director general aided by a staff of about 12,000 persons. Herbert H. Lehman, the first director general, served from the administration's inception until March 1946, when he resigned because of ill health. He was succeeded by Fiorello H. La Guardia. On Dec. 13, 1946, Maj. Gen. Lowell W. Rooks succeeded La Guardia.

To finance the relief services and supplies, each member nation which had not been under enemy occupation was assessed 1% of its national income the year ending June 30, 1943. Later a second assessment was made in the same amount. All member states contributed their share to U.N.R.R.A.'s administrative budget. The total operating and administrative contributions authorized by the U.N.R.R.A. administration amounted to \$3,693,509,914 as of Sept. 30, 1946. The largest subscribers were: United States \$2,700,000,000; United Kingdom \$624,650,000; and Canada \$138,738,739.

General relief during 1946 was extended to Albania, Austria, the Byelorussian S.S.R., China, Czechoslovakia, the Dodecanese Islands, Greece, Italy, Poland, the Ukrainian S.S.R. and Yugoslavia; limited aid was granted Finland, Hungary and the Philippine Islands. Ethiopia, through a special program, was assisted with medicine, welfare and transport.

While the military had over-all responsibility for the care of

displaced persons in Germany and Austria, U.N.R.R.A. personnel assisted in the care and maintenance of more than 1,000,000 D.P.s and ran hundreds of assembly centres for displaced persons.

U.N.R.R.A.'s activities during the first half of 1946 were seriously hampered by the world-wide food shortage. Unable to obtain sufficient allocations of bread grains to meet its minimum commitments, the U.N.R.R.A. council, holding its fourth session in March 1946, urged all countries to take all possible measures to conserve and make available more food to distressed areas to avert wide-spread famine in Europe and the far east.

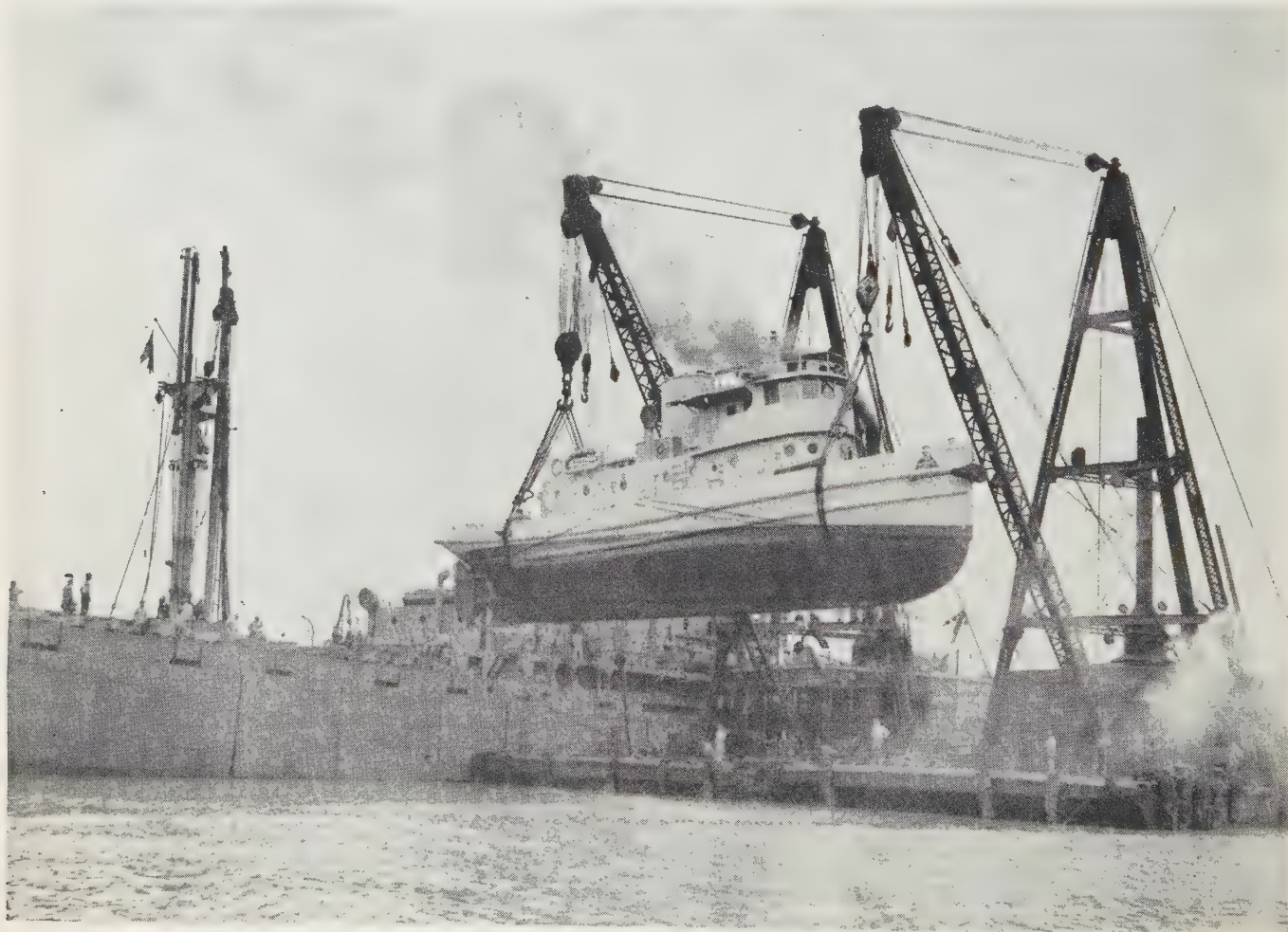
The food crisis was ameliorated later as a result of the arrival of harvests in the liberated countries and through the increasing grain shipments made by the major wheat-growing nations. U.N.R.R.A. officials continued to warn, however, of the possible danger of recurring famine in 1947.

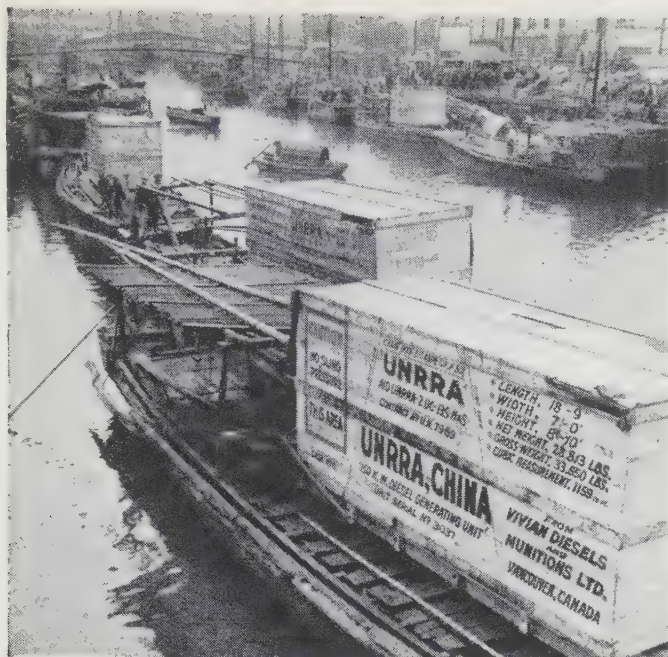
The extent and acceleration of U.N.R.R.A.'s activities are illustrated by the estimated cumulative total of 4,032,000 long tons of supplies shipped abroad by the end of Sept. 1945, which figure was increased to 16,633,000 long tons by Sept. 1946.

Recognizing the need for adoption of policies covering the termination of the organization and the transfer of its remaining functions to permanent international bodies, U.N.R.R.A.'s council at its fifth session, in Geneva, Aug. 1946, adopted the following resolutions:

1. To transfer U.N.R.R.A.'s major health activities to the World Health organization or its interim commission.
2. To transfer to the United Nations whatever social welfare functions that body desired to undertake.
3. To continue displaced persons operations until undertaken by the International Refugee organization, or some other appropriate organization.

CRANES lifting a 185-ton tugboat aboard a vessel at New Orleans on June 27, 1946. The tugboat was one of two being sent to Shanghai, China, for use by the U.N.R.R.A.





CRATED DIESEL ELECTRIC GENERATORS floating on barges in Soochow creek, Shanghai, China, where they were brought in 1946 by the U.N.R.R.A. for transshipment to interior points. They were to be used in rehabilitating China's municipal and industrial power plants

tion, provided that none of these operations was to be continued by U.N.R.R.A. after June 30, 1947.

4. To create the International Children's fund for the rehabilitation of children and adolescents of liberated countries.

5. To recommend that the United Nations General assembly establish an appropriate agency to review the need for financing urgently required imports for 1947 after the termination of the U.N.R.R.A. program and to estimate the financial requirements for such future relief needs.

In Oct. 1946 U.N.R.R.A. began the gradual reduction of its activities and personnel. After making preparations for the transfer of its functions to permanent international bodies, Director Gen. La Guardia submitted a report to the United Nations on the accomplishments of U.N.R.R.A.

The report warned of possible economic distress for China and eastern and southern Europe upon the termination of U.N.R.R.A.'s operations in 1947. But it also remarked that "by the end of its operations U.N.R.R.A. would have delivered about three and a half billion dollars worth of supplies (including freight). This is more than three times the value of relief after World War I." (See also FOOD SUPPLY OF THE WORLD; RECONSTRUCTION PLANNING; REFUGEES.)

United Nations War Crimes Commission: see WAR CRIMES.

United Service Organizations. The United Service Organizations, Inc., (U.S.O.) was formed in the U.S., Feb. 4, 1941, by the following agencies: Young Men's Christian associations, National Catholic Community service, The Salvation army, Young Women's Christian associations, National Jewish Welfare board and National Travelers' Aid association. From its inception to Nov. 1, 1946, nearly 1,500,000,000 men and women of the armed forces had been served by U.S.O. This figure includes attendance at U.S.O.-camp shows, clubs, troops-in-transit services and mobile services. More than 1,000,000 men and women of the U.S. served as volunteers in U.S.O. and more than \$200,000,000 was contributed to carry on its work. At its peak in March 1944, the total of U.S.O. operations stood at 3,035, but after that, as men were moved overseas, the number decreased although the volume of over-all work increased.

On the fifth anniversary of U.S.O. in 1946, it was announced

that since U.S.O. had been set up as a war organization, it could not be continued as a peace organization beyond Dec. 31, 1947. Through 1946, a steady reduction of the work was carried on. As a result, there were on Oct. 15, 1946, but 605 operations, of which 407 were U.S.O. clubs.

The U.S.O. club has always been the heart and soul of the organization. Called from its beginning the "home away from home" of the members of the armed forces, it replaced to some extent the familiar surroundings most missed by the men of the nation's civilian armies. The volunteers, who staffed the thousands of clubs, lounges, information centres, mobile service vehicles and other U.S.O. facilities, represented the "home-folks" and were a living tie to the American people both at home and at the offshore and overseas bases. In the various war theatres the members of the U.S.O.-camp shows units served the same function.

To finance U.S.O. through its final year, it was estimated that \$19,000,000 would be needed, about one-third of the amount spent for that purpose in 1946. A campaign to raise that sum was set in motion in the closing months of 1946.

The accomplishments of U.S.O. in the conduct of the war were officially recognized by the United States government. In May 1946, "in appreciation of patriotic services," a joint war and navy department citation was presented to the organization at an impressive ceremony in Washington, D.C. Similar citations went to the six member agencies. Then, in October, the medal for merit, highest award a president of the United States may bestow upon a civilian, was granted to former U.S.O. President Chester I. Barnard, to U.S.O. President Lindsley F. Kimball, and to the six vice presidents of U.S.O., who, during the war, headed the member agencies of the organization.

Among U.S.O. officers in 1946, were Dr. Lindsley F. Kimball, president; Walter Hoving, chairman of the board; and C. Frank Kramer, Jr., secretary. National headquarters were in the Empire State building, 350 Fifth avenue, New York, N.Y.

(L. F. K.)

United States. The official figures of the census bureau in Aug. 1946 showed that the population of the United States had passed the 141,000,000 mark, representing a gain of 10,000,000 from the beginning of the decade. If outlying possessions and dependencies were added—including the Philippines, which, though granted independent status on July 4, remained the peculiar responsibility of the U.S. until they recovered from the ravages of World War II—the total population would approach 160,000,000. In recent years the rate of increase in population showed a tendency to decline. Whereas in the early days of the republic, decennial gains of 20% or 25% were registered, the average gain was in 1946 about 7%, and demographers said that the population might be expected to be stabilized at about 170,000,000 by 1980. A second trend was toward a larger proportion of elderly people because of a falling birth rate and the longer expectancy of life made possible by the advance of medical science and the government's benefits to the aged and infirm. For example, in the decade 1930-40, while the population as a whole gained 7.3%, the number of persons of the age of 65 or more increased by 35%. If this trend continued, it would mean that a generation hence about 10% of the population would be in this "aged" class, as against 4% at the beginning of the 20th century.

History.—The year 1946 was one of mingled satisfaction and disappointment. Its all-inclusive task was reconversion from wartime to peacetime economy and policy on both the domestic and the international front. On the credit side of the ledger were record-breaking crops, increasing herds of food animals,

steadily improving business, marvelous achievements in science and technology, a rapid augmentation of the national wealth and income and a promising, if slow, progress toward the implementation of the plans for co-operation among the nations pledged to the principles of the San Francisco charter. On the other side of the ledger, however, must be set persistent strife between labour and management, vacillating governmental policies on price controls, unpardonable food shortages resulting from the speculative withholding of meat, sugar and cereal products from the market and the continuing difficulty of bringing the soviet union and the western powers into agreement on such questions as the veto power in the Security council, the number of occupation troops in the countries liberated from the nazis, the spheres of influence in strategic regions in the near and far east and the responsibility for the control of the use of atomic energy. The first full calendar year after the guns ceased firing revealed in startling and disconcerting clearness the tremendous problems of recovery and readjustment which so unprecedented an upheaval as World War II was certain to bring in its aftermath.

Congress.—The second session of the 79th congress met on Jan. 7, 1946, with a roster of 243 Democrats and 189 Republicans in the house and 57 Democrats and 38 Republicans in the senate. On Jan. 21 congress listened to an extremely long message from President Truman, reviewing the achievements of the year 1945 and recommending more than a score of measures for consideration in 1946. Though congress remained in session until Aug. 2, it showed little disposition to implement the president's program. Of the 27 major measures asked for by the White House only 10 were passed, most of the 600 new laws put on the statute books being of a trivial nature. The reasons for the lack of legislative vigour were political, economic and personal. Enough southern Democrats who were opposed to the continuance of the New Deal policies joined with the Republican minority to form a bloc which was strong enough to thwart the president's recommendations but not strong enough to override his vetoes. Again, there was much disagreement among the top administration men on such subjects as price control, labour legislation and subsidies. And, finally, the coming mid-term elections made members of congress wary about committing themselves to action which might militate against the chances of their return to Washington. In February nearly 1,500,000 workers were out on strike in such essential industries as steel, motors, electrical equipment and communications; and public indignation at these interruptions of the recovery program reached a high peak. President Truman's plan was to deal with the situation through fact-finding commissions which would study the merits of both sides and recommend arbitration. But the house took the bit in its teeth and passed (by a vote of 258 to 55) a drastic strike-curbing bill introduced by Rep. Francis Case of South Dakota. The Case bill, adopted by the senate with some changes, was the first measure to revise the prolabor Wagner act of 1935. It provided for a cooling-off period of 60 days between the calling of a strike and its execution, for penalties for workers who struck during that period, for a mediation board to intercede in labour disputes and for union liability for damages resulting from strikes. On June 11 President Truman vetoed the bill, and the house failed to override the veto by only five votes of the two-thirds necessary. He also vetoed a bill for the extension of the Office of Price Administration on June 29 (the day before the expiration of price controls) and consented to sign a second and no more satisfactory bill after six weeks of wild inflation of prices. In both of the vetoes cited the president was upheld only by the grace of Republican votes. This meant that with the mid-term elections approaching, the president was at serious odds even with his own party members

in congress. To be sure, congress did pass some important bills before its adjournment on Aug. 2. It extended the draft until March 31, 1947, exempting the 18-year-olds; created an atomic energy commission; provided \$400,000,000 for housing subsidies; approved a loan of \$3,750,000,000 to Great Britain; passed a weakened OPA extension bill; "streamlined" the procedure of congress by greatly reducing the number of standing committees and (the senate) approved by a vote of 60 to 2 the proposition to abide by the decisions of the world court established by the United Nations charter. But its continual squabbling and its failure to cope courageously with such vital problems as labour unrest, inflated prices, the black market, veterans' housing and strikes which were not only sabotaging the recovery program but were bringing unpardonable inconveniences and suffering to millions of citizens so discredited it that the people of the country rose in revolt on election day (Nov. 5) and turned the Democrats out of both houses of congress, where they had held substantial majorities from Franklin D. Roosevelt's first election. The 80th congress, to meet on Jan. 3, 1947, would contain 246 Republicans and 188 Democrats in the house and 51 Republicans and 45 Democrats in the senate.

The Budget.—Contrary to custom President Truman combined his budget message with his annual message on the state of the union. He held out the hope that, with the paring down of various war expenditures and with increased revenue from income taxes, the fiscal year 1946-47 might see a balanced budget for the first time after 1930 and even a treasury surplus to apply to a reduction of the huge national debt of \$278,000,000,000. The estimate for the government expenses for 1946 was about \$70,000,000,000 and for 1947 about \$37,000,000,000, as compared with a peak of \$99,000,000,000 in 1945. It was the purpose of the administration to continue tax rates unchanged, with the expectation that with growing prosperity, taxes would yield 40% of the expenses in 1946 and 65% in 1947. However, two considerations weighed against the optimistic estimates of the president. In the first place there was a margin of only 14% of the government's expenses in which substantial economies could be made; for the fixed charges for the service of the debt, the cost of the veterans' program, international commitments and national defense (between January and August the budgets of the army and navy were increased by \$3,700,000,000) accounted for 86% of the federal expenses. Furthermore, in the event of the capture of congress by the Republicans (which actually happened in the November elections) there was the possibility that they would redeem their campaign promise of reducing income tax rates, perhaps by as much as 20%. A few days after the election, prominent Republicans like Robert A. Taft, who was to be the majority leader in the senate, and Harold Knutson, who was to be chairman of the ways and means committee in the house, expressed confidence that a balanced budget for 1947-48 would be compatible with a 20% reduction in income taxes. The country had to await the action of the new congress on tax rates and governmental economies to see whether or not the hopes of the president and the predictions of the Republicans could be fulfilled.

Industry.—The U.S. industrial giant, crippled by strikes in the early months of the year, began in midsummer to show its strength. Steel production for July was more than 7,000,000 tons, exceeding for the first time the average monthly rate of 1941; and before the end of the year production had advanced to more than 90% of capacity. Only 500,000 tons of bituminous coal were mined in April as compared with 50,000,000 tons in July. The 1,350,000,000 barrels of oil produced in the U.S. were almost double the 800,000,000 produced by all the rest of the world. In January and February the number of man-days lost amounted to more than 20,000,000; in August to



STATUE OF LIBERTY overlooking some of the 400 ships which lay idle in New York harbour in Sept. 1946 because of a nation-wide strike of maritime union workers

only 3,300,000. In November, Civil Production Administrator John D. Small reported only 2,000,000 unemployed out of the total labour force of nearly 60,000,000. There were twice as many men and women in the factories as there were in 1939. The people, with savings of \$150,000,000,000 were able and eager to buy; but many were deterred by the high costs of commodities caused by the leapfrog process of wages and prices. The threats of John L. Lewis and other union leaders in the autumn (especially after the Republican victory in the elections) to reopen contracts in order to gain wage increases made it uncertain whether the pace of industrial recovery could be maintained. During the entire year a battle was waged in congress and the country over the wisdom of continuing price controls, which from the spring of 1942 had covered almost every commodity that the War Production board had allowed to be produced. Those who favoured the extension of OPA argued that without a renewal of its controls (which would expire on June 30) prices would soar to fantastic heights. On the other hand, the relatively small, but financially powerful minority who clamoured for the termination of OPA contended that the flood of production thus released would inevitably drive prices down. Unable to get a satisfactory renewal bill from congress, President Truman allowed the controls to lapse on July 1, and immediately thereafter prices rose sharply. A second OPA extension bill was passed on July 25, which was signed by the president, although no more satisfactory to him than the one vetoed a month before since it removed controls on meat, poultry, grain, dairy products and other commodities. It set up a three-man decontrol board, authorized to re-establish ceilings if it found that prices had risen unreasonably. A vacillating policy followed, in which ceilings on meat were reimposed (Aug. 21) without improving the supply to householders at reasonable prices. With the elections approaching and buyer resistance increasing, meat became the topic of the

nation. President Truman and his cabinet spent several days in early October wrestling with the problem. Finally, on the 14th, the president addressed the country over the radio: "The Secretary of Agriculture and the Price Administrator are removing all price controls on livestock and food products therefrom tomorrow." He recommended "speeding other decontrol plans to an extent compatible with our economic security"—whatever the last phrase might mean. This foreshadowed the virtual end of OPA, which at its peak in 1945 had controlled more than four-fifths of the nation's industries through its 68,000 agents. The problem was whether or not voluntary co-operation would avail to avert the seesaw of wages and prices until full production in industry and the resulting competition should restore the normal operations of supply and demand.

Labour.—That the end of hostilities would bring major upheavals in the field of labour was to be expected. Reconversion from wartime to peacetime production was attended by problems such as the shift of workers in many plants, the return of millions of men from service in the armed forces and the readjustment of wages because of the cutback in overtime pay and the rising prices of commodities. Labour, anxious to retain its "take-home" wages and its favoured position for a decade under the Wagner act, began even before V-J day to make its demands for increased pay. In Nov. 1945 a series of crippling strikes in key industries was inaugurated when 200,000 employees of the General Motors Corp. walked out. They were followed in Jan. 1946 by 700,000 of the nation's steelworkers and 200,000 workers in the electrical industry. On April 1, 400,000 soft coal miners failed to show up at the pits, and the next month a strike of 300,000 engineers and trainmen threatened to tie up the whole transportation system of the country. A strike of 200,000 maritime workers set for June 15 led President Truman to declare that he would use the army, the navy and the coast guard if necessary to keep the ships moving. The strikes in the vital industries of coal and transportation were settled, with wage increases of 18½ cents an hour, but not until

the government had taken over the mines and plans had been made for the Office of Defense Transportation to run the railroads. It was evident that legislation was needed to prevent strikes which seriously delayed economic recovery, ignored the government's remonstrances and caused great inconvenience and suffering to millions of citizens. The coal strike alone, according to the testimony of Civil Production Administrator Small, cost the nation \$2,000,000,000 and set back the production of consumers' goods by 3 months.

A divided congress, in which a combination of conservative Democrats with the Republican minority was able to pass bills unacceptable to the president but not able to pass them over his veto, could find no solution to the problem. The veto of the drastic antilabour Case bill was upheld by the narrow margin of five votes in the house. The president's own emergency program, proposed to congress on May 25, provided that workers failing to return to their jobs in government-seized plants should be deprived of their seniority rights under the Wagner act, that they and union officials might be drafted into the army, that wages and conditions of employment should be fixed by the president during the period of government operation and that injunctions might be sought to compel compliance with these orders. The house immediately accepted this program by a vote of 306 to 13; but after the senate had eliminated the punitive provisions of the measure, no agreement could be reached. The president's defenders in congress maintained that a strike against a seized plant was a strike against the government and could not be tolerated; while his opponents declared that the proposed legislation was an invasion of the rights of labour and management in their bargaining procedure and that it was "autocratic" in that it left to the president alone the decision as to when a strike was "against the government." With congress deadlocked, there was no progress in labour legislation during the summer; but in the autumn, with prices rising all along the line, Lewis and other labour leaders threatened new strikes unless the spring contracts were reopened to allow further wage increases. Suddenly, on Nov. 15, Lewis made good his threat by arbitrarily declaring void the contract which he had negotiated with the solid fuels administrator, Secy. of the Interior Julius A. Krug, on May 29. Without ordering the miners to strike, which would have exposed him to the penalties of the Smith-Connally act, he virtually recommended a walkout of the miners by his termination of the contract; and most of the 400,000 men of his union quit work on the principle "no contract, no work." This time the government was determined to test the question of the power of one man to cripple the country's industries and bring suffering to millions of citizens. Lewis was ordered by a U.S. district court to revoke his annulment of the Lewis-Krug agreement; and when he refused, he was cited for contempt of court. His lawyers argued that the injunction issued against him was a violation of the Clayton act of 1914 and the Norris-LaGuardia act of 1932, which forbade injunctions in labour disputes; but the government replied that this was not a labour dispute but a defiance of the government's authority. Judge T. Alan Goldsborough handed down the decision of the court on Dec. 4, fining Lewis \$10,000 and the United Mine Workers \$3,500,000. With an appeal to the supreme court pending and the president scheduled to address the nation on the evening of the 8th, Lewis surrendered on Dec. 7 and ordered the miners to return to work under the terms of the contract of May 29 until March 31, 1947, when the negotiation of a new contract would be due. The country breathed a sigh of relief; President Truman cancelled his address; and the miners, with the Christmas season approaching, were glad to get their pay checks again. The crisis was passed; but a consistent government policy for the curbing of indus-

trial strife was yet to be found.

What effect the capture of both houses of congress in the elections of Nov. 5 would have on the framing of such a policy remained to be seen. The unions were strongly entrenched. Their membership had grown from 3,400,000 in 1930 to nearly 15,000,000 in 1946. They had millions of dollars in their treasuries. Their leaders were determined to maintain the favoured position won for labour by the Wagner act and other New Deal legislation. However, jurisdictional disputes and mutual raiding were still rife in their ranks, and popular resentment against the dislocation of the U.S. economy by persistent strikes was strong.

Agriculture.—In an address at New York on Dec. 6, 1945, Secy. of Agriculture Clinton P. Anderson predicted exceptional prosperity for the farmer. His prophecy was confirmed just a year later (Dec. 17, 1946) by a report of the department of agriculture which showed that 1946 had been a banner year in the production of food stuffs of every sort. The aggregate volume of crops was 7% more than the high figure of 1945. Of corn 3,287,927,000 bu. were raised, as against 2,880,224,000 in 1945 and a 10-year average of 2,600,000,000 bu.; and the 1,155,715,000 bu. of wheat raised compared with the 1,108,000,000 of the previous year and the 10-year average of 843,692,000 bu. There were more cattle, sheep and hogs in the country than ever before; and the meat production was ample to feed U.S. troops abroad, supply the U.S. quota of relief to the United Nations Relief and Rehabilitation administration and leave a per capita of several hundred pounds for U.S. consumption. The production of cane and beet sugar reached 2,000,000 tons, an increase of 15% more than 1945. More fruit was grown than ever before. More than 9,000,000 tons of fresh vegetables were raised, exceeding by 9% the record set in 1945.

At the height of the depression the farm income had sunk to \$4,700,000,000, or less than 10% of the national income; but by 1946 it had risen to a net of \$13,000,000,000, representing a per capita income to the farmer of more than \$1,500 a year, as compared with an average of \$550 for the period 1936-41. Farm mortgages were reduced by half from their peak figure of \$10,700,000,000 in the deep depression days; and the department of agriculture estimated that the total assets of the farms had increased from \$53,700,000,000 in 1940 to \$82,800,000,000 in 1946. The one disturbing fact in the picture was the prevalence of farm tenancy, especially in the south. President Roosevelt called it "America's Problem Number One." In 1940 no less than 42% of the country's farmers were landless tenants or share croppers, and loans by the Federal Farm Security administration for the purchase of land or homes under the Bankhead act of 1937 provided relief for only a tiny fraction of them.

Notwithstanding the superabundance of food in the country, the public was confronted with the paradox of scarcity. Those who were unable or unwilling to pay such outrageous black-market prices as \$1.25 a pound for beef, \$1.00 a pound for butter or \$1.00 a dozen for eggs found their diet as restricted as though the country were in a state of siege. Opponents of OPA insisted that it was the price ceilings that encouraged the black market, and if these were removed a wholesome competition would force the speculators to release their hoarded supplies and bring down prices to normal levels. The supporters of OPA, on the other hand, contended that if the ceilings were removed prices would soar to fantastic heights. The administration vacillated, now relaxing, now reimposing and finally removing price controls (except for rents and sugar). As the grocers' shelves began to fill again and meat began to appear in the butchers' shops toward the close of the year, prices came down slowly. That they would recede to prewar levels was

not to be expected, but the indignant consumer would have felt better had the increases he paid gone to the farmers and ranchmen and dairymen instead of to the middlemen and the speculators.

The Armed Forces.—It was natural that soldiers, sailors and marines should be eager to return to their homes after fighting for many months on battle fronts in Europe, Africa and the Pacific area. The surrender of Germany and Japan in the summer of 1945 seemed to them to mark the end of the need for their further service. But Presidents Roosevelt and Truman at Yalta and Potsdam had committed the United States to co-operation with Great Britain and the U.S.S.R. in the military and civilian control of Germany until peace should be made with that country, and in preserving order in the states liberated from nazi domination until they should establish governments based on the will of the people. Since men who had earned their discharges from the armed forces had little relish for this job of policing, and veterans were arriving home by the hundreds of thousands each month, the country was confronted with the problem of finding replacements for them, either through voluntary enlistments or extension of the draft. The latter method, vigorously backed by the war department, met with the traditional opposition in congress and the nation to conscription in the time of peace; and after a week of wrangling all that the senate and house conferees could agree upon was an emasculated bill permitting the draft of men more than 18 (excluding fathers) from July 1, 1946, to March 31, 1947. The session of congress came to an end without action on the proposal, and President Truman in December appointed a commission to study the question of what he called "universal" (rather than "military") training. Even if the draft produced 9,000 men a month, it was estimated that, if the army were to reach the proposed strength of 1,070,000 men on July 1, 1947, a monthly quota of 30,000 to 40,000 recruits would be needed. But during the first two weeks of Nov. 1946 there were less than 10,000 voluntary enlistments, despite the encouragement of a boost in pay.

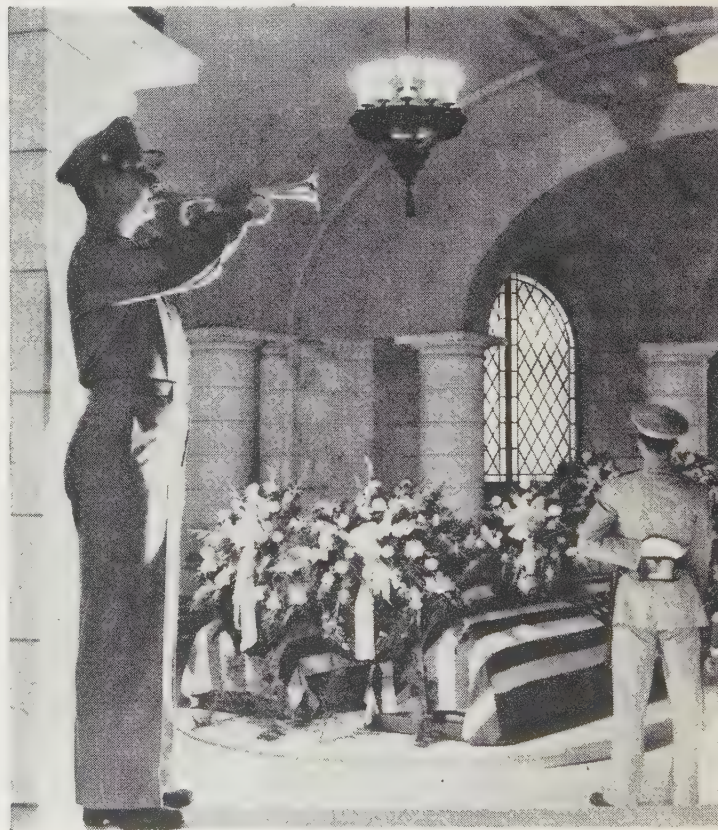
The returning veterans were faced with a desperate housing situation. More than 1,000,000 of them were living "doubled up" according to Housing Expediter Wyatt Wilson. The Patman bill of April 1946 provided for the construction of 2,700,000 housing units by the end of 1947; but even if that figure were attained, it would satisfy only less than half the pressing demand. To aggravate the situation, the scarcity of building materials and the high cost of labour raised the prices of available houses to such heights that neither the veteran nor the retired war worker could afford to buy them. Only 16% of the veterans could pay more than \$6,000 for a house or \$50 a month for rent; but less than half the houses to be made available by the Patman plan could be had for so low a figure.

During the entire year a proposal favoured by the president and the army, but strenuously opposed by the navy, was before congress. That was the merger of the two departments under a single chief, called the secretary of common defense, with a seat in the cabinet, with three non-cabinet chiefs of staff representing the army, navy and air forces. There would be a single budget and a single intelligence agency for the three services; but within this framework they would be independent of one another. The supporters of the merger argued that not only did the separate services of army and navy often duplicate each other's work, but that they were a hindrance to the planning of over-all strategy. Pearl Harbor was cited as a confirmation of this opinion. On the other hand, the navy chiefs believed that unification of the services would mean the subordination of the navy to the army as the stronger branch of the service. It seemed likely that some compromise would pre-

vail: perhaps the suggestion of Sen. H. Styles Bridges of New Hampshire that a secretary of the air forces be added to the cabinet posts of the army and the navy, co-operation among all three to be promoted by a civilian co-ordinator appointed by the president.

Latin-American Relations.—Though widespread political and economic unrest prevailed in 1946 in the South American republics, notably in Bolivia, Venezuela, Uruguay and Paraguay, it was in the relations with Argentina that the good-neighbour policy was severely tested. The obvious reluctance of that country to fulfil its pledges made at various Pan-American congresses to eradicate nazi influences drew from the U.S. state department on April 8 a statement, reaffirmed six months later by Secy. of State James Byrnes, that the U.S. should judge Argentina by its actions and not by its words. In May George S. Messersmith was sent to Buenos Aires to succeed Spruille Braden, who returned to Washington to become assistant secretary of state in charge of American republics affairs. Meanwhile, the election of Juan D. Perón to the Argentine presidency had not only served as a rebuke to Braden's "hard-boiled" policy toward Argentina, but encouraged among the other Latin-American republics a revival of animus against the "Colossus of the North." On Dec. 23 Messersmith returned from Buenos Aires, where for eight months he had been pursuing a course much more conciliatory than that of Braden. The ostensible object of the return of the ambassador was a conference with Secretary Byrnes, but popular opinion saw in it a move to influence the state department to a more trustful co-operation with the Perón regime. If the secretary were persuaded to modify his position taken in the statements of April and October, it would mean the practical recognition of Argentina as the southern complement of the United States in the system of hemisphere defense and solidarity and a generous continuance of economic and military assistance to it. It would

BODIES of five U.S. airmen lying in state while taps are sounded at the Amphitheatre chapel in Arlington National cemetery, Arlington, Va. The fliers were shot down over Yugoslavia in August 1946



mean also, since the defeat of Germany had neutralized the activities of such nazi agents as remained in Argentina, that the U.S. could collaborate with that most powerful member of the Latin-American family without the interference in its domestic affairs which had so often justified in its own and its neighbours' eyes the charge of "Yankee Imperialism."

International Problems.—The year 1946 was characterized by an uninterrupted series of international conferences, with diplomats and delegations hastening from one capital to another: London, Paris, New York. There were two main objectives of these meetings: first, framing treaties of peace for the countries liberated from nazi domination (Finland, Italy and three Balkan states), and second, setting in motion the machinery of the United Nations as formulated in the San Francisco charter. The first of these tasks had been entrusted to the foreign ministers of the United States, Great Britain and the U.S.S.R. (with France and China joined as occasion demanded) by the Potsdam conference of July 1945. The next month the ministers held their first meeting at Moscow, and in succeeding sessions at London, Moscow, Paris and finally at the Waldorf-Astoria hotel in New York completed the drafts of the treaties (Nov.-Dec. 1946), dealing with the vexed questions of boundaries, reparations, minorities and political procedures. The first meeting of the general assembly of the 51 United Nations met at London on Jan. 10, 1946, the United States delegation consisting of Secy. of State Byrnes; former Secy. Edward R. Stettinius, Jr.; Sen. Tom Connally, chairman of the Foreign Relations committee; Sen. Arthur Vandenberg of Michigan and Mrs. Franklin D. Roosevelt. In its five weeks' session the assembly elected the 11 members of the Security council, created a United Nations Atomic Energy commission, established the International Court of Justice, chose New York as its interim headquarters and elected Trygve Lie of Norway to the important post of secretary general. The second session of the assembly convened at Flushing Meadows, Long Island, N.Y., on Oct. 23, 1946, and adjourned on Dec. 16, leaving to the Security council at Lake Success (Long Island) the task of working out a plan for the reduction of the armed forces of the world and especially for the control and use of the terrifying new discovery of atomic power. The main results of the incessant labour of the assembly were: agreement on the outlawing of the atomic bomb in warfare, the establishment of a rotation trusteeship council for the administration of the former League of Nations mandates, recommendation that the U.N. members recall their ministers and ambassadors from Spain until Gen. Francisco Franco should be ousted from power, advice to the Big Five of the Security council to make sparing use of the veto power guaranteed to them by the San Francisco charter, plans for the continuance of famine relief on the expiration (Dec. 31) of U.N.R.R.A., adoption of a budget of \$47,130,000 for the expenses of 1947, enlargement of the Security and the Social and Economic councils, the admission of four new members to the U.N. and the acceptance of John D. Rockefeller's \$8,500,000 gift of 6 blocks of land along the East river in central Manhattan as the permanent site for the capital of the United Nations.

A disturbing element pervading the session of both the assembly and the Security council was a clash of interests between the supporters of the Anglo-American and the Russian points of view on various subjects, such as the limitation of the veto power, the numbers and conduct of the troops in occupied countries and above all the method of control over the production and use of the atomic bomb. The Russians, conscious of the long hostility of the western nations to their communistic regime, believed that their safety demanded friendly governments in their neighbouring states in Europe and Asia, while

the western nations regarded Russia's policy in China, Iran, Poland and the Balkans as evidence of a growing Muscovite imperialism. The Russian press, wholly subservient to Generalissimo Joseph Stalin, made conciliation difficult by a constant emphasis on the "ganging up" of the western world against the soviet union. Vyacheslav Molotov in the Allied Council of Foreign Ministers and the assembly and Andrei Gromyko in the Security council so vigorously upheld the Russian contentions that it looked at times as though the meetings would be completely deadlocked. The most serious of all the problems (not settled when the year came to a close) was the method of control of atomic power. On June 14 Bernard Baruch, the U.S. representative on the U.N. Atomic Energy commission, presented his plan. It called for the creation of an atomic development authority to take over the world's supply of the materials for the production of atomic power, to have sole right to inspect atomic activities in all countries and to punish any nation or individual found guilty of using atomic power illegally. The action of the A.D.A. would not be subject to veto. Five days later Gromyko came forward with a very different plan. The control of the bomb should rest in the hands of the Security council and the right to veto penalties for the infraction of the council's prescriptions should remain. Meanwhile, as an earnest of good faith, the United States should cease to manufacture the bomb and destroy its stockpile. In a word, Gromyko was countering the advantage of the U.S. in the exclusive possession of the bomb with the plan to transfer the control of the bomb not to an independent authority but to the Security council itself with the right of veto intact. The Atomic Energy commission, having agreed that there must be a complete prohibition of atomic weapons and a system of international inspection to prevent their illegal manufacture, planned to present to the Security council by New Year's eve a report which would meet with its approval and later that of the general assembly.

Several other unsolved problems of international import con-

THE "BIG GUNS" of the first line of national defense were suggested by Fred O. Seibel of the *Richmond Times-Dispatch*, Richmond, Va., in this cartoon, which appeared in 1946



Table I.—U.S. Foreign Trade in Merchandise, by Continents, 1944 and 1943

	U.S.A.	Europe	N. America	Asia	S. America	Africa	Oceania
1944 exports		9,321,565,000	2,041,286,000	994,062,000	535,342,000	859,670,000	409,602,000
imports		285,274,000	2,037,749,000	321,940,000	922,813,000	221,189,000	130,305,000
1943 exports		7,617,046,000	2,022,560,000	837,541,000	411,480,000	1,507,353,000	568,927,000
imports		233,512,000	1,688,359,000	234,814,000	775,887,000	203,400,000	245,376,000

fronted the United States at the opening of the year 1947, and much criticism was visited upon the state department for alleged mishandling of foreign policy. As seen above, U.S. relations with Latin-America and especially with Argentina had hardly justified in the eyes of the U.S. sister republics (or of Sumner Welles in his book *Where Are We Heading?*) the promise to be a "good neighbour." In China the U.S. had in 1946 done little or nothing to compose the civil war between Chiang Kai-shek and the Communists, Gen. Joseph W. Stilwell and Ambassadors Clarence Gauss, Patrick Hurley and George Marshall acting at cross-purposes and winning neither the full gratitude of Chiang nor the trust of the regime at Yenan. Germany, divided into its four zones and without a government of its own with which to deal, was at the mercy of the conflicting policies of the occupying powers: Great Britain stressed the need for its economic recovery; France would separate the Rhineland and the Ruhr from the reich; the U.S.S.R. was suspected of plotting to win the country for communism; while the United States was endeavouring to rid its zone of nazi sympathizers in the administrative jobs, the courts and the schools. Complaints came back to the United States of reprehensible behaviour of U.S. troops and officers there; of enormous profiteering in black market operations, collusion with nazi agents and even insubordination to the commander of the U.S. army of occupation, Gen. Joseph T. McNarney. Until a settlement of the anarchy in Germany should be made (a problem which the Allied Council of Foreign Ministers was expected to take up in its meeting in Moscow in March 1947) there could be no hope for a peaceful Europe. In spite of these disturbing questions waiting solution, it was the conviction of the statesmen and peoples of the world generally that the work of various agencies of the United Nations during the year was fruitful of results and a promise of still more fruitful accomplishment in 1947.

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Foreign Trade.—Table I shows U.S. foreign trade in merchandise by continents (1943-44) and Table II shows U.S. imports and exports of merchandise (1932-46) according to figures published by the U.S. department of commerce. See also BUSINESS REVIEW; EXPORT-IMPORT BANK OF WASHINGTON; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; INTERNATIONAL TRADE; LEND-LEASE.

Table II.—Total U.S. Imports and Exports of Merchandise, 1932-46

Year	Export total (000's omitted)	% Increase	Import total (000's omitted)	% Increase
1932	\$ 1,611,016	...	\$ 1,322,774	...
1933	1,674,994	3.9	1,449,559	9.6
1934	2,132,800	26.5	1,655,055	14.2
1935	2,282,874	7.0	2,047,485	23.8
1936	2,455,978	7.6	2,422,592	18.3
1937	3,349,167	36.4	3,083,668	27.2
1938	3,094,440	-7.6	1,960,428	-36.4
1939	3,177,176	2.7	2,318,081	18.2
1940	4,021,146	26.6	2,625,379	13.3
1941	5,147,154	27.1	3,345,005	27.4
1942	8,078,989	56.9	2,744,862	-17.9
1943	12,964,906	60.4	3,381,349	23.1
1944	14,258,702	09.9	3,919,270	15.9
1945	18,005,900	-31.2	4,135,900	05.5
1946*	9,780,000	...	5,000,000	...

*Figures for 1946 are the official estimates of the U.S. Department of Commerce.

Communication.—For statistics, see the articles AIR TRANSPORT COMMAND; AVIATION, CIVIL; CANALS AND INLAND WATERWAYS; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; POST OFFICE; RADIO; RAILROADS; ROADS AND HIGHWAYS; SHIPBUILDING; SHIPPING, MERCHANT MARINE; TELEGRAPHY; TELEPHONE; TELEVISION.

Agriculture.—Statistical material pertaining to this subject may be found under AGRICULTURE, FOOD SUPPLY OF THE WORLD; also in the articles on separate crops and agricultural products.

Mineral Production.—Preliminary estimates prepared by the U.S. bureau of mines valued the 1945 mineral production in the U.S. and Alaska at \$8,067,000,000. This represented a decrease of 4.6% from the 1944 all-time high of \$8,452,000,000, resulting largely from a 19% decline in the output of metals, which was the result of lessened military demands. The other two major classes of mineral products, mineral fuels and nonmetallic minerals, both showed an increase in production in 1945. Studies by mining engineers and geologists of the department of the interior revealed the advanced stage of depletion of many of the important mineral reserves of the U.S.

Table III.—Leading Mineral Products of the U.S., 1944 and 1943

Mineral	Value, 1944	Value, 1943
Petroleum	\$2,030,500,000	\$1,812,560,000
Bituminous coal	1,819,753,000	1,568,597,000
Pig iron	1,278,981,313	1,273,634,210
Natural gas	824,542,000	753,810,000
Coke	527,921,506	476,117,472
Pennsylvania anthracite	354,582,884	306,816,018
Copper (domestic ores only)	236,797,000	257,934,000
Cement	151,996,646	202,460,328
Stone	175,642,157	184,320,034

See the articles on individual minerals; also MINERAL AND METAL PRODUCTION AND PRICES; STRATEGIC MINERAL SUPPLIES.

United States-Canadian War Committees: see PERMANENT JOINT BOARD ON DEFENSE.

United States Employment Service. The United States Employment service is a bureau within the U.S. department of labour, created under the Wagner-Peyser act of 1933, to establish and assist in maintaining a nationwide system of state employment service offices. The state systems were federalized in Jan. 1942 and integrated into the United States Employment service which throughout the war period served as the operating arm of the War Manpower commission in the mobilization of the nation's labour force. Administration of the state and 1,800 local USES offices was returned to the 48 states and the territories of Alaska and Hawaii on Nov. 16, 1946. Local offices in the District of Columbia and Puerto Rico continue under USES operation. The federal government finances the state employment service systems 100%.

During the war period and the first 15 months of reconversion local USES offices made 50,000,000 placements in war production establishments and peacetime industry. The peak load in USES offices was reached in March 1946, when 14,499,000 visits were made to them for various services. In July 1945, the last full month of war, the total was 4,900,000. In the fiscal year ended June 30, 1946, these visits totalled 128,000,000.

The Servicemen's Readjustment act of 1944 imposed special responsibilities upon USES in behalf of veterans, including employment counselling, preferential referral to job openings for which the veteran is qualified, and selective placement for disabled veterans. These services are available in all offices of the federal-state employment service. The Veterans Placement Service board, composed of the veterans' administrator, the director of selective service and the secretary of labour, establish the policies which are carried out by the Veterans Employment service of the USES. This service maintains an extensive force in the field, and at headquarters in the department of labour.

With return of local office administration to the states and territories the employment service again became a federal-state system. The federal government, under the statutes, is required to establish and maintain minimum standards for state employment service operations; engage in program development to improve the services; obtain and make available to other states the best current experiences of each state; provide technical assistance; maintain a uniform reporting system and exchange of labour market information among local offices; review and approve state plans of operations; allocate funds and audit expenditures of monies; and evaluate state operations to determine effectiveness of performance.

In turn the states are obligated, under regulations promulgated by the secretary of labour to: maintain an effective placement service for veterans, displaced former war workers, youths entering the labour market, disabled veterans and other handicapped workers, old workers, women and all other job-seekers; provide employment counselling to veterans and other workers; provide special services to veterans as required under the statutes; assist employers and labour organizations in use of personnel tools and techniques developed by the USES; disseminate labour market information and analysis to all interested groups; aid training authorities and community groups affected by manpower considerations; and co-operate with community organizations and government agencies in programs for increasing economic activity and maintaining high levels of stabilized employment.

(R. C. GN.)

United States Government Departments and Bureaus: see GOVERNMENT DEPARTMENTS AND BUREAUS. Also see under specific name, *i.e.*, COAST GUARD, U.S., etc.

United States Housing Authority (USHA): see HOUSING.

U.S. Investments Abroad. At the middle of 1946 the total value of private U.S. investments in foreign countries was estimated at approximately \$11,200,000,000 and the outstanding value of the loans and advances of the U.S. government aggregated an additional \$3,600,000,000.

Although both private and government advances to foreigners increased during the year, the rise in government credits was by far the more impressive.

Government Credits.—During 1946 the extension and use of U.S. government credits to foreign governments became one of the major factors in financing the large volume of U.S. exports required to meet the postwar needs of foreign countries. The virtual termination of lend-lease aid on Sept. 2, 1945, had meant that the extraordinary needs of foreign countries for goods, which included foodstuffs and other commodities necessary to the civilian economies, would be met partly through the United Nations Relief and Rehabilitation administration but mainly through the extension of large-scale credits to those countries.

Although it had been expected that the International Bank for Reconstruction and Development would be the main source of international loans, delays in ratification, and later in operation, required that credits be obtained elsewhere.

Consequently, the burden of providing such credits fell principally upon the United States, although that country was by no means the only source of international credit. During the first half of 1946 it was estimated that of approximately \$10,000,000,000 of total postwar credits either granted or awaiting signature or ratification by all countries, the U.S. share exceeded \$7,000,000,000. As the year progressed, these figures were revised upwards, the U.S. share alone reaching about \$9,500,000,000. Yet despite the additional commitments of several billions in long-term loans during the balance of the year, actual disbursements by the United States during 1946 proceeded at a moderate pace. The department of commerce estimated these at (net) \$1,670,000,000 in the first half of the year and at (net) \$1,860,000,000 during the second half of the year. The relatively slow utilization of credits, particularly in the first quarter of the year, reflected the continued strong U.S. demand for commodities that remained in short supply.

Loans to Britain and the Philippines.—Of the loans granted by the United States during 1946 by far the most important was one of \$3,750,000,000 to the United Kingdom in July. The loan, which in reality was a line of credit available up to the end of 1951, was repayable over a 50-yr. period beginning in that year. It bore no interest during the first 5 yrs. and the rate was 2% thereafter. The utilization of this loan for commodities in the United States, like others granted by the United States, was relatively slow. By the end of 1946 the British had drawn \$600,000,000 of the credit.

The 79th congress also enacted legislation during the summer authorizing a loan of \$75,000,000 to the Philippine Republic. Unlike other foreign loans, this was to meet a budgetary deficit rather than to provide funds for the purchase of U.S. commodities and services.

Export-Import Bank.—During 1946 the Export-Import bank continued to grant reconstruction credits—to the extent of \$1,157,000,000 during the first half of the year. This compared with commitments of \$1,040,000,000 in the last half of 1945. Of the additional \$2,800,000,000 granted to it during 1945, the bank had utilized all but about \$800,000,000, and of the uncommitted balance, \$500,000,000 had been earmarked for possible Chinese credits. The near exhaustion of the loanable funds of the bank was the basis for a recommendation by the National Advisory council to the congress on March 1, 1946, for

an additional \$1,250,000,000 of lending authority for the bank to meet the most urgent needs of foreign countries for dollar credits pending the granting of loans by the International bank. The proposal was not considered by congress in 1946.

Among the loans granted by the Export-Import bank were \$650,000,000 to France and \$200,000,000 to the Netherlands for equipment, materials and services. Other loans went to the Netherlands Indies, China, Greece, Saudi Arabia, Finland and Italy. Private U.S. banks participated in the Netherlands loan to the extent of 50%. Actual disbursements on all Export-Import bank loans, however, aggregated only \$500,000,000 in the first 6 mo. of 1946.

Lend-Lease Settlement Loans and Surplus Property Credits.—Agreements were concluded in 1945 and 1946 with a number of countries that had received lend-lease aid during World War II. In many instances these were part of over-all settlements of the wartime lend-lease and reverse lend-lease transactions and provided long-term credits for the transfer from the United States of lend-lease inventories and goods in the pipe line.

The terms of credit were typically $2\frac{3}{8}\%$ with amortization periods running from 30 to 50 yr. The loan agreement with France, dated May 28, 1946, provided for an obligation of \$420,000,000 for inventories, goods in the pipe line and for the settlement of war claims.

At the time of this loan agreement another loan of \$300,000,000 was made to France (at similar terms) to cover the purchase of surplus properties and installations (with an original cost to the United States of \$1,400,000,000). This loan was part of a total of \$900,000,000 of credit extended to foreigners by the U.S. government during 1946 for the purchase of surplus properties including surplus ships. The vessels were under the jurisdiction of the maritime commission, acting under the authority of the Merchant Ship Sales act of 1946. Credit terms under this program called for a cash down payment of 25%, amortizations within 20 yr. and interest at $3\frac{1}{2}\%$.

International Organizations.—During 1946, \$316,000,000 of U.S. government capital was invested in the International Bank for Reconstruction and Development which, with the International Monetary fund, was being organized for full-fledged operations. No investment was made in the latter organization in 1946 although it was contemplated that \$2,750,000,000 would be invested by March 1, 1947, when the fund was to begin foreign exchange transactions.

Further U.S. government investments in the International bank of \$316,000,000 were scheduled by May 26, 1947, although it was contemplated that the bank would call upon private capital markets (mainly in the United States) for the bulk of the funds to be loaned by that organization to needy foreign coun-

tries. Toward the end of the year the president of the bank stated that it had received loan applications for about \$2,000,000,000 and that commercial banks in the United States under current regulations could alone purchase about \$600,000,000 of the bank's obligations, if issued.

Short-Term Credits.—The government also initiated a program of short-term advances to Japan and Germany in the form of commodities for further processing, such as raw cotton to be manufactured into yard goods by those countries. The cotton "advances" were to be repaid from the proceeds of the sales of the finished products in foreign countries. Sales were to be made against dollars. Approximately 40% of the gross was to revert to the United States as payment for the raw cotton. Such arrangements served the function of re-establishing production in certain industries in those countries.

Private Investments.—Within a year after the end of World War II there were several indications of a reviving U.S. interest in making private loans and investments in foreign countries, in addition to Canada. (U.S. people had been purchasing Canadian securities during World War II, and during the first 6 mo. of 1946 made net purchases of an additional \$113,000,000, Canadian dollars, according to official Canadian statistics.) New investments in U.S. direct investment enterprises operating in foreign countries were estimated by the commerce department to have reached a net figure of up to \$200,000,000 during the first 9 mo. of 1946, as contrasted with net withdrawals of capital in previous years. However, during the next 3 mo. two major liquidations aggregating \$120,000,000 were reported. For the first time in a number of years long-term loans were made by the general public to a foreign country other than Canada, and other loan requests awaited favourable conditions.

Direct Investments.—Among the new direct investments in 1946 announced were the following:

The American Anglo-Transvaal Corp., a \$20,000,000-enterprise for the development of mining and industrial activities in the Union of South Africa, to be financed jointly by U.S. and British capital.

The investment of \$7,000,000 by Sears, Roebuck and Co. in retail merchandising establishments in Mexico and Brazil, as a first venture of this company to establish its merchandising techniques outside of the United States.

The formation of International Hotels Corp. by Pan American Airways to carry out a program of hotel construction in Latin America.

The development of a company to manufacture low-cost Westclox alarm clocks and pocket watches in Scotland.

Among the important liquidations during the year was the announced sale by the International Telephone and Telegraph Corp. to the Argentine government of certain of its properties in that country for \$95,000,000. This marked the third major liquidation within a 6-yr. period of this company's direct investments abroad—others being a liquidation of Rumanian interests in 1941 for \$14,000,000 and certain Spanish properties in 1945 for \$88,000,000. The sale by the Barber Asphalt Corp., a U.S. company, of its Venezuelan oil royalties to the Shell Petroleum Co., Ltd., of London, for \$25,000,000 represented another major withdrawal of U.S. interests from abroad.

At the close of 1946 the future of U.S.-controlled properties both in Japan and in several Allied countries still remained unsettled.

Foreign Dollar Bonds.—The successful offering of \$20,000,000 of commonwealth of Australia $3\frac{1}{4}\%$, 10-yr. bonds in the summer of 1946 pre-saged the offering of a number of overseas loans for the first time in many years and was followed by a \$25,000,000-Australian issue in December. Temporarily withheld pending favourable market conditions, a \$50,000,000-Netherlands issue and a \$100,000,000-Norwegian issue were expected to be offered to the public in 1947. Two encouraging developments among defaulted loans were the announced intention of Czechoslovakia to pay full interest on arrears and current coupons and the Polish reaffirmation to resume in 1947 payments on its loans suspended during World War II.

At the end of 1945, 30% of the \$2,499,000,000 (par value) of U.S.-owned foreign dollar bonds were in default. In the latter part of 1946 the Argentine government's redemption of more than \$100,000,000 of its bonds held in the United States (which had not been in default) served to increase this ratio somewhat. (See also EXPORT-IMPORT BANK OF WASHINGTON; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; LEND-LEASE.)

(M. AB.)

United States Mint: see COINAGE.

United States Office of Education: see EDUCATION; FEDERAL SECURITY AGENCY.

Universities and Colleges. The following eight pages carry a selected list of nationally or regionally accredited universities, colleges, junior colleges, and technical schools of college grade in the U.S. and Canada, with location, year founded, chief executive, enrolment, size of faculty, endowment and number of library volumes, for the academic year 1946-47. The symbol * denotes 1945-46 data; || denotes data previous to 1945-46. (See also EDUCATION.)

*Estimated Value of United States Investments in Foreign Countries,
June 30, 1946*

(In billions of dollars)

Type	Value
Private:	
Long-term	
Direct (book value)*	7.8
Dollar bonds (market value)	1.8
Miscellaneous	1.1
Total long-term	10.7
Short-term	.5
Total private	11.2
Government:	
Long-term	3.3
Short-term	.3
Total government	3.6
Total U.S. investments abroad	14.8

*No allowance was made for war damages to U.S. properties in foreign countries inasmuch as the full extent of such damage was unknown. It might, however, run into several hundred million dollars.

Source: U.S. Department of Commerce.

Note: The above data would require considerable revision when the results of a comprehensive survey of U.S. investments in foreign countries by the U.S. treasury department become known.

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students in Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Full Time Students	Students in Program	Faculty	Endowment	Library Volumes
A															
Acadia University, Wolfville, N.S., Can.	1838	F. W. Patterson	896	380	60	\$ 1,083,021	87,000	Bennington College, Bennington, Vt.	1932	Lewis W. Jones	318	7	47	\$ 100,100	27,000
Adelphi State Tch. Coll., Albany, N.Y.	1921	Ira Richardson	295	295	23	—	21,485	Berea College, Berea, Ky.	1853	Francis S. Hutchins	1,012	284	80	7,850,000	100,992
Adelphi College, Garden City, N.Y.	1896	Paul D. Edd	1,909	771	108	—	40,003	Bethany College, Bethany, W. Va.	1850	Wilbur H. Crumbie	708	356	42	3,072,000	41,807
Agnes Scott College, Decatur, Ga.	1889	John E. R. McCain	540	—	68	2,225,000	42,400	Bethany College, Lindsborg, Kan.	1887	Emory Lindquist	386	31	30	44,663	23,504
Akron University, Akron, Ohio	1871	John E. Simpson	3,624	2,600	167	134,450	74,930	Bethel College, North Newton, Kan.	1887	Edmund G. Kaufman	386	31	30	613,163	23,000
Alabama State Univ. of University, Ala.	1831	John E. Simpson	8,022	5,125	482	6,000,000	329,651	Billingham College, Dalton, Ga.	1904	James A. Dalton	268	28	30	36,211	33,595
Alabama Polytechnic Inst., Auburn, Ala.	1872	L. N. Duncan	6,273	4,343	285	580,022	108,000	Billingham Polytechnic Inst., Billings, Mont.	1908	William D. Copeland	300	175	26	200,000	30,000
Alabama College, Montevallo, Ala.	1894	A. F. Homan	803	—	73	636,930	50,950	Birmingham-Southern Coll., Birmingham, Ala.	1856	George R. Stuart	1,481	—	62	580,548	60,000
Alabama State Tch. Coll., Florence, Ala.	1872	J. A. Keller	1,574	650	60	—	45,000	Bishop College, Marshall, Tex.	1881	Joseph J. Rhoads	1,275	500	43	14,000	21,000
Alabama State Tch. Coll., Jacksonville, Ala.	1892	Houston Cole	861	500	29	—	30,000	Bishop's College, University of Tennessee, Tenn.	1843	A. H. McGreer	320	75	19	1,250,000	20,000
Alabama State Tch. Coll., Livingston, Ala.	1835	W. W. Hill	431	250	26	—	30,000	Black Hills College (Jr.), Carlisle, Ill.	1857	Robert W. McEwen	320	43	21	1,312,997	20,000
Alabama State Tch. Coll., Troy, Ala.	1887	C. B. Smith	600	380	37	—	25,000	Black Hills Teachers' College, Spearfish, S.D.	1883	Russell E. Jones	300	160	30	503,000	14,600
Alaska University of College, Alaska	1917	Charles E. Bunnell	300	200	30	—	20,000	Black Mountain Coll., Blue Mountain, Miss.	1873	Lawrence T. Lawrence	304	—	28	—	27,000
Albany State College, Albany, Ga.	1903	Aaron Brown	425	80	40	—	12,000	Boise Junior College, Boise, Idaho	1932	Eugene B. Chaffee	724	435	52	—	11,500
Albany Univ. of Education, Ala., Can.	1906	Robert Newton	4,210	2,539	399	500,000	106,000	Boston Teachers' College of the City of Boston, Mass.	1852	W. H. J. Kennedy	280	3	28	—	26,495
Albertus Magnus Coll., New Haven, Conn.	1925	Sister M. Samuel	1,070	469	54	6,140	66,000	Boston College, Newton and Boston, Mass.	1863	Wm. L. Kelsh	4,326	2,821	450	1,000,000	202,500
Albion College, Albion, Mich.	1836	Harry W. Masters	627	347	46	267,800	14,000	Boston University, Boston, Mass.	1863	Daniel L. Marsh	2,121	7,265	850	6,148,288	625,500
Albright College, Reading, Pa.	1856	William H. Pipes	735	349	44	913,648	25,000	Bowdoin College, Brunswick, Maine	1839	Kenneth C. M. Sills	965	674	74	8,928,384	203,258
Alcorn A. and M. College, Alcorn, Miss.	1871	J. E. Walters	1,314	818	127	842,000	65,902	Bradford College, Green St., Univ., Bowling Green, O.	1874	Frank J. Pratt	3,964	1,838	172	1,160,000	100,000
Alfred University, Alfred, N.Y.	1836	John R. Schultz	1,007	451	68	2,000,000	13,000	Bradford Junior College, Bradford, Mass.	1910	Dorothy M. Ball	280	2	32	116,000	17,000
Allegheny College, Meadville, Pa.	1815	Samuel R. Higgins	720	350	35	—	13,000	Bradley University, Peoria, Ill.	1803	David B. Owen	2,948	2,115	149	2,429,439	65,000
Allen University, Columbia, S.C.	1870	John J. Kalasa	1,912	1,254	16	2,500,000	10,000	Brewton-Parker Junior Coll., Mt. Vernon, Ga.	1897	R. L. Robinson	187	—	10	29,000	4,000
Alliance Coll. (Jr.), Cambridge Springs, Pa.	1912	Roy W. Hamilton	536	297	35	700,000	52,000	Briar Cliff College, Sioux City, Iowa	1904	Sister Jean Marie	350	—	26	—	17,000
Alma College, Alma, Mich.	1886	Mother M. Corona	886	475	37	—	10,900	Briar Cliff Junior College, Brainerd, Minn., N.Y.	1930	—	—	—	—	—	
Alverno College, Milwaukee, Wis.	1936	A. M. Meyer	626	—	—	—									
Amarillo College (Jr.), Amarillo, Tex.	1929	William Gellermann	1,086	607	47	866,237	14,000	Bridgewater College, Bridgewater, Va.	1933	Clara Teed	200	1	27	509,771	8,000
American International Coll., Springfield, Mass.	1885	Paul F. Douglass	988	1,334	172	12,837,000	245,000	Brigham Young University, Provo, Utah	1880	Howard S. McDonald	4,350	2,015	212	285,229	142,000
American University, Washington, D.C.	1893	Charles W. Cole	1,170	720	120	—	112,558	British Columbia, Univ. of Vancouver, B.C., Can.	1875	—	—	—	—	—	
Amherst College, Amherst, Mass.	1821	S. C. Olcott	1,061	573	25	—	13,700	Brooklyn College, Brooklyn, N.Y.	1915	N. A. M. MacKenzie	9,886	4,800	292	225,894	173,000
Andrew College (Jr.), Culbert, Ga.	1854	B. B. Dougherty	1,020	485	53	41,000	5,000	Brooklyn Polytechnic Inst. of Brooklyn, N.Y.	1930	Harry D. Giddeon	7,714	1,629	450	191,351	165,388
Antioch College, Yellow Springs, Ohio	1853	F. T. Johnson	800	195	33	748,000	37,000	Brown University, Providence, R.I.	1864	H. S. Rogers	5,510	1,455	250	1,513,480	40,000
Appalachian State Tch. Coll., Boone, N.C.	1903	Raymond W. Bixler	520	283	51	416,500	180,000	Brownsville Junior Coll., Brownsville, Tex.,||	1926	Ben L. Britte	100	18	86	12,034,051	658,348
Arizona State Tch. Coll., Flagstaff, Ariz.	1899	Tom O. Bellwood	1,146	26	33	73,516	28,000	Bryn Mawr College, Bryn Mawr, Pa.	1926	Katherine E. McBride	688	100	18	11,167	11,167
Arizona State Tch. Coll., Flagstaff, Ariz.	1899	Tom O. Bellwood	1,146	26	33	73,516	28,000	Bucknell University, Lewisburg, Pa.	1885	Herbert L. Spenter	2,013	1,210	141	476,476	196,623
Arizona State Tch. Coll., Flagstaff, Ariz.	1899	Tom O. Bellwood	1,146	26	33	73,516	28,000	Bucknell Univ. Jr. Coll., Wilkes-Barre, Pa.	1846	Eugene S. Farley	797	556	45	275,000	9,500
Arkansas State Tch. Coll., Fayetteville, Ark.	1885	Grady Gammage	2,172	1,189	108	—	50,000	Buffalo, University of Buffalo, N.Y.	1933	Samuel P. Capen	5,538	3,760	600	7,000,000	212,009
Arkansas A. and M. College, Monticello, Arkansas	1872	Arthur M. Harding	4,700	2,900	275	—	250,000	Butler University, Indianapolis, Ind.	1846	Maurice O. Ross	3,600	2,300	195	6,000,000	90,000
Arkansas Polytechnic Coll. (Jr.), Russellville, Ark.	1909	W. E. Morgan	590	417	30	—	14,000								
Arkansas State Agri. and Mech. Coll. (Jr.), Magnolia, Ark.	1910	Charles S. Wilkins	573	303	62	—	15,674	California, University of Berkeley, Los Angeles, Santa Barbara, San Francisco, Davis, Mount Hamilton, La Jolla, and Riverside, Cal.	1868	Robert G. Sprout	40,800	22,188	2,567	36,147,157	21,58,820
Arkansas State Tch. Coll., Conway, Ark.	1910	W. J. Edens	1,061	658	51	—	20,900	California Inst. of Tech., Pasadena, Calif.	1891	Lee A. DuBridge	1,383	899	200	17,000,000	35,000
Armstrong Junior College, Savannah, Ga.	1935	Foreman M. Hawes	428	162	22	41,000	6,000	Calvin College, Grand Rapids, Mich.	1876	Henry Schulze	1,247	500	50	—	35,000
Armstrong College, Wilmore, Ky.	1890	Z. T. Johnson	800	195	33	748,000	37,000	Campbell College (Jr.), Buie's Creek, N.C.	1926	Leslie H. Campbell	372	263	29	167,371	10,032
Ashland College, Ashland, Ohio	1878	Raymond W. Bixler	520	283	51	416,500	22,402	Canal Zone Junior Coll., Balboa Heights, C.Z.	1933	Roger C. Hockett	215	52	32	—	9,000
Atlanta University, Atlanta, Ga.	1867	Rufus E. Clement	1,171	99	21	4,307,727	85,301	Canisius College, Buffalo, N.Y.	1870	Timothy J. Coughlin	427	55	47	—	39,000
Augustana Junior College of Augusta, Ga.	1925	Eric W. Hardy	343	99	50	450,715	25,183	Capital University, Columbus, Ohio.	1850	Harold L. Yochum	997	296	85	637,912	44,800
Augustana College and Theological Seminary, Rock Island, Ill.	1860	Conrad Bergendoff	1,147	505	68	1,426,000	90,000	Carleton College (Jr.), Price, Utah	1938	Aaron E. Jones	760	160	36	4,500	4,500
Aurora College, Aurora, Ill.	1933	T. P. Stephens	460	297	31	75,000	31,000	Carleton College, Northfield, Minn.	1866	Laurence M. Gould	1,143	367	91	3,406,303	143,236
Averett College (Jr.), Danville, Va.	1859	Curtis V. Bishop	270	29	27	80,000	8,375	Carnegie Institute of Tech., Pittsburgh, Pa.	1900	Robert E. Doherty	3,428	2,087	273	27,918,244	50,000
B															
Baker University, Baldwin City, Kan.	1858	Nelson P. Horn	615	241	34	1,306,000	68,000	Carroll College, Waukegan, Wis.	1846	N. V. Russell	772	425	48	900,000	18,000
Baldwin Wallace College, Berea, Ohio	1845	Louis C. Wright	1,500	777	62	2,140,000	60,000	Carson-Newman Coll., Jefferson City, Tenn.	1851	James T. Warren	645	205	30	953,528	32,000
Ball State Teachers College, Muncie, Ind.	1918	John R. Emens	1,838	1,031	136	—	100,728	Case School of Applied Science, Cleveland, O.	1880	Wm. E. Wickenden	1,279	1,041	145	5,971,618	35,000
Ball State College of the Sacred Heart, Lake Forest, Ill.	1904	Mother Reilly	301	3	27	800,000	21,565	Catholic Univ. of America, Wash., D.C.	1867	Wm. E. Keppel	2,698	368	38	444,071	252,49
Barber-Scotia College (Jr.), Concord, N.C.	1867	S. S. Cozart	154	105	44	196,675	60,000	Cedar Crest College, Allentown, Pa.	1887	Dale Hendry Moore	2,970	1,490	407	3,958,818	398,000
Barcl College, Ammanford-on-Hudson, N.Y.	1860	Edward C. Fuller	268	105	44	196,675	60,000	Centenary College of La., Shreveport, La.	1825	Joe J. Mickle	1,287	716	61	126,260	25,000
Barrow College, New York, N.Y.	1889	F. D. Fackenthal	1,229	68	132	5,309,389	65,000	Centenary Junior Coll., Hackettstown, N.J.	1867	Bursi R. Whipple	197	1	23	473,484	27,800
Bates College, Lewiston, Maine	1864	Charles F. Phillips	773	117	52	2,133,164	80,000	Central College (Jr.), Conway, Ark.	1892	Robert S. DeVore	734	345	64	1,020,422	22,500
Bay City Junior College, Bay City, Mich.	1922	Geo. E. Butterfield	746	439	26	—	12,000	Central College, Fayette, Mo.	1854	—	—	—	—	—	
Baylor Univ., Waco, Dallas, and Houston, Tex.	1845	Pat W. Neff	4,124	2,150	295	3,087,952	157,589	Central College, Iowa	1853	—	—	—	—	—	
Belmont Abbey Coll. (Jr.), Belmont, N.C.	1878	Vincent G. Taylor	275	125	20	—	30,000	Central Michigan College of Education, Mt. Pleasant, Michigan	1892	Charles L. Anspach	1,847	843	126	—	153,259
Beloit College, Beloit, Wis.	1846	Corey Coneis	912	430	68	2,410,207	140,000	Central Missouri St. Coll., Warrensburg, Mo.	1871	R. W. Diemer	928	448	73	—	93,902
Benedict College, Columbia, S.C.	1870	J. A. Bacados	650	109	28	337,018	18,093	Central State College, Edmond, Okla.	1890	G. R. Robinson	817	405	70	—	26,600
Bennett College, Greensboro, N.C.	1873	David D. Jones	470	—	34	893,495	20,510	Central Washington Coll. of Educ., Ellensburg, W.ash.	1891	Robert E. McConnell	—	395	66	—	43,952

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans Program	Faculty	Endowment	Library Volumes
Centre College of Kentucky, Danville, Ky.	1819	James H. Hewlett	560	279	37	\$1,844,343	60,000
Chaffey College, Ontario, Calif.	1883	Gardner W. Spring	948	585	52	—	39,000
Charleston College, Charleston, S.C.	1770	George D. Grice	368	94	26	532,500	31,597
Chattanooga Univ. of Chattanooga, Tenn.	1884	David A. Lockmiller	1,490	828	90	—	120,000
Chestnut Hill College, Philadelphia, Pa.	1871	Sister Maria Koska	450	7	50	—	30,800
Chicago School of the Art Inst. of Chicago, Ill.	1879	C. Hubert Ropp	872	752	76	72,521,247	51,000
Chicago, University of Chicago, Ill.	1892	Robert M. Hutchins	12,366	4,954	898	—	1,500,000
Chicago City Junior College, Chicago, Ill.	1934	George F. Cassell	1,262	437	51	—	14,442
Herz Branch	1934	J. I. Swearingen	2,865	865	93	—	63,000
Wright Branch	1934	Leland L. Medsker	4,002	1,600	122	—	33,000
Chicago Teachers College, Chicago, Ill.	1867	James I. Swearingen	1,013	174	37	—	68,000
Christian College (Jr.), Columbia, Mo.	1851	J. C. Miller	343	—	56	100,000	13,000
Cincinnati, University of Cincinnati, Ohio	1819	Raymond Walters	7,480	4,405	825	10,817,500	592,425
Ciudadel, The Charleston, S.C.	1842	C. P. Summaller	1,841	1,125	92	406	38,767
Clark College, Atlanta, Ga.	1869	James P. Brawley	777	166	40	676,457	16,000
Clark College, Dubuque, Iowa	1843	Sister Mary Ambrose	483	31	39	—	26,000
Clarkson Coll. of Technology, Potsdam, N.Y.	1895	John A. Ross, Jr.	385	200	31	1,400,000	10,000
Clark University, Worcester, Mass.	1887	Howard B. Jefferson	825	422	65	6,048,135	200,000
Clemson Agricultural Coll., Clemson, S.C.	1889	Robert F. Poole	2,961	2,150	224	281,000	75,206
Coe College, Cedar Rapids, Iowa	1851	Byron S. Hollinshead	2,601	406	55	2,000,000	54,000
Coker College, Hartsville, S.C.	1908	Donald C. Agnew	360	26	33	700,000	22,334
Colby College, Waterville, Maine	1813	Julius S. Bixler	893	372	59	3,459,974	122,000
Colby Junior College, New London, N.H.	1837	H. Leslie Sawyer	390	—	43	375,000	20,000
Colgate University, Hamilton, N.Y.	1819	Everett N. Case	1,401	1,036	107	5,784,332	150,888
Colorado, University, Boulder, Colo.	1876	Robert L. Stearns	8,162	4,617	475	927,600	425,000
Colorado College, Colorado Springs, Colo.	1874	Thurston J. Davies	1,016	547	79	2,929,512	50,000
Colorado School of Mines, Golden, Colo.	1874	M. F. Coolbaugh	235	94	43	—	50,000
Colorado State College of Agriculture and Mechanic Arts, Fort Collins, Colo.	1870	Roy M. Green	3,518	2,351	237	—	125,000
Colorado State Col. of Educ., Greeley, Colo.	1890	George W. Frazier	1,609	715	98	—	111,917
Colorado Woman's College (Jr.), Denver, Colo.	1888	James E. Hutchinson	406	—	45	107,000	10,400
Columbia University, New York, N.Y.	1754	Frank D. Fackenthal	28,201	13,909	2,407	86,793,711	1,747,932
Compton Junior College, Compton, Calif.	1927	Scott Thompson	5,051	1,543	128	—	32,000
Concord College, Athens, W.Va.	1872	Virgil H. Stewart	820	424	36	—	20,000
Concordia College, Moorhead, Minn.	1891	J. N. Brown	935	297	54	567,087	31,081
Concordia Collegiate Inst., Bronxville, New York	1881	Arthur J. Dooge	160	41	21	—	14,000
Connecticut, Univ. Col. of Bridgeport, Conn.	1927	James H. Halsey	1,200	800	60	—	8,958
Connecticut, Univ. of New Britain, Conn.	1850	Herbert D. Walte	1,040	650	65	—	35,000
Connecticut College, Storrs, Conn.	1881	A. N. Jorgensen	6,622	4,018	449	307,394	105,000
Converse College, Spartanburg, S.C.	1911	Rosemary Park	843	6	96	2,142,609	113,535
Copiah-Lincoln Junior College, Wesson, Miss.	1889	Edw. M. Gwathmey	447	11	45	643,000	32,578
Cornell College, Mount Vernon, Iowa	1928	J. M. Ewing	410	225	28	2,751,174	8,000
Cornell University, Ithaca, N.Y.	1825	Russell D. Cole	813	271	62	35,369,309	60,000
Coffey Junior College, Nevada, Mo.	1845	Edmund Ezra Day	971.9	527.5	1,214	59,091	1,221,361
Coffey Junior College, Nevada, Mo.	1884	Marjorie Mitchell	156	—	21	—	8,635
Craigston University, Omaha, Neb.	1878	William H. McCabe	2,826	1,834	338	2,322,500	145,182
Culver-Stockett College, Canton, Mo.	1853	W. H. McDonald	455	198	30	1,000,000	30,000
Cumberland College, Williamsburg, Ky.	1889	J. M. Boswell	243	75	16	645,000	7,500
Dakota Wesleyan University, Mitchell, S.D.	1885	Samuel H. Hilburn	398	191	30	567,532	30,981
Dalhousie Univ., Halifax, N.S., Can.	1818	Carleton Stanley	668	—	140	3,591,968	67,923
Danbury State Col., Danbury, Conn.	1906	Ruth A. Haas	253	75	17	—	25,000
Dartmouth College, Hanover, N.H.	1769	John Sloan Dickey	910	500	300	23,292,248	416,570
Davidson College, Davidson, N.C.	1836	John R. Cunningham	2,822	2,300	55	2,750,000	65,000
Dayton, University of Dayton, Ohio	1850	George J. Renneker	2,104	1,686	135	5,120,795	40,000
Delaware, University of Newark, Del.	1833	William S. Carlson	1,677	1,065	177	—	107,129
Delta State Tch. Col., Cleveland, Miss.	1924	William M. Keshley	482	255	46	—	25,000
Denison University, Granville, Ohio	1831	Kenneth I. Brown	1,190	475	76	3,490,861	111,000
Denver, University of Denver, Colo.	1864	Caleb F. Gates	6,877	5,583	694	2,631,645	86,194
DePaul University, Chicago, Illinois	1898	Comerford J. O'Malley	6,230	4,561	340	6,000,000	80,513
DePaul University, Greencastle, Ind.	1837	Clyde E. Wildman	1,999	754	118	1,610,000	126,800
Detroit University of Detroit, Mich.	1877	William J. Miller	5,584	5,100	334	—	100,165
Dickinson College, Carlisle, Pa.	1773	William W. Edel	821	487	54	2,033,891	75,639
Dillard University, New Orleans, La.	1930	Albert W. Dent	446	118	47	3,000,000	30,000
Dixie Junior College, St. George, Utah	1911	Glen E. Snow	428	147	26	—	10,000
Doane College, Crete, Neb.	1872	Blair Drake	493	160	37	1,305,982	30,859
Drake University, Des Moines, Iowa	1881	H. G. Harmon	3,300	2,300	190	1,955,000	111,000
Drexel University, Madison, N.J.	1867	Arlo Ayres Brown	603	216	52	7,299,425	196,000
Drexel Institute of Tech., Philadelphia, Pa.	1891	James Greese	3,049	1,846	206	3,004,796	88,388
Drury College, Springfield, Mo.	1873	J. F. Findlay	712	346	46	1,200,000	70,000
Dubuque, University of Dubuque, Iowa	1852	Dale D. Welch	644	229	41	\$ 868,581	30,000
Duchesne College, Omaha, Neb.	1881	Mother Helen Casey	239	4	20	—	18,100
Duke University, Durham, N.C.	1838	Robert Lee Flowers	4,797	2,459	637	47,683,097	722,000
Duluth Junior College, Duluth, Minn.	1927	R. D. Chadwick	797	545	40	—	8,800
Dunbarton College of Holy Cross, Wash., D.C.	1935	Francis P. Smith	198	2	24	—	19,017
Duquesne University, Pittsburgh, Pa.	1878	Francis P. Smith	2,908	2,700	237	—	49,162
D'Youville College, Buffalo, N.Y.	1908	Sister Grace	423	6	34	—	25,000
Earlham College, Richmond, Ind.	1847	Thomas E. Jones	642	221	44	1,438,445	70,000
East Carolina Tch. Col., Greenville, N.C.	1907	Dennis H. Cooke	1,187	415	67	—	50,492
East Central Junior Col., Decatur, Miss.	1928	L. O. Todd	1,500	250	25	—	5,500
East Central State College, Ada, Oklahoma	1909	A. Linseid	1,196	648	64	—	47,000
Eastern Illinois State Tch. Col., Charleston, Ill.	1895	Robert G. Buzzard	1,218	727	105	—	65,318
Eastern Kentucky State Tch. Col., Richmond, Ky.	1906	W. F. O'Donnell	1,095	571	89	—	73,678
Eastern Montana St. Normal Sch., Billings, Mont.	1927	A. G. Peterson	320	118	21	—	13,000
Eastern Nazarene College, Wollaston, Mass.	1919	Samuel Young	472	101	29	—	17,500
Eastern Oregon Col. of Educ., LaGrande, Ore.	1921	Robert J. Measke	613	309	38	1,050	24,763
Eastern State Normal School, Madison, S.D.	1889	V. A. Lowry	178	65	25	—	27,340
Eastern Washington Col. of Educ., Cheney, Wash.	1890	Walker W. Igle	782	352	69	—	69,000
East Los Angeles Jr. Col., Los Angeles, Calif.	1945	Rosco C. Ingalls	1,052	492	38	—	1,392
East Tennessee St. Col., Johnson City, Tenn.	1911	C. C. Sherrill	1,084	509	54	—	34,000
East Texas State Tch. Col., Commerce, Tex.	1889	A. C. Ferguson	1,585	704	101	—	30,392
Edinburg Junior College, Edinburg, Tex.	1927	H. A. Hughes	507	255	26	—	10,110
Elmhurst College, Elmhurst, Ill.	1871	Timothy Lehmann	534	207	40	266,000	48,407
Elmira College, Elmira, N.Y.	1855	W. S. A. Pelt	393	150	48	579,656	59,499
Emmanuel College, Boston, Mass.	1919	Sr. Margaret Patricia	754	4	69	—	27,045
Emory and Henry College, Emory, Va.	1874	Alvin W. Johnson	728	342	43	425,975	33,800
Emory of Oxford (Jr.), Oxford, Ga.	1836	Foye G. Gibson	531	319	23	553,485	5,650
Emory University, Emory, Ga.	1836	Virgil Y. C. Eady	3,021	1,371	18	—	27,921
Erskine College, Due West, S.C.	1839	George C. White	3,404	2,121	463	9,426,233	281,830
Evangelical College, Evanston, Ill.	1834	R. G. Grier	1,466	262	34	380,000	25,000
Evaleth Junior College, Eveleth, Minn.	1919	Lincoln B. Hale	1,446	1,049	90	409,341	12,000
Fairmont State College, Fairmont, W. Va.	1867	Joseph Roiser	430	—	41	—	26,500
Fayetteville State Tch. Col., Fayetteville, N.C.	1867	J. W. Searook	401	65	25	—	27,921
Fitch College, Cleveland, Ohio	1881	Cecil V. Thomas	1,211	3,151	223	809,060	27,000
Fitch Junior College, New York, N.Y.	1900	Jessie G. Thomas	265	10	44	—	8,500
Findlay College, Findlay, Ohio	1892	Jessie G. Thomas	350	206	70	440,990	20,000
Fisk University, Nashville, Tenn.	1866	Charles E. Jones	652	80	72	3,326,784	80,553
Flint Junior College, Flint, Mich.	1923	Irvin F. Gayle	195	18	18	—	1,000
Florida, University of Gainesville, Fla.	1923	L. A. Pratt	848	516	36	—	13,058
Florida Agr. and Mech. College for Negroes, Tallahassee, Fla.	1853	John J. Tigert	6,334	4,868	463	298,000	236,000
Florida Normal and Industrial College, St. Augustine, Fla.	1887	Wm. H. Gray, Jr.	1,092	81	138	—	16,350
Florida Southern College, Lakeland, Florida	1892	John Lee Tilley	337	33	27	—	6,000
Florida State Col. for Wm. Tallahassee, Fla.	1885	Ludd M. Spry	1,390	840	76	1,200,000	65,000
Fontbonne College, Saint Louis, Mo.	1905	Dook S. Campbell	3,090	435	222	206,000	27,429
Fort Hays State College, Fort Hays, Kan.	1841	Mother Mary Berenice	3,663	3,833	376	780,000	225,450
Fort Valley State College, Fort Valley, Ga.	1901	Robert L. Gammon	841	450	376	—	60,000
Francis Shimer Col. (Jr.), Mount Carroll, Ill.	1853	Cornelius V. Troup	515	101	50	38,529	19,000
Franklin and Marshall Col., Lancaster, Pa.	1787	Albion C. B. Jr.	2,056	978	63	188,773	102,500
Franklin College, Franklin, Ind.	1834	Theodore A. Distler	1,256	236	24	1,587,564	90,000
Fresno State College, Fresno, Calif.	1911	Willam W. Thomas	2,279	1,351	140	1,149,784	59,845
Fullerton Junior College, Fullerton, Calif.	1913	Frank W. Thomas	1,550	615	51	—	13,500
Furman University, Greenville, S.C.	1826	John Laney Plyler	1,323	618	68	3,236,038	60,000
Geneva College, Beaver Falls, Pa.	1848	M. M. Pearce	864	888	114	643,488	36,000
Georgia Peabody Col. for Tch. Nashville, Tenn.	1875	Henry H. Hill	1,752	729	44	501,088	48,752
Georgia Pepperdine Col., Los Angeles, Calif.	1929	Hugh M. Tiner	1,138	617	86	1,000,000	25,732
Georgetown College, Georgetown, Ky.	1829	Sauel S. Hill	600	225	40	1,617,000	18,000
Georgetown University, Washington, D.C.	1789	Lawrence C. Gorman	4,276	2,719	500	3,387,650	200,000
Georgetown Visitation Jr. Col., Wash., D.C.	1799	Sr. Jane Frances Leibell	70	—	18	—	10,000
George Washington Univ., Washington, D.C.	1821	Cloyd H. Marvin	5,883	6,175	580	2,500,000	160,000
George Williams College, Chicago, Ill.	1890	Harold Coe Coffman	299	192	30	231,101	24,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students in Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Full Time Students	Students in Program	Faculty	Endowment	Library Volumes
Georgia, University of, Athens, Ga., . . .	1785	Harmen W. Caldwell	6,780	4,248	441	\$2,520,000	210,000	Illinois State Normal Univ., Normal, Ill., . . .	1857	R. W. Fairchild	1,687	635	208	—	83,872
Georgia Military Col. (Jr.), Milledgeville, Ga., . . .	1879	J. H. Jenkins	580	130	30	—	5,000	Illinois Wesleyan Univ., Bloomington, Ill., . . .	1850	William E. Shaw	1,092	490	80	\$1,606,765	45,000
Georgia School of Tech., Atlanta, Ga., . . .	1908	Blaker Mary John	4,555	3,539	315	640,000	76,638	Immaculate Junior Col., Wash., D.C., . . .	1920	V. L. Burns	343	2	14	—	21,200
Georgia Southwestern Col. (Jr.), Americus, Ga., . . .	1885	Mothe R. Vanleer	4,250	—	—	—	—	Incarnate Word Col., San Antonio, Tex., . . .	1920	Sister M. Philomena	96	—	—	—	35,338
Georgia State Col., Industrial College, Ga., . . .	1924	Peyton Jacob	475	114	22	—	16,367	Indiana State Tech. Col., Terre Haute, Ind., . . .	1900	Sister M. Columille	649	36	66	99,524	150,000
Georgia State Col. for Women, Milledgeville, Ga., . . .	1891	Benjamin F. Hubert	885	366	58	—	13,483	Iowa State University, Bloomington, Ind., . . .	1865	Ralph N. Tiley	2,266	1,304	158	2,500,000	500,000
Georgia State Women's Col., Valdosta, Ga., . . .	1889	Guy H. Wells	1,068	366	117	—	38,500	Iowa State University of Iowa City, Ia., . . .	1820	Herman B. Wells	13,110	8,707	818	2,500,000	654,410
Georgia Teachers College, Collegeboro, Ga., . . .	1906	Frank R. Read	354	5	28	—	22,690	Iowa State College, Ames, Ia., . . .	1847	Virgil M. Hancher	9,783	5,790	675	1,283,964	390,000
Gettysburg College, Gettysburg, Pa., . . .	1832	Marvin S. Pittman	604	210	38	—	35,000	Iowa State Tech. Col., Cedar Falls, Ia., . . .	1876	Charles E. Friley	9,300	5,800	700	1,250,000	122,268
Glennville College (Jr.), Glendale, Calif., . . .	1927	Henry W. A. Hanson	1,090	671	58	500,000	60,000	Iowa Wesleyan College, Mount Pleasant, Ia., . . .	1842	Malcolm Price	2,477	1,001	178	—	40,000
Glenville State College, Glenville, W. Va., . . .	1872	Basil H. Peterson	2,362	1,302	70	—	12,500	Jackson Junior College, Jackson, Mich., . . .	1928	Stanley B. Niles	497	223	50	800,000	—
Gonzaga University, Spokane, Wash., . . .	1887	D. L. Haught	405	199	25	—	50,000	James Millikin University, Decatur, Ill., . . .	1901	G. L. Greenwalt	519	316	30	—	5,207
Good Counsel College, White Plains, N.Y., . . .	1923	Francis E. Corkery	1,506	1,010	37	48,000	15,085	James Ormond Wilson Tech. Col., Wash., D.C., . . .	1873	J. Walter Malone	1,288	845	58	2,000,000	—
Gordon Military College (Jr.), Barnesville, Ga., . . .	1852	Mother M. Aloysia	343	3	37	—	—	Jamestown College, Jamestown, N.D., . . .	1883	Howard J. Bell, Jr.	372	53	71	—	26,651
Goshen College, Goshen, Ind., . . .	1894	J. E. Guillebeau	420	82	22	—	6,000	John B. Stetson University, Deland, Fla., . . .	1883	W. S. Allen	1,623	793	103	1,000,359	20,500
Goucher College, Baltimore, Md., . . .	1885	Ernest E. Miller	501	56	37	216,187	31,000	John Carroll University, Cleveland, Ohio, . . .	1886	Thomas J. Donnelly	1,877	76	35	2,500,000	47,000
Graceland Junior College, Lamoni, Iowa . . .	1895	David A. Robertson	616	3	67	2,096,919	83,738	John McNeese Jr. Col., L.S.U., Lake Charles, La., . . .	1939	L. E. Frazier	662	336	22	—	38,738
Grand Rapids Jr. Col., Grand Rapids, Mich., . . .	1914	E. J. Gleazer	591	256	32	23,662	19,255	Johns Hopkins University, Baltimore, Md., . . .	1876	Isiah Bowman	2,535	1,564	784	33,447,498	737,750
Great Falls Col. of Educ., Great Falls, Mont., . . .	1932	Arthur Andrews	1,422	930	65	—	16,000	Johnson C. Smith University, Charlotte, N.C., . . .	1867	Henry L. McCrory	813	283	35	2,000,000	26,108
Green Mountain Junior Col., Poultney, Vt., . . .	1834	James J. Donovan	429	169	32	—	50,000	John Tarleton Agri. Col. (Jr.), Stephenville, Tex., . . .	1899	E. J. Howell	1,540	731	62	137,626	29,000
Greensboro College, Greensboro, N.C., . . .	1838	Howard C. Ackley	294	—	33	97,294	11,400	Joliet Junior College, Joliet, Ill., . . .	1901	Donald M. Sharpe	627	250	44	—	11,900
Greenville College, Greenville, Ill., . . .	1892	Luther L. Gobel	366	430	33	579,059	28,000	Jones County Junior Col., Ellisville, Miss., . . .	1927	J. B. Young	1,410	570	50	—	15,000
Grinnell College, Grinnell, Ia., . . .	1846	H. J. Long	430	150	33	130,000	18,200	Judson College, Marion, Ala., . . .	1838	J. I. Riddle	310	4	43	544,000	20,000
Grove City College, Grove City, Pa., . . .	1876	Samuel N. Stevens	918	356	90	5,093,537	120,000	Junata College, Huntington, Pa., . . .	1876	Calvert N. Ellis	570	270	40	789,097	51,460
Guilford College, Guilford College, N.C., . . .	1837	Weir C. Ketter	1,228	656	55	842,000	45,000	Kalamazoo College, Kalamazoo, Mich., . . .	1833	Paul L. Thompson	629	355	40	1,133,272	38,500
Gulf Park College, Gulfport, Miss., . . .	1921	Clyde A. Milner	551	309	32	682,125	28,000	Kansas University of Lawrence, Kan., . . .	1865	Deane W. Malott	898	532	758	256,000	370,000
Gustavus Adolphus Col., St. Peter, Minn., . . .	1862	Richard G. Cox	265	—	58	560,436	25,112	Kansas City Junior College of Kansas City, Mo., . . .	1915	A. M. Swanson	1,875	740	55	—	31,012
H		Edgar M. Carlson	970	479	—	—	—	Kansas State College, Manhattan, Kan., . . .	1929	Clarence R. Decker	2,055	1,586	186	—	140,000
Hamilton College, Clinton, N.Y., . . .	1812	David Worcester	583	400	49	4,255,733	209,265	Kansas State Col. of Emporia, Kan., . . .	1863	Milton S. Eichenhower	6,512	4,161	335	547,842	92,000
Hamline University, St. Paul, Minn., . . .	1854	Charles N. Pace	1,089	455	75	2,138,701	49,535	Kansas State Tech. Col., Pittsburg, Kan., . . .	1903	Rees H. Hughes	1,147	620	98	250,000	88,000
Hampden-Sydney Col., Hamp-Sydney, Va., . . .	1776	Edgar G. Gammon	400	238	24	621,148	35,000	Keene Teachers College, Keene, N.H., . . .	1909	Lloyd P. Young	400	143	40	—	7,000
Hampson Institute, Hampton, Va., . . .	1868	Ralph P. Bridgman	1,516	660	135	3,805,177	73,413	Kemper Military School (Jr.), Booneville, Mo., . . .	1910	A. M. Hitch	525	5	52	—	20,000
Hanover College, Hanover, Ind., . . .	1827	Albert G. Parker, Jr.	608	270	76	360,000	11,000	Kent State University, Kent, Ohio . . .	1865	George A. Bowman	5,437	3,627	259	80,000	80,000
Hardin Junior College, Wichita Falls, Tex., . . .	1922	James B. Boren	346	56	27	1,250,000	37,500	Kentucky St. Col. for Negroes, Frankfort, Ky., . . .	1865	H. L. Donovan	6,616	4,258	360	190,864	383,103
Hardin-Simmons University, Abilene, Tex., . . .	1887	Rupert N. Richardson	867	168	210	178,297,925	25,800	Kenyon College, Gambier, Ohio, . . .	1824	R. B. Atwood	671	226	33	—	16,575
Harris Teachers College, St. Louis, Mo., . . .	1836	James B. Conant	12,076	8,870	55	661,165	33,000	Kenyon College, Keuka Park, N.Y., . . .	1890	Gordon K. Chalmers	552	363	11	196,459	92,972
Hastings College, Hastings, Neb., . . .	1882	Wm. M. French	634	325	30	5,000,000	167,000	Keystone College, Keuka Park, N.Y., . . .	1868	Katherine G. Blyley	428	11	32	363,804	34,353
Haverford College, Haverford, Pa., . . .	1833	Gilbert F. White	495	275	207	66,791	39,253	Kilgore College (Jr.), Kilgore, Tex., . . .	1935	B. E. Masters	568	370	33	—	15,000
Hawaii, University of, Honolulu, Hawaii . . .	1907	Gregg M. Sinclair	2,381	638	45	1,000,000	24,891	King's College (Jr.), King's College, N.S., Can., . . .	1879	A. Stanley Walker	353	32	12	1,000,000	32,000
Heidelberg College, Tiffin, Ohio . . .	1850	Nevin C. Harner	660	275	44	733,694	48,841	Knox College, Galesburg, Illinois . . .	1837	Lyndon O. Brown	832	409	68	2,651,135	70,000
Henderson St. Col., Arkadelphia, Ark., . . .	1929	Matt L. Ellis	223	250	41	30,000	15,234	Knoxville College, Knoxville, Tenn., . . .	1875	William L. Ives	337	92	18	500,000	13,849
Hendrix College, Conway, Ark., . . .	1884	A. G. Breidensine	132	62	15	—	6,283	Lafayette College, Easton, Pa., . . .	1826	Ralph C. Hutchison	1,442	1,117	107	4,506,678	114,906
Hershey Junior College, Hershey, Pa., . . .	1938	S. A. Patchin	498	188	28	—	8,500	Lake Erie College, Painesville, Ohio . . .	1856	Helen D. Bragdon	224	4	20	815,086	36,361
Hibbing Junior College, Hibbing, Minn., . . .	1916	G. O. Withey	1,550	1,300	97	730,000	30,000	Lake Forest College, Lake Forest, Ill., . . .	1857	Ernest A. Johnson	636	298	4	1,356,000	56,686
Highland Park Junior Col., Highland Park, Mich., . . .	1818	Harvey L. Turner	520	225	40	—	—	Lamar College (Jr.), Beaumont, Tex., . . .	1923	John E. Gray	1,572	896	66	—	6,100
Hillsdale College, Hillsdale, Mich., . . .	1844	G. M. McLendon	645	330	32	1,044,000	50,000	Lane College, Jackson, Tenn., . . .	1882	Dean S. Yarbrough	437	126	20	28,000	11,040
Hinds Junior College, Raymond, Miss., . . .	1917	Paul H. Fall	587	318	43	775,000	41,300	La Salle College, Philadelphia, Pa., . . .	1863	Brother G. Paul	1,216	905	40	—	27,400
Hofstra College, Hempstead, N.Y., . . .	1935	John C. Adams	1,667	1,300	120	505,915	190,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Hollins College, Hollins College, Va., . . .	1842	Bessie C. Randolph	367	1	42	—	—	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Holly Cross, Col. of the, Worcester, Mass., . . .	1843	William J. Healy	1,510	1,120	117	—	—	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Holy Names, Col. of the, Oakland, Calif., . . .	1868	Sr. Rose Emmanuella	326	12	37	—	—	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Holy Names College, Spokane, Wash., . . .	1907	Sister Clare	154	8	24	864,959	27,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Holy Names College, Frederick, Md., . . .	1893	Henry I. Stahr	456	—	52	—	—	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Hope College, Holland, Mich., . . .	1866	Irwin J. Lubbers	1,148	507	59	945,580	37,465	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Houghton College, Houghton, N.Y., . . .	1883	Stephen W. Paine	695	186	36	300,000	22,008	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Howard College, Birmingham, Ala., . . .	1842	Harwell G. Davis	1,275	850	56	753,339	32,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Howard University, Washington, D.C., . . .	1867	Mordecai W. Johnson	5,230	2,112	365	1,039,372	226,053	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Hunter College of the City of New York, New York, N.Y., . . .	1870	George N. Shuster	5,743	647	359	179,401	156,643	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Huntingdon College, Montgomery, Ala., . . .	1834	Hubert Searcy	685	145	65	400,000	25,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Huron College, Huron, S.D., . . .	1883	George F. McDougall	350	190	26	792,656	26,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
I								LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Idaho, College of, Caldwell, Ida., . . .	1891	William W. Hall, Jr.	479	241	30	532,450	22,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Idaho, Univ. of, So. Br. (Jr.), Pocatello, Ida., . . .	1927	Carl W. McIntosh	1,535	1,050	84	—	—	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Idaho, University of, Moscow, Ida., . . .	1892	J. E. Buchanan	3,458	2,186	214	4,743,870	96,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Illinois, University of, Urbana, Ill., . . .	1867	George D. Stoddard	24,189	15,013	1,887	2,071,884	2,003,622	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Illinois College, Jacksonville, Ill., . . .	1829	Harris G. Hudson	524	332	31	1,228,016	34,964	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000
Illinois Institute of Technology, Chicago, Ill., . . .	1892	Henry Townley Heald	3,072	2,188	215	1,806,200	125,000	LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill., . . .	1924	Frank A. Jensen	370	180	31	11,000	11,000

Institution and Location	Year Founded	Chief Executive	Students	Students under Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students	Students under Program	Faculty	Endowment	Library Volumes
Little Rock Junior College, Little Rock, Ark.	1927	John A. Larson	1,012	505	40	\$1,800,000	18,000	Michigan St. Normal Col., Ypsilanti, Mich.	1849	John M. Munson	2,115	961	192	\$70,000	157,013
Livingstone College, Salisbury, N.C.	1879	William J. Trent	375	80	26	46,500	31,384	Middlebury College, Middlebury, Vt.	1800	Samuel S. Stratton	1,188	540	69	4,204,000	180,549
Long Beach City Col. (Jr.), Long Beach, Calif.	1927	George E. Doison	2,750	2,200	22	150,000	67,983	Middle Georgia College (Jr.), Cochran, Ga.	1928	Leo H. Browning	470	216	18	—	9,191
Long Morris Col. (Jr.), Jacksonville, Tex.	1873	C. E. Peoples	359	8	70	1,400,000	97,000	Middle Tennessee St. Col., Murfreesboro, Tenn.	1911	Q. M. Smith	1,200	500	49	—	3,500
Loras College, Dubuque, Ia.	1839	M. J. Martin	344	50	73	—	18,752	Mills College, Oakland, Calif.	1892	Marion L. Smith	777	411	35	962,000	35,000
Loretto Heights College, Loretto, Colorado	1918	Sister Francis Marie	354	8	40	—	60,000	Minneapolis State Col., Minneapolis, Minn.	1852	Lynn White, Jr.	688	19	107	2,423,057	98,500
Los Angeles City Col. (Jr.), Los Angeles, Calif.	1929	Einar W. Jacobsen	8,242	4,120	240	—	40,000	Miner Teachers College, Washington, D.C.	1851	Lucia R. Briggs	431	24	48	2,370,055	48,931
Louisiana College, Pineville, La.	1906	Edgar Godbold	869	236	36	403,000	4,974	Minnesota Univ. of Minneapolis, Minn.	1851	Eugene A. Clark	506	34	49	37,025	37,025
Louisiana Polytechnic Institute, Ruston, La.	1894	Claybrook Coltingham	2,327	1,174	141	—	36,605	Minnesota State Col., Duluth, Minn.	1919	James L. MacCall	27,103	16,503	2,678	27,641,897	1,364,930
Louisiana State University, Baton Rouge, La.	1860	Wm. B. Hatcher	10,599	6,074	703	14,444	307,799	Minnesota State Tch. Col., Moorhead, Minn.	1889	Raymond C. Gibson	917	303	50	—	23,000
Louisville College, Louisville, Ky.	1837	Frederick W. Stamm	3,999	2,677	439	2,200,000	130,692	Minnesota State Tch. Col., Winona, Minn.	1889	Frank D. McElroy	351	15	51	—	30,000
Loyola College, Baltimore, Md.	1852	Edward B. Bunn	668	495	35	2,603,000	36,500	Minnesota State Tch. Col., St. Cloud, Minn.	1889	O. W. Starr	1,620	501	75	—	30,000
Loyola University, Chicago, Ill.	1861	James T. Hussey	5,187	3,261	582	—	79,000	Minnesota State Tch. Col., St. Cloud, Minn.	1889	Dudley S. Brainard	1,120	501	75	—	30,000
Loyola Univ. of Los Angeles, Los Angeles, Calif.	1911	Edward J. Whelan	1,455	1,030	72	5,331,675	43,000	Misericordia College, Dallas, Pa.	1923	Nels Mims	376	185	46	—	28,992
Loyola University, New Orleans, La.	1912	Thomas J. Shields	1,818	1,416	180	—	102,875	Mississippi College, Clinton, Miss.	1882	Sister Mary Gonzaga	2,750	1,800	154	1,100,000	110,000
Luther College, Decorah, Ia.	1861	O. J. H. Preus	656	332	47	550,000	82,000	Mississippi Southern Col., Hattiesburg, Miss.	1882	J. D. Nelson	845	444	51	730,000	31,000
Lynchburg College, Lynchburg, Va.	1903	Riley B. Montgomery	489	256	33	321,949	23,358	Mississippi State Col., State College, Miss.	1878	Fred T. Mitchell	1,188	720	66	239,798	78,215
Lyons Township Junior Col., La Grange, Ill.	1929	Harold L. Bittling	433	151	26	—	8,000	Missouri State Col. for Women, Columbia, Mo.	1884	B. L. Parkinson	3,002	2,402	171	—	65,000
Macalester College, St. Paul, Minn.	1885	Charles J. Turck	1,227	575	94	2,324,000	41,000	Missouri Valley College, Marshall, Mo.	1839	F. A. Middlebush	1,001	678	60	2,373,980	52,557
McGill University, Montreal, Que. Can.	1821	F. Cyril James	7,110	3,353	853	41,028,514	447,199	Modesto Junior College, Modesto, Calif.	1889	J. Ray Cable	1,484	297	29	600,000	22,000
McMaster University, Hamilton, Ont., Can.	1887	G. P. Gilmore	1,121	443	71	1,934,679	61,500	Monmouth College, Monmouth, Ill.	1921	Dwight C. Baker	1,160	309	51	201,300	30,000
MacMurray Col. for Women, Jacksonville, Ill.	1846	C. P. McClelland	761	5	63	4,049,096	44,399	Montana School of Mines, Butte, Mont.	1883	James Harper Griler	770	310	53	—	19,000
Madison College, McPherson, Kan.	1887	W. W. Peters	384	142	28	508,929	15,225	Montana State College, Bozeman, Mont.	1893	Francis A. Thomson	397	332	23	850,000	17,000
Maine University of Orono, Me.	1908	Samuel P. Duke	1,169	41	80	68,083	39,563	Montana State Normal Col., Dillon, Montana	1893	Roland R. Remne	3,119	1,849	216	—	70,554
Manchester College, N. Manchester, Ind.	1865	Arthur A. Hauck	3,993	2,759	291	1,243,768	209,540	Montana State University, Missoula, Mont.	1893	Rush Jordan	1,135	73	14	—	24,100
Manchester College, New York, N.Y.	1889	V. F. Schwalm	825	245	40	600,604	30,000	Montreal College (Jr.), Montreal, Que. Can.	1838	James A. McCain	3,276	2,076	149	881,422	252,497
Manhattanville Col. of Soc. Hrs., N.Y.	1841	Brother B. Thomas	2,142	1,540	130	—	70,195	Moravian College and Theological Seminary, Bethlehem, Pa.	1876	Oliver Maurault	5,460	400	580	—	250,000
Manhattanville Col. of Soc. Hrs., N.Y.	1841	Mother E. M. O'Byrne	552	26	350	400,900	116,000	Morehead State Tch. Col., Morehead, Ky.	1807	Raymond S. Hauptert	312	236	24	571,986	25,000
Marquette University, Milwaukee, Wis.	1865	Albert W. Trueman	6,495	3,175	61	1,338,384	127,753	Morehouse College, Atlanta, Ga.	1923	W. H. Vaughan	222	28	30	—	32,000
Marion Junior College, Kentfield, Calif.	1926	William A. Shimer	1,000	708	61	1,740,121	20,000	Morgan Park Junior College, Chicago, Ill.	1867	Benjamin E. Mays	860	470	37	1,656,002	6,000
Marion Institute (Jr.), Marion, Ala.	1919	James H. Austin	945	505	40	—	4,439	Morgan State College, Baltimore, Md.	1833	Albert G. Dodd	341	170	19	—	36,000
Marquette University, Milwaukee, Wis.	1865	Wm. T. Murfee, II	1,081	24	24	2,934,179	155,000	Morningside College, Sioux City, Ia.	1889	D. O. W. Holmes	1,111	361	60	—	51,000
Marshall College, Huntington, W. Va.	1837	Peter A. Brooks	6,382	4,356	520	55,000	20,000	Morris Brown College, Atlanta, Ga.	1881	E. A. Roadman	1,083	690	31	482,996	7,468
Mary Hill College (Jr.), Mars Hill, N.C.	1921	John Davis Williams	1,088	97	84	150,000	33,000	Morton Junior College, Cicero, Ill.	1924	W. A. Fountain, Jr.	653	260	61	243,886	14,792
Mary Baldwin College, Staunton, Va.	1842	Hoyle Blackwell	902	276	36	515,000	33,000	Mt. Allison Univ., Sockville, N.B., Can.	1840	W. T. R. Fleming	911	458	60	1,084,471	53,741
Marygrove College, Detroit, Mich.	1910	Mrs. M. S. Grafton	346	2	86	1,230,981	47,330	Mt. Holyoke College, Cresson, Pa.	1837	Sister M. Magdalene	177	4	132	603,600	199,533
Marygrove College, Detroit, Mich.	1910	Sister M. Honora	819	3	42	—	32,034	Mt. Mary College, Pitsburgh, Pa.	1915	Roswell G. Ham	1,124	630	53	—	34,756
Maryland College of College Park and Baltimore, Md.	1845	Gordon G. Singleton	438	13	86	—	125,000	Mt. Mercy College, Pitsburgh, Pa.	1929	Edward A. Fitzpatrick	406	11	38	—	25,000
Maryland State Tch. Col., Salisbury, Md.	1807	H. C. Byrd	8,245	5,100	2100	4,114,000	21,000	Mt. St. Agnes Col. (Jr.), Mt. Wash., Md.	1867	Mother M. Placide	175	—	20	—	11,000
Maryland State Tch. Col., Towson, Md.	1925	J. D. Blackwell	234	54	13	—	41,000	Joseph, Ohio	1920	Sister M. Corona	332	460	43	690,000	31,000
Maryhurst College, Maryhurst, Ore.	1886	M. Theresa Wiedefeld	456	84	41	—	22,000	Mt. St. Mary's College, Emmitsburg, Md.	1808	John L. Sheridan	370	—	35	—	45,000
Marymount College, Toledo, Ohio	1930	Sister M. Rose Augusta	261	8	33	54,450	21,000	Mt. St. Mary's College, Los Angeles, Calif.	1925	Sister Marie de Lourdes	418	5	38	—	15,500
Marymount College, Salina, Kan.	1922	Sister Kaley	186	3	46	—	21,000	Mt. Scholastica College, Atchison, Kan.	1863	Mother Lucy Dooley	403	8	—	—	26,000
Marymount College, Tarrytown, N.Y.	1919	Mother Chrysostom	221	—	30	1,000,000	19,500	Mt. St. Vincent College of New York, N.Y.	1847	Francis Cardinal Spellman	683	—	60	240,986	29,457
Maryville College, Maryville, Tenn.	1819	Mother M. Therese	488	243	46	1,937,312	50,000	Mt. Union College, Alliance, Ohio	1846	Charles B. Ketcham	850	405	60	1,500,000	71,814
Maryville College of the Sac. Hrs., St. Louis, Mo.	1872	Ralph W. Lloyd	829	2	38	—	62,002	Mt. Union College, Allentown, Pa.	1848	Levelling Tyson	1,207	946	86	1,400,000	72,000
Mary Washington College of the University of Virginia, Fredericksburg, Va.	1908	Mother Odeide Mouton	1,477	44	90	75,000	37,000	Mt. Union College, Chicago, Ill.	1897	Edward L. Clark	871	81	81	25,565	26,734
Mason City Junior Col., Mason City, Ia.	1915	Sister M. Sylvia	558	25	54	—	6,557	Mt. Union State Tch. Col., Chadron, Neb.	1911	Sister M. Josephine	1,118	18	76	—	37,000
Mason City Junior Col., Mason City, Ia.	1918	Harold J. Snyder	78	3	125	46,000,000	141,684	Mt. Union State Tch. Col., Kearney, Neb.	1905	Ralph H. Woods	864	88	25	—	250,000
Mass. Institute of Tech., Cambridge, Mass.	1861	Karl T. Compton	3,100	3,100	959	160,000	23,071	Mt. Union State Tch. Col., Wayne, Neb.	1867	A. G. Umbreit	560	303	25	—	930,000
Mass. State College, Amherst, Mass.	1863	Hugh P. Baker	3,319	2,431	125	15,000	20,000	National College of Educ., Evanston, Ill.	1886	Edna Dean Baker	342	10	48	138,782	32,163
Mass. State Tch. Col., Bridgewater, Mass.	1840	John J. Kelly	482	69	42	—	10,000	Nazareth Col. and Acad. (Jr.), Nazareth, Ky.	1814	Sr. Margaret Gertrude	171	—	31	—	16,000
Mass. State Tch. Col., Framingham, Mass.	1895	William J. Sanders	385	174	43	—	194,000	Nazareth College, Nazareth, Mich.	1924	Sister Mary Anastasia	46	46	52	15,000	22,426
Mass. State Tch. Col., Framingham, Mass.	1895	Martin F. O'Connor	452	5	35	—	194,000	Nazareth Col. of Rochester, Rochester, N.Y.	1924	Sister M. Kevin	298	—	30	—	23,000
Mass. State Tch. Col., Framingham, Mass.	1895	Grover C. Bowman	150	41	10	—	13,000	Nazareth College, Lincoln, Neb.	1869	Ruben G. Gustavson	400	1	40	—	20,439
Mass. State Tch. Col., Worcester, Mass.	1871	Albert Farnsworth	164	38	19	—	16,000	Nazareth College, Lincoln, Neb.	1911	Willey G. Brooks	9,576	5,676	480	1,870,000	422,000
Medical Evangelists, College of Loma Linda and Los Angeles, Calif.	1909	W. E. MacPherson	612	69	430	—	35,000	Nazareth State Tch. Col., Chadron, Neb.	1911	Herbert L. Cushing	325	150	45	—	30,000
Memphis State College, Memphis, Tenn.	1912	J. M. Smith	1,506	779	66	—	22,000	Nazareth State Tch. Col., Kearney, Neb.	1905	W. L. Nicholas	667	299	42	70,000	32,000
Mercer University, Macon, Ga.	1826	Spright Dowell	1,184	702	63	2,000,000	76,000	Nazareth State Tch. Col., Wayne, Neb.	1867	Victor P. Marey	292	149	41	—	33,173
Mercer University, Macon, Ga.	1833	Mother M. F. Borgia	300	6	32	568,123	52,060	Nevada Wesleyan University, Lincoln, Neb.	1887	John L. Knight	388	233	35	945,312	35,890
Meridian College, Raleigh, N.C.	1899	Carlyle Campbell	504	7	47	—	194,000	Nevada Wesleyan University, Lincoln, Neb.	1887	John O. Moseley	1,668	906	102	752,711	75,867
Meridian Municipal Jr. Col., Meridian, Miss.	1937	J. B. Pearson	1,037	347	41	—	17,258,716	Newark Col. of Engineering, Newark, N.J.	1881	Allan R. Cullimore	1,403	1,099	100	96,316	19,642
Miami University of Coral Gables, Fla.	1925	Bowman F. Ashe	5,205	3,076	234	—	52,060								
Miami University, Oxford, Ohio	1809	Ernest H. Hahne	4,834	2,603	327	—	194,000								
Michigan College of Min. and Tech., Houghton, Mich.	1817	Alexander G. Ruthven	18,757	10,784	977	—	201,801								
Michigan State College, E. Lansing, Mich.	1885	Grover C. Dillman	1,881	1,573	138	3,225,792	201,801								
Michigan State College, E. Lansing, Mich.	1885	John A. Hamm	13,280	8,261	864	—	201,801								

Institution and Location	Year Founded	Chief Executive	Students-un-der Veterans Program	Faculty	Endow-ment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students-un-der Veterans Program	Faculty	Endow-ment	Library Volumes
Newark College of Rutgers Univ., Newark, N.J.	1934	George H. Black	2,601	98	\$ 250,000	36,000	Northwest Missouri St. Tch. Col., Maryville, Mo.	1905	J. W. Jones	751	380	—	30,582
Newberry College, Newberry, S.C.	1859	James C. Kinard	550	28	300,000	25,000	Northwest Nazarene College, Nampa, Ida.	1913	Lewis T. Corlett	472	145	—	10,000
New Brunswick, University of, Fredericton, N.B., Can.	1800	Milton F. Gregg	1,350	95	—	17,000	Norwich University, Northfield, Vt.	1819	Homel L. Dodge	614	48	\$1,029,206	40,750
New Hampshire, University of, Durham, N.H.	1866	Harold W. Stone	3,450	227	1,424,771	140,175	Notre Dame, University of, Notre Dame, Ind.	1842	John J. Cavanaugh	4,541	339	3,654,000	224,223
New Haven State Tch. Col., Gladstone, Conn.	1893	Edgar F. Buncie	2,300	54	—	25,000	Notre Dame College, South Euclid, Ohio	1922	Mother Mary Vera	271	—	—	24,000
New Jersey State Tch. Col., Montclair, N.J.	1929	Charles C. Ressey	375	26	—	20,000	Notre Dame College of Staten Island, Staten Island, N.Y.C.	1931	Mother Saint Egbert	291	2	—	9,680
New Jersey State Tch. Col., Montclair, N.J.	1908	Harvey A. Scraque	1,123	34	43,000	50,000	Notre Dame of Maryland, Col. of, Baltimore, Md.	1873	Sister Mary Frances	435	1	61,000	26,980
New Jersey State Tch. Col., Newark, N.J.	1912	John B. Dougal	534	32	—	40,000	Oakwood College, Oberlin, Ohio	1896	F. L. Peterson	254	75	37,066	7,158
New Jersey State Tch. Col., Paterson, N.J.	1855	Clair S. Wrightman	542	31	—	21,000	Oberlin College, Oberlin, Ohio	1833	William E. Stevenson	2,058	786	23,419,103	457,168
New Jersey State Tch. Col., Trenton, N.J.	1855	Roscoe L. West	821	176	949,100	115,000	Occidental College, Los Angeles, Calif.	1887	Arthur G. Coons	1,140	597	1,300,394	78,000
New Mexico College of Agriculture and Mechanic Arts, State College, N.M.	1889	Philip Wernet	3,437	233	—	55,000	Ohio State University, Athens, Ohio	1870	Howard L. Bevis	22,643	900	2,162,108	717,073
New Mexico Highlands Univ., Las Vegas, N.M.	1889	Hugh M. Milton	1,421	934	519,619	23,492	Ohio State University, Columbus, Ohio	1880	John Calhoun Baker	4,933	283	86,000	160,323
New Mexico Military Inst. (Jr.), Roswell, N.M.	1893	Edward Eyring	762	525	57,864	30,662	Ohio Wesleyan University, Delaware, Ohio	1842	H. J. Burgstahler	2,097	845	3,890,000	173,550
New Mexico School of Mines, Socorro, N.M.	1889	D. C. Pearson	196	20	—	8,500	Oklahoma, University of, Norman, Okla.	1890	George Lynn Cross	10,245	513	4,322,862	330,000
New Mexico State Tch. Col., Silver City, N.M.	1893	E. J. Workman	201	16	—	28,743	Oklahoma Agri. and Mech. College, Stillwater, Okla.	1891	Henry G. Bennett	10,421	577	4,162,891	183,500
New Rochelle, Col. of, New Rochelle, N.Y.	1904	H. W. James	344	282	105,000	56,541	Oklahoma Col. for Women, Chickasha, Okla.	1908	Dan Proctor	701	4	—	33,565
New York, Col. of the City of, N.Y., N.Y.	1847	Francis W. Walsh	894	4	—	401,616	Omaha, University of, Omaha, Neb.	1908	Rowland Haynes	1,882	57	140,578	78,000
New York State Col. for Tch., Albany, N.Y.	1844	Harry N. Wright	10,500	670	—	39,888	Oregon, Univ. of, Eugene and Portland, Ore.	1872	Harry K. Newburn	6,500	330	1,204,441	370,000
New York State Tch. Col., Brockport, N.Y.	1866	John M. Sayles	1,321	279	—	25,000	Oregon State College, Corvallis, Ore.	1861	Charles A. Howard	343	185	—	30,000
New York State Tch. Col., Buffalo, N.Y.	1872	Donald M. Tower	588	169	—	31,135	Ottawa, University of, Ottawa, Ont., Can.	1866	A. L. Strand	7,128	434	—	212,447
New York State Tch. Col., Cortland, N.Y.	1866	Harry W. Rockwell	1,388	309	—	18,771	Ottawa University, Ottawa, Kan.	1865	A. B. Martin	2,300	198	435,747	130,000
New York State Tch. Col., Fredonia, N.Y.	1866	Donald V. Smith	850	278	—	32,733	Ottumwa Heights Col. (Jr.), Ottumwa, Ia.	1925	J. Gordon Howard	857	54	1,500,000	20,000
New York State Tch. Col., Genesee, N.Y.	1867	Leslie R. Gregory	550	126	—	19,667	Ouachita College, Arkadelphia, Ark.	1886	Mother Mary Geraldine	110	21	—	11,000
New York State Tch. Col., Oswego, N.Y.	1885	Herbert G. Espy	443	52	—	30,289	Our Lady of the Elms, Col. of, Chicago, Ill.	1928	James R. Grant	850	300	500,000	25,000
New York State Tch. Col., Oneonta, N.Y.	1889	Wm. J. Haggerty	550	91	—	32,733	Our Lady of the Lake College, San Antonio, Mass.	1896	Thomas M. O'Leary	243	1	392,361	49,087
New York State Tch. Col., Plattsburgh, N.Y.	1861	Ralph W. Sweetman	338	31	—	16,591	Pacific, College of the, Stockton, Calif.	1851	Robert E. Burns	953	90	581,173	50,135
New York State Tch. Col., Potsdam, N.Y.	1889	Charles C. Ward	826	44	—	70,000	Pacific Lutheran Col., Parkland, Wash.	1894	S. C. Eastwood	589	317	70,000	33,000
New York State Tch. Col., Schenectady, N.Y.	1816	Frederick W. Crumb	581	50	—	12,059	Pacific Union College, Angwin, Calif.	1909	P. W. Christian	716	55	33,082	30,000
Niagara University, Niagara Univ., N.Y.	1856	Harvey W. Chase	31,746	1,071	10,499,803	714,157	Packer Collegiate Inst. (Jr.), Brooklyn, N.Y.	1849	Walter C. Giersbach	609	358	600,000	30,000
Norfolk Division, Col. of, William and Mary (Jr.), Norfolk, Va.	1831	Joseph M. Noonan	1,701	112	—	29,969	Paine College, Augusta, Ga.	1882	Paul D. Shafer	113	24	1,414,862	12,303
North Carolina, Agri. and Tech. Col. of, Greensboro, N.C.	1930	L. W. Webb, Jr.	1,038	55	—	75,000	Palm Beach Jr. Col., W. Palm Beach, Fla.	1933	Edmund C. Peters	360	80	35,000	21,000
North Carolina, Univ. of, Chapel Hill, N.C.	1891	F. D. Bluford	2,191	145	—	14,000	Park College, Parkville, Mo.	1924	John I. Leonard	265	120	—	5,166
North Carolina, Woman's College of the University of Greensboro, N.C.	1892	Frank Porter Graham	6,802	423	—	38,387	Parsons College, Fairfield, Ia.	1875	G. I. Rohrbaugh	1,200	800	1,985,000	8,124
North Carolina Col. for Negroes, Durham, N.C.	1910	W. C. Jackson	2,123	72	—	150,000	Pasadena Junior Col., Pasadena, Calif.	1924	Herbert C. Mayer	530	37	35,660	24,480
North Carolina State College of Agri. and Eng., Raleigh, N.C.	1889	James E. Shepard	778	29	—	67,000	Pennsylvania State Col., State College, Pa.	1855	John W. Harbeson	2,223	27	547,045	40,000
North Carolina State Tch. Col., Elizabeth City, N.C.	1892	J. W. Harrelson	4,902	333	—	18,000	Pennsylvania State Col., University Park, Pa.	1869	R. D. Anderson	9,462	1,985	25,000,000	1,013,653
North Central College, Naperville, Ill.	1863	S. D. Williams	503	46	1,486,580	38,387	Pennsylvania State Col., West Chester, Pa.	1889	Paul R. Heisel	460	13	1,092,000	30,000
North Dakota, Univ. of, Grand Forks, N.D.	1883	C. H. Geiger	815	57	1,700,000	67,000	Pfeiffer Junior College, Misenheimer, N.C.	1903	R. D. Heisel	10,519	6,224	517,000	250,000
North Dakota Agricultural Col., Fargo, N.D.	1889	John H. Longwell	2,362	118	1,571,575	18,000	Phelps University, End, Okla.	1907	Charles S. Swope	290	95	—	7,800
North Dakota, State Normal and Industrial College, Ellendale, N.D.	1899	J. C. McMillan	250	100	—	22,000	Phineas Junior College, Phoenix, Ariz.	1920	E. W. Waggoner	977	307	839,000	46,000
North Dakota State Tch. Col., Dickinson, N.D.	1918	Charles E. Scott	211	24	—	18,000	Pikeville College, Pikeville, Ky.	1889	E. W. Montgomery	1,090	466	16,620	16,620
North Dakota State Tch. Col., Mayville, N.D.	1889	John W. Headley	289	97	—	22,000	Pine Manor Junior Col., Wellesley, Mass.	1911	Marie Warren Potter	282	28	356,000	11,000
North Dakota State Tch. Col., Minot, N.D.	1913	R. C. Swain	241	55	—	17,500	Plymouth Teachers College, Plymouth, N.H.	1878	John C. Bowman	10,426	8,531	3,552,429	460,000
North Dakota State Tch. Col., Valley City, N.D.	1889	C. L. Lokken	356	141	—	22,900	Pomona College, Claremont, Calif.	1887	Howard R. Jones	250	130	15,000	15,000
Northeastern State College, Tahlequah, Okla.	1909	John Vaughan	897	494	—	41,000	Port Huron Junior Col., Port Huron, Mich.	1923	E. Wilson Lyon	1,122	455	4,463,084	114,000
Northeastern University, Boston, Mass.	1898	Carl S. Ell	3,002	335	1,119,659	75,000	Portland, University of, Portland, Ore.	1901	John H. McKenzie	1,422	249	6,178	25,000
Northeast Junior Col., LSU, Monroe, La.	1931	Rodney Cline	814	403	—	40,212							
Northeast Missouri State Tch. Col., Kirksville, Mo.	1867	Walter H. Ryle	440	58	—	20,000							
Northern Illinois State Tch. Col., DeKalb, Ill.	1895	Karl L. Adams	1,442	732	—	40,212							
Northern Michigan Col. of Educ., Marquette, Mich.	1899	H. A. Tape	930	526	—	20,000							
Northern Montana Col. (Jr.), Havre, Mont.	1901	G. H. Vande Bogart	323	155	—	20,000							
Northern State Tch. Col., Aberdeen, S.D.	1901	N. E. Steele	706	372	—	20,000							
North Georgia Col. (Jr.), Dahlonega, Ga.	1873	J. C. Rogers	678	93	—	17,847							
North Idaho Junior Col., Coeur d'Alene, Idaho	1933	George Oliver Kidow	214	15	—	2,000							
North Park College (Jr.), Chicago, Ill.	1891	Algoth Olson	1,351	458	315,698	17,500							
North Texas Agri. Col. (Jr.), Arlington, Tex.	1917	E. E. Davis	795	50	—	22,900							
North Texas State Tch. Col., Denton, Tex.	1890	W. J. McConnell	3,810	210	—	44,939							
Northwestern State College, Alva, Okla.	1897	Sabin C. Percell	571	60	—	987,465							
Northwestern State Col., Natchitoches, La.	1884	Joe Farrar	1,467	608	—	987,465							
Northwestern Univ., Evanston and Chgo., Ill.	1851	Franklyn B. Snyder	10,100	1,235	65,000,000	987,465							

Institution and location	Year Founded	Chief Executive	Students	Students-un-der Veterans Program	Faculty	Endow-ment	Library Volumes	Institution and location	Year Founded	Chief Executive	Students	Students-un-der Veterans Program	Faculty	Endow-ment	Library Volumes
Potomac State School of West Virginia Uni- versity (Jr.), Keyser, W. Va.	1901	E. E. Church	559	385	29	\$ —	9,500	St. Martin's College, Lacey, Wash.	1895	Raphael Heider	305	230	27	\$ —	20,000
Prairie View University, Prairie View, Tex.	1876	H. B. Evans	1,480	461	107	41,000	25,380	St. Mary College, Xavier, Kan. of Columbus, Ohio.	1923	Arthur M. Murphy	405	4	41	—	33,000
Princeton University, Princeton, N.J.	1746	Harold W. Dodds	4,003	3,016	437	40,000,000	1,000,000	St. Mary of the Springs, Col. of Salt Lake City, Utah	1925	Sister M. Anacletus	284	2	44	—	31,000
Principia College, Elmhurst, Ill.	1898	Frederic E. Morgan	446	164	33	866,651	32,660	St. Mary-of-the-Woods Col. of St. Mary-of-the- Woods, Ind.	1926	Sister Mary Benedictus	90	—	17	—	12,200
Providence College, Providence, R.I.	1917	Frederick C. Foley	1,280	960	70	—	—	St. Mary's Col., Notre Dame, Holy Cross, Ind.	1840	Mother Mary Bernard	374	3	44	500,000	64,600
Puerto Rico, Polytechnic Institute of, San Ger- mán, P.R.	1912	Edward G. Seel	419	80	27	500,000	12,040	St. Mary's College, Winona, Minn.	1844	Sister M. Madeleva	511	5	71	115,000	36,400
Puget Sound, College of, Tacoma, Wash.	1888	R. Franklin Thompson	1,489	895	89	1,496,147	48,000	St. Mary's Junior College, O'Fallon, Mo.	1912	Brother Joel	220	68	30	—	25,000
Purdue University, Lafayette, Ind.	1869	Frederick L. Hovde	11,472	7,297	804	340,000	228,000	St. Michael's College, Raleigh, N.C.	1929	Mother M. Borgia	19	—	7	18,407	10,791
Queens College, Charlotte, N.C.	1857	Hunter B. Blakely	426	15	46	500,000	22,300	St. Michael's College, Winooki, Vt.	1842	Richard G. Stone	170	—	24	150,026	40,000
Queens College, Flushing, N.Y.	1937	Paul Klapper	2,853	782	221	—	65,000	St. Michael's College, West De Per, Wis.	1904	Daniel P. Lyons	525	344	40	872,368	58,401
Queen's University, Kingston, Ontario, Can.	1841	R. C. Wallace	3,019	1,831	185	5,100,000	214,473	St. Olaf College, Northfield, Minn.	1898	B. H. Pennings	718	535	41	1,030,527	30,000
Radcliffe College, Cambridge, Mass.	1879	Wilbur K. Jordan	1,276	76	400	7,071,243	97,000	St. Patrick's Seminary, Menlo Park, Calif.	1874	Clemens M. Granskau	1,587	626	93	—	65,500
Radford College, Woman's Division of Vir- ginia Polytechnic Institute, Radford, Va.	1911	David W. Peters	703	14	49	—	30,113	St. Peter's College, St. Petersburg, Fla.	1927	Roland A. Wakefield	425	232	23	120,000	21,500
Randolph-Macon College, Ashland, Va.	1830	J. Earl Moreland	467	298	25	1,022,300	39,989	St. Rose, College of, Albany, N.Y.	1872	Vincent Hart	944	762	57	—	16,450
Randolph-Macon Woman's Col., Lynchburg, Va.	1893	Theodore H. Jack	694	2	75	1,264,000	65,000	St. Scholastica, College of, Duluth, Minn.	1912	Mother M. Athanasius	498	12	41	—	25,000
Redlands, University of, Redlands, Calif.	1907	George H. Armacost	1,065	502	66	2,493,078	71,173	St. Teresa, College of, Winona, Minn.	1910	Sr. M. Rachael Dady	530	11	58	302,000	35,000
Regis College, Portland, Ore.	1904	Peter H. Odgaard	389	65	43	1,634,185	77,000	St. Vincent College, Watrobe, Pa.	1846	Alfred Koch	1,065	504	71	704,250	65,782
Regis College, Weston, Mass.	1927	Sister Mary Honora	583	—	51	10,500,000	39,000	Salem College, Winston-Salem, N.C.	1872	Howard E. Rondthaler	400	41	43	—	31,500
Rensselaer Polytechnic Inst., Troy, N.Y.	1824	Livingston W. Houston	3,434	2,684	289	—	25,000	Samuel Houston State Tch. Col., Huntsville, Tex.	1879	Harmon Lowman	1,839	954	96	—	70,736
Rhode Island Col. of Educ., Providence, R.I.	1854	Lucius A. Whipple	357	36	58	—	23,782	San Bernardino College (Jr.), San Angelo, Tex.	1900	Karl E. Downs	267	15	32	6,861	10,820
Rhode Island State College, Kingston, R.I.	1892	Carl R. Woodward	2,145	1,212	215	—	30,000	San Bernardino College, San Bernardino, Calif.	1928	W. H. Elkins	509	323	33	—	7,000
Rice Institute, Houston, Tex.	1912	William V. Houston	1,487	902	103	30,000,000	179,400	San Diego State College, San Diego, Calif.	1927	John L. Lounsbury	1,195	750	55	253,345	93,000
Richmond, University of, Richmond, Va.	1832	F. W. Boatwright	820	76	76	2,936,316	100,000	San Francisco State Col., San Francisco, Calif.	1897	Walter R. Hegner	3,428	1,479	154	500,000	470,365
Ricks Junior College, Houston, Me.	1886	Roy A. Bither	207	158	14	40,000	2,000	San Francisco State Col., San Francisco, Calif.	1855	William J. Dunne	1,619	1,574	77	173,000	10,000
Ripon College, Ripon, Wis.	1828	John L. Clarke	385	140	20	376,310	6,798	San Jose State Col., San Jose, Calif.	1930	Mother Leonor Mejia	254	—	38	—	100,000
Riverside College (Jr.), Riverside, Calif.	1851	Clark G. Kuebler	938	306	50	854,614	43,170	San Mateo Junior Col., San Mateo, Calif.	1899	J. Paul Leonard	2,393	981	136	—	45,254
Rochester College, Salem, Va.	1916	A. G. Paul	631	318	43	—	18,130	Santa Clara Junior Col., Santa Clara, Calif.	1862	T. W. MacQuarrie	5,741	2,560	261	—	87,459
Rochester University of Rochester, N.Y.	1842	Charles J. Smith	938	294	38	700,000	249,995	Santa Clara Univ. Col., Santa Clara, Calif.	1922	Charles S. Morris	1,810	1,049	74	—	13,000
Rockford College, Rockford, Ill.	1850	Alan Valentine	3,703	2,428	739	5,944,524	34,300	Santa Rosa Junior Col., Santa Rosa, Calif.	1915	John H. McCoy	896	316	35	—	15,000
Rocky Mountain College, Bozeman, Mont.	1847	Mary Abby Cheek	453	30	47	1,000,000	17,480	Sarah Lawrence College, Bronxville, N.Y.	1855	William C. Gianera	947	554	79	—	34,973
Rollins College, Winter Park, Fla.	1910	Thomas M. Knapp	745	535	31	932,960	73,569	Scratchewan, University of, Saskatoon, Sask., Can.	1926	Harold Taylor	343	40	62	330,603	47,550
Rosary College, River Forest, Ill.	1885	Hamilton Holt	593	230	76	100,000	55,000	Scratchewan, University of, Saskatoon, Sask., Can.	1907	James S. Thomson	4,204	2,371	165	253,345	93,000
Rose Polytechnic Institute, Terre Haute, Ind.	1921	Sister Mary Peter	748	7	41	—	36,500	Scratchewan, University of, Saskatoon, Sask., Can.	1892	Hugh C. Stuntz	164	—	25	500,000	470,365
Rose Polytechnic Institute, Terre Haute, Ind.	1874	Mother Mary Boniface	305	3	36	2,150,000	23,400	Scripps College, Claremont, Calif.	1892	J. J. Delaney	438	136	26	173,000	10,000
Russell Sage College, Troy, N.Y.	1916	Donald B. Prance	559	473	31	1,054,071	45,321	Scripps College, Claremont, Calif.	1888	W. Coleman Nevills	2,673	1,913	25	—	32,297
Rutgers University, New Brunswick, N.J.	1766	Helen McKinstry	15,865	8,878	457	6,060,361	475,582	Scripps College, Claremont, Calif.	1926	Frederick Hard	238	—	28	984,400	28,361
Sacramento Col. (Jr.), Sacramento, Calif.	1916	Robert C. Claffier	—	—	—	—	—	Seattle Pacific College, Seattle, Wash.	1892	Harold O. Small	2,447	1,280	65	200,000	20,100
St. Ambrose College, Davenport, Ia.	1882	Nicholas Ricciardi	2,506	1,184	106	—	26,000	Seneca College of the Geneva, N.Y.	1891	C. Hoyt Watson	510	206	35	704,737	87,034
St. Anselm's College, Manchester, N.H.	1893	Amrose J. Burke	1,116	857	60	600,000	25,000	Sinton Hill College, Greensburg, Pa.	1822	John Milton Potter	1,111	662	65	—	34,000
St. Augustine College, Raleigh, N.C.	1867	Bertrand C. Dolan	90	13	20	200,000	17,200	Shaw University, Raleigh, N.C.	1818	James A. Reeves	5,273	3,173	144	500,000	31,268
St. Benedict College, St. Joseph, Minn.	1913	Edgar H. Gould	334	78	36	—	10,800	Shepherd College, Shepherdstown, W. Va.	1865	Robert P. Daniel	776	137	27	325,000	18,000
St. Benedict College, Atchison, Kan.	1856	Mother R. Pratschner	241	—	36	—	30,000	Shenandoah College, Shenandoah, Va.	1872	W. H. S. White	325	180	23	—	25,000
St. Bernard College (Jr.), St. Bernard, Ala.	1892	Cuthbert McDonald	410	230	40	—	24,300	Shenandoah College, Shenandoah, Va.	1878	Paul M. Cousins	239	25	30	540,000	22,500
St. Bernardine of Siena Col., Louisville, N.Y.	1892	Boniface Seng	152	102	14	—	—	Shenandoah College, Shenandoah, Va.	1878	Mother Mary Gerald	375	5	24	—	25,000
St. Bonaventure Col., St. Bonaventure, N.Y.	1937	Mark Kennedy	2,043	1,833	84	761,833	15,000	Shenandoah College, Shenandoah, Va.	1893	Bancroft Beatty	1,494	209	160	3,392,883	95,975
St. Bonaventure College, St. Bonaventure, N.Y.	1859	Thomas Plassmann	1,268	915	82	644,552	78,933	Shenandoah College, Shenandoah, Va.	1860	Edwin E. Voigt	580	234	39	1,413,849	32,119
St. Charles College, St. Charles, Mo.	1911	Sister Antonius	875	24	81	—	67,440	Shenandoah College, Shenandoah, Va.	1883	Ernest E. Smith	307	150	30	122,000	18,000
St. Charles College, St. Charles, Mo.	1831	George A. Gleason	395	25	26	—	40,000	Shenandoah College, Shenandoah, Va.	1883	Henry T. Moore	1,015	53	92	872,368	58,401
St. Edwards College, St. Edwards, Mo.	1931	John P. McCormick	52	13	10	—	15,000	Shenandoah College, Shenandoah, Va.	1871	Herbert Davis	2,249	372	272	6,822,230	326,392
St. Elizabeth College, St. Elizabeth, Mo.	1899	Sister Marie J. Byrne	614	48	48	—	31,000	Shenandoah College, Shenandoah, Va.	1935	Festus M. Cook	318	192	23	210,000	81,52
St. Elizabeth College, St. Elizabeth, Mo.	1874	Sister M. Aniceta	403	3	45	16,000	35,000	Shenandoah College, Shenandoah, Va.	1888	James A. Nuttall	360	127	23	—	10,298
St. Francis College, St. Francis, Mo.	1847	John P. Sullivan	72	—	18	—	10,000	Shenandoah College, Shenandoah, Va.	1888	Sophie Newcomb College for Women, New Orleans, La.	862	30	83	2,311,387	325,000
St. Francis College, St. Francis, Mo.	1912	Sister Mary Huberta	356	4	45	—	52,000	Shenandoah College, Shenandoah, Va.	1886	Logan Wilson	862	30	83	2,311,387	325,000
St. Francis Xavier Col., St. Francis, Mo.	1853	P. J. Nicholson	874	314	35	510,000	35,000	Shenandoah College, Shenandoah, Va.	1857	Alexander Guerry	492	332	37	2,250,000	57,000
St. Francis Xavier College, St. Francis, Mo.	1928	Gerrude Houk Fariss	89	—	15	—	5,500	Shenandoah College, Shenandoah, Va.	1801	Norman M. Smith	4,167	2,644	226	—	180,663
St. Helen's College, St. Helen, Mo.	1928	William J. Mahoney	163	—	27	500,000	26,000	Shenandoah College, Shenandoah, Va.	1896	M. F. Whittaker	1,338	1,054	100	—	24,000
St. John's College, St. John, Mo.	1870	Sister M. Rosa	3,771	189	189	—	18,415	Shenandoah College, Shenandoah, Va.	1882	L. D. Weeks	1,658	1,054	118	—	120,000
St. Joseph College, St. Joseph, Mo.	1915	Nelle Bum	416	10	37	—	8,000	Shenandoah College, Shenandoah, Va.	1885	Joseph P. Connolly	537	463	34	250,000	20,000
St. Joseph College, St. Joseph, Mo.	1889	Henry A. Lucks	630	348	21	1,425,815	23,307	Shenandoah College, Shenandoah, Va.	1881	H. M. Crothers	1,858	1,185	102	634,452	83,256
St. Joseph's College, Philadelphia, Pa.	1809	Francis J. Dodd	514	325	52	—	15,210	Shenandoah College, Shenandoah, Va.	1909	T. T. Montgomery	524	168	46	—	34,272
St. Joseph's College, Philadelphia, Pa.	1851	John J. Long	1,209	928	63	29,713	18,250	Shenandoah College, Shenandoah, Va.	1881	W. W. Parker	1,230	669	71	—	85,000
St. Joseph's College, Philadelphia, Pa.	1916	William T. Dillon	1,088	562	72	1,793,070	82,861	Shenandoah College, Shenandoah, Va.	1873	—	—	—	—	—	—
St. Lawrence University, Canton, N.Y.	1856	Eugene G. Bewkes	9,497	4,523	857	10,725,035	423,694	Shenandoah College, Shenandoah, Va.	—	—	—	—	—	—	—
St. Louis University, St. Louis, Mo.	1818	Patrick J. Halloran	9,497	4,523	857	10,725,035	423,694	Shenandoah College, Shenandoah, Va.	—	—	—	—	—	—	—

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Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans Program	Faculty	Endowment	Library Volumes
Western State College of Colorado, Gunnison, Colo.	1901	H. L. Dolsen	540	267	30	\$	33,330	Wilson College, Chambersburg, Pa.	1870	S. A. Watson	530	250	30	\$ 336,000	22,000
Western Washington College of Education, Bellingham, Wash.	1893	Wm. W. Haggard	319	47	57	—	67,551	Wilson College, Chambersburg, Pa.	1870	Paul Swain Havens	474	20	53	878,632	56,000
West Georgia College (Jr.), Gadsden, Ga.	1933	I. S. Ingram	520	190	25	—	9,584	Winthrop College, Rock Hill, S.C.	1892	Francis L. Atkins	587	10	26	22,244	22,244
West Liberty State Col., Liberty, W. Va.	1837	Paul N. Elbin	520	260	22	—	20,000	Winthrop College, Rock Hill, S.C.	1892	Henry R. Sims	1,535	6	117	66,000	66,000
Westminster College, Fulton, Mo.	1851	Francis L. McCluer	550	378	29	615,800	40,000	Wisconsin State Univ. of Madison, Wis.	1848	Edwin Brown Freed	18,672	11,120	1,209	4,991,032	597,000
Westminster College, New Wilmington, Pa.	1852	H. Lloyd Cleland	1,255	500	29	800,000	34,000	Wisconsin State Univ. of Madison, Wis.	1916	W. R. Davies	790	450	57	31,000	31,000
Westminster College, Salt Lake City, Utah	1875	Robert D. Steele	207	70	23	1,500,000	7,114	Wisconsin State Univ. of Milwaukee, Wis.	1909	Rayford S. Mitchell	975	410	66	37,261	37,261
Westminster College (Jr.), Tehuacan, Mex.	1895	W. D. Blunk	100	56	12	—	56,001	Wisconsin State Univ. of Milwaukee, Wis.	1871	J. Martin Klotzke	1,704	619	104	70,880	70,880
West Texas State Col., Canyon, Tex.	1912	John A. Hill	1,435	500	75	—	56,001	Wisconsin State Univ. of Milwaukee, Wis.	1871	Forrest R. Polk	894	426	60	37,884	37,884
West Virginia State Col., Institute, W. Va.	1891	John W. Davis	1,398	673	52	—	33,377	Wisconsin State Univ. of Stevens Point, Wis.	1874	C. O. Newsum	518	286	48	30,000	30,000
West Virginia Wesleyan Col., Morgantown, W. Va.	1867	Irvin Stewart	5,862	3,902	533	—	191,000	Wisconsin State Univ. of Stevens Point, Wis.	1874	E. H. Kleinpell	683	354	53	25,000	25,000
Wheaton College, Norton, Mass.	1890	W. J. Scarborough	725	420	35	220,000	30,000	Wisconsin State Univ. of Stevens Point, Wis.	1893	W. C. Hansen	878	405	58	40,000	40,000
Wheaton College, Wheaton, Ill.	1834	A. Howard Menely	478	1	67	1,236,414	59,528	Wisconsin State Univ. of Stevens Point, Wis.	1893	Jim Don Hill	878	405	58	28,503	28,503
Wheelock College, Boston, Mass.	1889	V. Raymond Edman	1,472	435	133	670,776	90,000	Wisconsin State Univ. of Stevens Point, Wis.	1893	R. C. Williams	1,248	689	52	76,917	76,917
Whitman College, Walla Walla, Wash.	1859	Winifred E. Bain	328	19	46	1,400,000	80,000	Whitman College, Springfield, Ohio	1884	Rees Edgar Tulloss	600	403	32	865,708	865,708
Whittier College, Whittier, Calif.	1901	William C. Anderson	799	423	55	800,000	32,000	Whitworth College, Spokane, Wash.	1869	F. C. Greene	1,237	60	34	121,000	121,000
Whitworth College, Spokane, Wash.	1890	William C. Anderson	799	423	55	800,000	32,000	Whitworth College, Spokane, Wash.	1869	F. C. Greene	1,237	60	34	121,000	121,000
Wilberforce University, Wilberforce, Ohio	1895	Frank F. Jones	439	249	44	50,000	25,000	Whitworth College, Spokane, Wash.	1869	Howard F. Lowry	1,237	60	34	121,000	121,000
Wilkes College, Wilkes-Barre, Pa.	1873	Charles R. Wesley	1,587	423	104	133,573	25,000	Whitworth College, Spokane, Wash.	1869	Howard F. Lowry	1,237	60	34	121,000	121,000
Willamette University, Salem, Ore.	1842	E. L. McLeod	982	507	60	650,000	19,071	Whitworth College, Spokane, Wash.	1869	Howard F. Lowry	1,237	60	34	121,000	121,000
William Jewell Col., Liberty, Mo.	1849	John Edwin Pomfret	1,770	863	120	1,700,000	315,116	Whitworth College, Spokane, Wash.	1869	G. D. Humphrey	3,019	1,852	247	4,250,000	4,250,000
Williams College, Williamstown, Mass.	1849	Walter Pope Blinn	767	375	33	1,985,518	200,000	Xavier University, Cincinnati, Ohio	1831	Celestin J. Steiner	1,498	1,350	49	83,400	83,400
Williamsport-Dickinson Seminary and Junior College, Williamsport, Pa.	1793	James P. Baxter	1,059	761	113	12,453,000	200,000	Xavier University, Cincinnati, Ohio	1925	Mother M. Agatha	499	17	65	470,655	470,655
William Woods College (Jr.), Fulton, Mo.	1890	John W. Long	744	462	49	396,456	10,701	Yale University, New Haven, Conn.	1701	Charles Seymour	8,651	5,374	1,244	123,112,371	3,539,600
Williamianic St. Sch. Col., Williamianic, Conn.	1889	George H. Shafer	361	1	34	50,000	9,000	Yankton College, Yankton, S.D.	1881	James C. Graham	360	155	32	700,000	42,000
								Young L. G. Harris Col. (Jr.), Young Harris, Ga.	1886	J. W. Sharp	349	43	15	130,000	12,000
								Yuba Junior College (Jr.), Marysville, Calif.	1908	Howard W. Jones	2,241	1,527	172	12,500	34,550
									1927	H. J. Collins	592	293	34	—	6,159

U.N.O.: see UNITED NATIONS (U.N.).

U.N.R.R.A.: see UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.

Uranium. Supplementing the previously known use of uranium for the production of a new isotope U-239, and its conversion into element No. 93, neptunium, and then into element No. 94, plutonium, it was reported that the bombardment of uranium with neutrons also resulted in the formation of two more elements, Nos. 95 and 96, and that some 150 isotopes of about 35 other elements had been identified as by-products of the reactions taking place in the chain reaction piles for the conversion of uranium into plutonium. As of 1946, little information had been made public concerning these by-products, but some of them had been collected in quantities large enough to permit them to be used in medical and biological experimentation. (See also ATOMIC ENERGY; CHEMISTRY; METALLURGY.)

(G. A. Ro.)

Urology. Wide experience in the use of antibiotic agents during 1946 demonstrated their value in the treatment of infections of the genitourinary tract. Penicillin was found to be of specific value in combating urinary infection caused by gram-positive organisms. Although penicillin did not replace the sulfonamides and mandelic acid preparations in the treatment of urinary infections, it often was successful when those drugs failed. Generally, penicillin was administered by intermittent intramuscular injection at three-hour intervals, and administration was continued until the infection was controlled. Intramuscular injection of penicillin combined with beeswax and peanut oil in one or two massive doses was used to an increasing extent. Oral administration also was employed more frequently, but only as an adjunct to parenteral methods of treatment and for prophylactic purposes. Penicillin, like other antibiotic agents, was more effective in eliminating acute, uncomplicated infections than chronic infections.

The production of streptomycin increased to such an extent during 1946 that limitations of distribution were removed. It was used successfully in the treatment of infections of the urinary tract caused by organisms that do not stain with the gram stain. It was found that streptomycin was administered best parenterally, because, when it was given by mouth, practically none of it was absorbed from the gastrointestinal tract. It was best administered in a dose of one or two grams daily by intramuscular injection, at intervals of three hours. It was found that it was advisable to employ an initially high dose of streptomycin in the presence of an acute infection of the urinary tract. If the infection were not eliminated when streptomycin was so administered, continued administration was useless. It was found that sensitivity to streptomycin often was acquired by gram-negative organisms, particularly if the dose were inadequate. Recurrence of infection often was observed after the administration of streptomycin was discontinued.

Systemic reaction to the administration of antibiotic agents received considerable attention, and cases were reported in which severe allergic reactions were noted. In many cases streptomycin produced a moderate degree of toxicity, sometimes with histamine-like reactions. When the use of streptomycin in high doses was long continued, the drug had a deleterious effect on the nervous system and specifically on the eighth cranial nerve. As a result, patients complained of ringing in the ears with a variable degree of deafness and ataxia. These complications were controlled by immediate cessation of the treatment. In most cases the hearing would gradually improve, although a moderate degree of deafness sometimes remained.

Continued experience with streptomycin in the treatment of inoperable renal tuberculosis established its value in some cases. The results in a series of 14 cases were reported after long-continued treatment with streptomycin. Definite symptomatic improvement was noted in eight cases, and in two cases *Mycobacterium tuberculosis* was apparently eliminated.

Penicillin largely replaced the sulfonamides in the treatment of gonorrhoea. In many cases it was efficient in overcoming infection resistant to the sulfonamides. A single injection of a solution of from 100,000 to 300,000 units of penicillin in beeswax and peanut oil often was sufficient to overcome gonorrhoeal urethritis. A second or third injection was advisable, however, in order to eradicate completely the infection. In fact, unless the disease were adequately treated and checked by cultures, recurrence of gonorrhoeal urethritis resulted and was difficult to overcome. The administration of antibiotic agents as well as other substances always should be under the supervision of a physician. (W. F. BR.)

Uruguay. A republic in the southeastern part of South America, bounded on the east, south, west and north, respectively, by the Atlantic, the Río de la Plata, Argentina and Brazil. Area, 72,172 sq.mi. (the smallest of any South American republic); pop. (1944 est.), 2,235,000. Racial distribution is estimated at 90% white and most of the rest mestizo; large numbers of Europeans, especially Italians and Spaniards, live in Uruguay. The capital and chief port is Montevideo (pop., 1945 est., 747,665); other important cities (with 1945 pop. ests. unless otherwise stated) are Paysandú (50,000), Salto (48,000), Mercedes (33,000), Minas (1942 est., 32,000), Tucuarembó (30,000), San José (1942 est., 30,000), Rocha (28,500), Melo (28,000), Durazno (1942 est., 27,000) and Santa Lucía (1942 est., 27,000). The government is headed by a popularly elected president and vice-president, with the congress and cabinet filled on a basis of proportional representation; the senate includes 30 and the chamber of deputies 99 members. President in 1946: Juan José Amézága.

History.—The climax of developments in 1946 came in the presidential election in November. The capital suffered from a one-day general strike Feb. 28, involving about 60,000 people, in protest against living costs. The government in April moved to expropriate and nationalize the British-owned Montevideo waterworks. On July 1 the government announced that it had suppressed an antigovernment coup led by a former head of the air force and apparently supported by the Asociación Pro-Renovación del Espíritu, an allegedly totalitarian lodge of army officers. About 30 arrests followed but Pres. Amézága obtained a 30% pay increase for commissioned officers and instituted an obligatory retirement scheme to make room for younger officers. Uruguay's troubles with food were serious because the second consecutive poor wheat harvest left an estimated deficit of 130,000 metric tons of that grain. The bank of the republic contracted for a 90,000-ton purchase from Argentina but the latter country on April 22 refused to honour its commitment, because of alleged prior sales obligations. U.S. Ambassador William Dawson then informed the foreign minister that the United States would ship emergency supplies of wheat, beginning with 8,000 tons in May.

Presidential and congressional elections were scheduled for Nov. 24. The Nationalist party on Sept. 29 nominated its aging leader, Luis Alberto Herrera, as presidential candidate, with Martín Echegoyen as running mate; Herrera, long the leader of an aggressive opposition, had been freely accused in years past of being pro-nazi and sympathetic to the Perón regime in Argentina. The *Batllista Colorado* party (in control of the government) on Oct. 3 nominated Public Works Minister Tomás Ber-

reta and Deputy Luis Batlle Berres as its candidates. Former Pres. Alfredo Baldomir and a Perónist politician, Rafael Schiaffino, also ran for the presidency but were conceded little chance. Early unofficial returns gave Berreta the election with 264,626 votes to 176,628 for Herrera. Communists polled about 10% of the vote and elected one senator and four deputies.

Finance.—The monetary unit is the peso, valued on Nov. 15, 1946, at from 52.63 to 56.02 cents, U.S. currency, depending on the type of exchange. The public debt June 30, 1946, totalled 654,900,000 pesos, an increase from the figure of 629,100,000 for Jan. 1. By Sept. 30 the debt had grown still further, to 661,600,000 pesos. Total U.S. Export-Import bank commitments, as of June 30, were \$32,000,000, of which the amount outstanding was \$9,400,000 and the undisbursed balance \$22,600,000. The official cost-of-living index at the beginning of 1946 was 141 as against 100 for 1929. Inflation was even more serious by the middle of 1946.

Trade.—Exports in 1945 were \$122,012,000 (1944: \$97,559,000) and imports \$114,759,000 (1944: \$72,446,000) leaving a favourable balance of \$7,253,000 (1944: \$25,113,000). The principal export items (with 1944 figures in parentheses) were: wool \$57,196,000 (\$40,919,000); meat and meat products \$31,160,000 (\$29,721,000); hides and hair \$11,888,000 (\$11,133,000); textiles and textile products \$8,583,000 (\$5,056,000). Principal destinations of 1945 exports were: United States \$55,757,000 (\$46,326,000); United Kingdom \$28,949,000 (\$31,323,000); Sweden \$5,143,000 (\$3,843,000). Chief imports in 1945 were: prime materials \$29,975,000 (\$22,199,000); fuel and lubricants \$12,034,000 (\$14,721,000); general merchandise \$10,752,000 (\$9,781,000). Sources of imports included: United States \$47,607,000 (\$18,856,000); Brazil \$19,327,000 (\$16,046,000); Argentina \$11,777,000 (\$9,279,000). Exports in the first eight months of 1946 were 1,474,829 metric tons valued at \$99,531,946; imports were 1,211,588 tons valued at \$83,643,464; the United States was again the largest buyer and supplier. Uruguay made arrangements with Cuba early in 1946 to purchase 25,000 metric tons of Cuban sugar. The government later contracted with the U.S. Commodity Credit corporation to sell the current and last linseed crops up to 110,000 metric tons. Uruguay's first shipments of wool were sent to the U.S.S.R. in June. By mid-1946 much import merchandise was arriving in Uruguay but consumer prices remained high.

Production.—The estimate of 1946 grape production was 120,000 metric tons (1945: 81,529 tons); wine production in 1945 was 53,100,000 l. (1944: 71,800,000 l.). The 1945-46 linseed crop estimate was 112,000 metric tons from 185,000 ha. (1944-45: 103,000 tons from 163,000 ha.). The 1945-46 wheat estimate was 210,000 metric tons but an enormous deficit was in prospect. The 1946 rice crop, it was thought, would cover all normal requirements, although demand was up because of wheat shortages. One new textile mill organized during 1946 had a capital of 6,000,000 pesos. Textile production in 1945 included: woolsens and worsteds 5,500,000 sq.m.; woolen yarns 3,500,000 net kg.; worsted yarns 750,000 net kg.; cotton fabrics 2,800,000 net kg.; carded cotton yarns 2,100,000 net kg.; rayon fabrics 28,000 net kg.

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USES: see UNITED STATES EMPLOYMENT SERVICE.

U.S.O.: see UNITED SERVICE ORGANIZATIONS.

U.S.S.R.: see UNION OF SOVIET SOCIALIST REPUBLICS.

Utah. A Rocky Mountain state, admitted to the union in 1896, popularly known as the "Beehive state." Area 84,916 sq.mi. (82,346 sq.mi. land; 2,570 sq.mi. water); pop.

(Dec. 1, 1946) 633,464; (U.S. census 1940) 550,310. The rural (nonfarm) population was 150,465 in 1940; (farm) 94,352; urban 305,493; with the following origins: white (native) 510,662; (foreign-born) 32,298; Negro (native) 1,225, (est. 1946, 2,400); (foreign-born) 10. Farm population decreased considerably after 1940, and urban population increased about 60%, because of war conditions. Capital, Salt Lake City (pop. est. 1946, 183,000). Other principal cities with 1946 est. pop.: Ogden (60,000), Provo (22,000) and Logan (14,000). In 1945 the Mormon church gave its membership total as 979,454, about one-half in Utah, or 414,621, and 106,689 in Salt Lake City.

History.—In 1946 the administration of Governor Herbert B. Maw co-operated with federal authorities in essential war and postwar measures and in all vital reconversion programs, particularly the return of Utah's gigantic Geneva steel plant to private industry, and in initiating the preliminary work on the great reclamation project of central Utah, known as the Central Utah project, and further development of the Colorado river, while aiding business and industrial interests in the expansion of manufacturing, mining, metallurgical and transportation industries and in encouraging eastern and Pacific coast industrialists and manufacturers to establish their branch factories in Utah.

In 1946 E. E. Monson continued as secretary of state; Ferrell H. Adams was auditor; Reese M. Reese, treasurer; Grover A. Giles, attorney general; and Dr. E. Allen Bateman, superintendent of public instruction.

Education.—There were 150,622 children of school age in Utah in 1945, there being an average daily attendance of only 126,687 out of an enrolment of 144,605. The total cost of education was \$18,229,948.90, with \$16,049,045.89 devoted to operating expenses. There were 4,330 teachers and 430 principals.

Social Insurance and Assistance, Public Welfare and Related Programs.—Total obligations of \$8,614,848.08 incurred in 1945 for public assistance exclusive of administration, were distributed as follows: old-age assistance, \$5,906,901.40; aid to dependent children, \$1,617,402.06; aid to blind, \$62,055.62; aid to employables, \$18,877.46; aid to unemployables, \$664,776.15; other assistance \$344,835.39. A total of 14,895 households were receiving assistance in June 1945, as compared with 14,990 households in June 1944. From Jan. 1 to June 30, 1946, \$4,575,366.98 was distributed for public assistance. The 1945 legislature passed legislation increasing the gratuities to old-age recipients from \$30 to \$40 per month.

Communication.—Highway mileage in 1946 was as follows: state, 5,428; county, 15,531; city, 2,539; federal, 5,370; total 28,868. There were 157 mi. of electric railway and 1,820 mi. of steam railway in 1946. Utah was actively engaged in road building for national defense during the war years, 1942 through 1945, the highway department expending \$9,600,000 for construction, of which \$8,400,000 was federal funds. Highway traffic attained an all-time high in 1946 with receipts from the four-cent gasoline tax during the calendar year approximating \$5,500,000 and from motor vehicle registration \$1,600,000.

The state highway department was to expend an average of \$6,750,000 for construction of federal-aid projects in each of the first three postwar years, of which \$4,600,000 would be federal funds. Utah had 52 airports and landing fields in 1946, comprising 48 civilian and 4 military. The 1945 special session of the legislature appropriated \$500,000 for construction of airports in co-operation with Utah communities and the federal government.

Banking and Finance.—The 59 banks, 47 state and 12 na-

tional, had total assets of \$563,291,143.46 on Sept. 30, 1946, and total bank deposits reached \$532,320,554.76. On June 30, 1946, the state's 19 building and loan associations, (13) state and (6) federal, had aggregate assets of \$56,677,494.00. State receipts for the year ending June 30, 1946, were \$52,203,574.66; expenditures were \$47,542,029.60.

The total of outstanding bonds in 1946 was \$1,370,000, with this amount available from the state liquor control fund for retirement of all outstanding bonds. Thus the state was out of debt.

Agriculture.—Figures not yet final showed cash income from farm marketings in 1945 was \$35,275,000 for crops and \$85,701,000 for livestock and livestock products, as compared with \$35,376,000 for crops and \$81,658,000 for livestock and livestock products in 1944.

Preliminary value of truck and canning crops was \$8,207,000 for 1945; for 1944 \$7,049,000. Preliminary value of canning tomatoes in 1946 was \$1,593,000 and shipping tomatoes \$165,000.

Table I.—Principal Agricultural Products of Utah, 1946 and 1945

Crop	Preliminary 1946	1945
Wheat, tons	208,620	205,740
Hay (tame and wild), tons	1,067,000	1,178,000
Potatoes, bu.	3,570,000	3,366,000
Sugar beets, short tons	602,000	437,000
Celery, crates	618,000	287,000
Tomatoes, fresh, bu.	54,000	45,000
" processing, tons	75,000	54,800
Onions, 100-lb. sacks	412,000	425,000
Peas, tons	17,190	24,020

To offset partly the loss of agricultural workers, 1,100 German prisoners of war supplemented by 600 Mexican farm labourers were being used as of July 1, 1946. However, when the prisoners were repatriated, the number of Mexican nationals was increased to 1,300 during the fall harvest.

Manufacturing.—The average employment in 1946 (total wages paid and total value of products) remained substantially the same as in 1945. The average monthly workers numbered about 23,441 in 1945 as compared with 24,376 in 1944. During the last quarter of 1946 however, employment was running at a rate of more than 28,000.

This was 10,000 more employees than in the immediate pre-war period, and was largely because of the Geneva steel plant getting back into operation.

Total pay rolls in manufacturing were \$51,141,556 in 1945 as compared with \$51,345,876 in 1944, and it was estimated they would reach \$55,000,000 in 1946.

Mineral Production.—In 1945 production of copper, gold, lead, molybdenum, zinc and iron in Utah was maintained; gilsonite, tungsten, manganese and fluorite mines continued in commercial production, and labour shortages were made up partly by the use of labour-saving machines. However, mineral production as well as exploration and development work to find additional ores was materially curtailed in 1946 due to labour disputes, price controls and critical labour shortages. In 1945 the state had a production of 279,979 fine oz. of gold and 6,106,545 fine oz. of silver, as compared with 344,223 fine oz. of gold and 7,593,075 fine oz. of silver in 1944. The peak production year for copper was 1943.

Table II.—Mineral Production of Utah, 1945 and 1944

Mineral	1945	1944
Copper, lb.	452,752,000	565,150,000
Lead, lb.	81,634,000	105,038,000
Zinc, lb.	67,260,000	77,988,000
Value of all ores	90,018,641	111,036,247

The 1945 coal production was 6,738,462 tons; the estimated 1945 coke production was 854,246 tons. (J. C. AR.)

Utilities, Public: *see* PUBLIC UTILITIES.

Valentine, Lewis Joseph (1882–1946), U.S. police official, was born on March 19 in Brooklyn, N.Y., and after attending the local schools, became a wagon boy for a department store at the age of 16. Head of a company agency at 20, he left the merchandising business to become, in 1903, a policeman. Ten years later, he was promoted to the grade of sergeant and upon the election of Mayor James J. Walker became successively a captain, deputy inspector, inspector and deputy chief inspector. Reduced to captain and transferred from police headquarters during the tenure of police commissioner Grover H. Whalen, he returned to headquarters in 1934, upon the election of Mayor Fiorello LaGuardia, becoming chief inspector. Later that year, he was appointed police commissioner of New York city and received the mayor's full endorsement to "clean-up" the police department. During his first years in office, he thoroughly reorganized the police system, vigorously fought gambling and vice, cleaned up election poll frauds and helped to correct the city's traffic problems. He had held his post for 11 years when he retired from the force to conduct "Gang Busters," a radio program on crime topics. In March of 1946, at the request of Gen. MacArthur, he went to Japan to reorganize the Japanese police, fire and prison systems. Successfully completing his mission within three months, he returned to the U.S. to resume his radio work. An autobiography, *Night Stick*, was completed before his death. Mr. Valentine died in New York city, Dec. 16.

Vanadium. The trend of the vanadium industry in the United States during late years is indicated by the following data, in short tons of vanadium content.

	1939	1940	1941	1942	1943	1944	1945
Mine shipments	992	1,081	1,257	2,220	2,793	1,764	1,482
Imports	1,066	1,287	1,069	1,288	1,058	662	789
Consumption	?	?	?	3,468	3,631	2,678	2,547

Domestic ore received at mills and government stock piles in the first half of 1946 declined to 375 short tons of contained vanadium. Imports during the same period were 300 tons, and consumption 483 tons. The chief source of outside supply for the U.S. is Peru.

The metals reserve stockpile, which reached a peak of about 1,200 tons of contained vanadium pentoxide in 1944, was all sold out during 1945.

Production by other important world sources is given below, so far as available, in short tons of contained vanadium.

	1939	1940	1941	1942	1943	1944	1945
Northern Rhodesia	423	406	377	460	533	163	232
Peru	1,097	1,338	1,121	1,119	943	569	684
South-West Africa	567	472	297	499	636	424	463
World total	3,190	3,330	3,100	4,300	4,950	3,000	2,870

Several other countries produce minor amounts, figures for which were lacking.

(G. A. Ro.)

Vandenberg, Arthur Hendrick (1884–), U.S. senator and statesman, was born March 22, in Grand Rapids, Mich. He studied at the University of Michigan law school, Ann Arbor, Mich., for one year, and joined the *Grand Rapids Herald* as a reporter, becoming editor and general manager of the paper. He was appointed to fill a U.S. senate vacancy in 1928, and was re-elected in 1934, 1940 and 1946.

Before the United States entered World War II, Vandenberg, a noninterventionist, attacked the lend-lease bill and aid to Britain. After the Japanese struck Pearl Harbor, Vandenberg generally approved the administration's foreign policy.

In 1945 President Roosevelt appointed him delegate to the

United Nations conference in San Francisco, Calif. Vandenberg subsequently urged the senate to ratify the U.N. charter which he supported because "this plan regardless of its infirmities, holds great promise that the United Nations may collaborate for peace as effectively as they have made common cause for war."

Vandenberg's advice at U.N. parleys and at the sessions of the Big Four foreign ministers was sought by Secretary James Byrnes. Although Vandenberg repeatedly called for a firm stand toward the soviet union, after returning from the U.N. sessions in London he stated (Feb. 27, 1946), that the United States and the soviet union could live together in "reasonable harmony if the United States speaks as plainly on all occasions as Russia does."

After the Republican triumph in the Nov. elections of 1946, Vandenberg was regarded as one of the outstanding G.O.P. candidates for the presidential nominations of 1948. On Dec. 30, 1946, Vandenberg was named president *pro tempore* of the senate.

Varnishes: *see* PAINTS AND VARNISHES.

Vassar College. A college for women at Poughkeepsie, N.Y., founded by Matthew Vassar in 1861. In the fall of 1946 Vassar returned to the traditional four-year course for the bachelor's degree, abandoning the three-year course adopted in 1943 as an emergency wartime measure. On Oct. 11 the college inaugurated its sixth, and first woman, president—Sarah Gibson Blanding, who succeeded Dr. Henry Noble MacCracken upon his retirement July 1 after 31 years of service. President Blanding, a Kentuckian and a political scientist, came to Vassar from Cornell university, Ithaca, N.Y., where she was dean of the college of home economics. She is a graduate of the University of Kentucky, Lexington, Ky., where she served as dean of women and associate professor of political science. She received her A.M. from Columbia university and studied at the London School of Economics. At her inauguration, President Blanding was decorated by the war department for her contribution to the welfare of U.S. servicewomen as a member of the Joint Army and Navy Committee on Welfare and Recreation. In July she was appointed by President Truman to the National Commission on Higher Education. In April Vassar became the first women's college to make temporary room for veterans. There were 90 veterans enrolled as non-resident students at the college in 1946. Throughout the year the faculty carried on its studies for a revision of the curriculum that would keep the course of study in line with Vassar's traditional objective of education for social use. New experimental courses were initiated. The wartime co-operative system, under which all students shared in college housekeeping, was adopted as an integral part of the college's educational policy. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

Vatican City State. A sovereign independent state, established by the Lateran treaty between the Holy See and the Italian government on Feb. 11, 1929. The treaty is recognized in international law; and the reigning pope is the sovereign. The area of Vatican City is 108.7 ac., excluding the papal estate of Castel Gandolfo and certain basilicas in Rome which are extraterritorial. Executive powers are exercised by the governor, responsible to the pope.

The Vatican in 1946 maintained diplomatic relations with 36 states. The status of relations with several additional countries was unsettled because of disturbed conditions. The Vatican had 31 nuncios, representatives of ambassadorial rank, and 4 internuncios, representatives of lesser rank, in as many countries.

There were regents in two countries, and regents *ad interim* in two others, namely Iran and Yugoslavia. The Vatican sent apostolic delegates, representatives without accredited rank, to 18 countries, including Canada, Great Britain and the United States. Missions to several countries, including Germany, were managed by chargés d'affaires. At the Vatican during 1946 there were 34 ranking representatives of as many governments. Four other posts were vacant. The president of the United States was personally represented by Myron C. Taylor, to whose mission considerable objection was raised by some Americans on the grounds that it violated the principles of separation of church and state.

On Oct. 26, Mgr. Nicola Moscatello, who had served with the Yugoslav delegation for 22 years and was at the time acting as Yugoslavian counsellor to the Holy See, resigned in protest against the prison sentence imposed on Archbishop Stepinac. Bishop Joseph P. Hurley of Saint Augustine, Fla., continued as regent *ad interim* in Belgrade. The Vatican reacted to the trial and imprisonment of the Yugoslav archbishop by announcing that those participating in the trial had incurred the penalty of excommunication.

During 1946 the Vatican felt considerable anxiety about the status of its future relations with the Italian government. On Dec. 19 a subcommittee of the constituent assembly finally approved an article reaffirming the validity of the 1929 Lateran treaty as the basis of relations.

On May 23 the Vatican announced that the Catholic Church in China was raised from missionary status and had its own hierarchy with Thomas Cardinal Tien as first archbishop of Peiping. China gave its representative at the Vatican, the Catholic jurist Dr. John C. Wu, the title of minister.

The year 1946 saw several futile attempts to improve the relations of the Vatican with the U.S.S.R. In March the *Osservatore Romano*, semiofficial Vatican daily newspaper, praised Stalin's statement that all nations want peace, calling it "Christian" and indicating that to question his motives is "less Christian." Moscow papers, however, continued to charge the Vatican with harbouring nazis and favouring fascists, saying that it wished to drive a wedge between Russia and the western world.

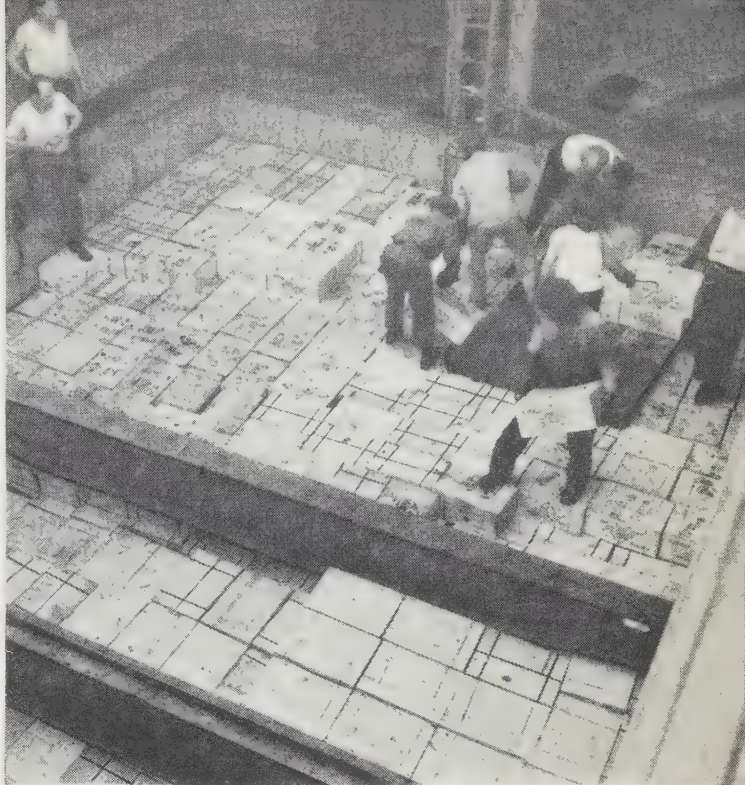
At the beginning of August it became known that some delegates to the World Council of Churches, meeting in Cambridge, England, favoured joint action with the Vatican to put a "world Christian point of view on peace" before the United Nations. Other delegates did not approve such a course.

On July 16 a new agreement, based on the 1851 concordat, was reached between the Vatican and the Spanish government. On April 7 the Vatican officially recognized the Lebanese republic.

In March the Moscow radio announced that the assembly of the Uniate church in western Ukraine in Lwow had repudiated the 1596 Brest union with the Vatican. In reply the Vatican radio made it clear that the assembly was not free to act as all higher church officials in those regions were imprisoned. (See also PIUS XII; ROMAN CATHOLIC CHURCH.) (J. LAF.)

Veal: see MEAT.

Vegetable Oils and Animal Fats. The 1946 production from domestic materials of fats and oils in the United States was estimated at 8,800,000,000 lb. compared with 9,434,000,000 lb. in 1945, the record of 10,847,000,000 lb. in 1943 and an average of 8,230,000,000 lb. 1937-41. The declines in 1944 and 1945 were chiefly due to the reduction in the pig crop from the high level of 1942 and 1943. Butter and flaxseed output had also shrunk. The world shortage of oils and fats became apparent in 1945



PORK LARD being stowed in cargo vessel for shipment to France, where it was needed to maintain a ration of food fats in 1946

and 1946 when the needs of Europe became evident. World supplies were short and exports exceeded imports by over 200,000,000 lb. in 1945 and by a large amount in 1946. U.S. stocks had reached a high peak in 1944 from the large hog slaughter. By mid-1946 stocks were 50% smaller than in mid-1944. Most of the exports were for European relief.

The oil and fat production of 1946 included about 1,480,000,000 lb. of butter. This compared with 2,211,000,000 lb. average produced in 1937-41. Butter production declined steadily through the war period. The lard and pork fat production was 2,130,000,000 lb. which compared with the top of 3,203,000,000 lb. of 1944 and a prewar average of 1,964,000,000 lb. 1937-41. All animal fats totalled 3,730,000,000 lb. compared with 4,386,000,000 lb. in prewar. The edible vegetable oils, including corn, cottonseed, olive, peanut and soybean oils amounted to 2,670,000,000 lb., which was about 503,000,000 lb. more than was produced in prewar years because of the increase in soybean oil. The cottonseed crop declined during World War II and other oils increased little. Soap fats made up 1,840,000,000 lb.; drying oils 500,000,000 lb. and other oils 30,000,000 lb. of the 1946 total.

Consumption of fats and oils in 1946 was estimated at about 62 lb. per capita compared with 67 lb. in 1935-39. Food fats made up 38 lb. of the total compared with 45 lb. per capita in prewar. Stocks were reduced by mid-year by 350,000,000 lb. to the smallest amount at this season for 20 years. The demand for oils for industrial uses was strong, particularly drying oils for building paints, etc. Importation (Jan.-June 1946) of only about 2,000,000 bu. of flaxseed, compared with average imports of about 15,000,000 bu. annually before the war. A larger crop of flaxseed in Argentina for 1946-47 was expected to provide a larger export surplus.

Prices of all oils and fats advanced rapidly in 1945 and 1946, following a fairly stable level through 1942-44. A comparison of prices in Sept. 1946 showed large increases amounting to about 33% over June prices for butter, lard and linseed. When price ceilings were released on Oct. 15 the prices of the 8 principal oils and fats advanced from an index of 235 in early October to 297 in November. Edible oils advanced slowly but

flaxseed rose to \$7.25 per bu. above the October ceiling of \$4.00. Lard declined as hog slaughter increased in late fall.

U.S. Production of Principal Fats and Oils, 1943-1946

(In millions of pounds)

	1946	1945	1944	1943
Butter	1,450	1,699	1,818	2,015
Lard	2,130	2,132	3,203	3,056
Edible tallow	140	202	198	259
Edible vegetable oils	2,700	2,969	2,703	2,949
Soap fats and oils	1,830	1,923	2,149	1,817
Drying oils	510	463	735	720
Other oils	30	40	33	31
Totals	8,790	9,427	10,839	10,847

The international agreement for the joint purchase of oils and fats set up under the Combined Food board in 1942 was discontinued but allocations were to continue among importers to the United States as prevailed during World War II. Soap fats were somewhat more plentiful in late 1946 and soap manufacture increased slowly, though there was a general shortage of soap during the last quarter of 1946. Increasing imports of coconut oil was expected to give further relief to this shortage. These imports amounted to more than 240,000,000 lb. from Jan. to Sept. 1946, compared with 182,000,000 lb. imported during the entire year 1945. (See also BUTTER; COCONUTS; COTON; MARGARINE; PEANUTS; SOYBEANS.) (J. C. Ms.)

Vegetables. Another record crop of vegetables, both for fresh market and processing, was produced in the U.S. in 1946. The 25 commercial truck crops grown for the fresh market and the 11 crops produced for canning, freezing and other processes, exclusive of dehydration, were the fifth large crop in succession and more than 38% above the prewar average. The acreage grown to vegetables in 1946 was estimated at 4,025,000 ac., for 21 kinds grown both for processing and fresh market, not including potatoes of which 2,577,600 ac. were grown. In 1939 the comparable figure was 2,852,000 ac. Yields were also high, many crops making new top records.

Prices of vegetables sold in the fresh market rose rapidly after 1939 to a peak in 1943, then declined to recover in 1945, and declined about 15% in 1946. Processing crops averaged higher in 1946 than in 1945. With the end of ceiling prices in 1946 the prices of vegetables for fresh market declined although farm prices in general rose rapidly.

Commercial Truck Crop for the Fresh Market.—The total tonnage of 25 commercial truck crops grown for sale fresh in 1946 established a new record of 9,217,100 tons, 9% above the 8,446,200 tons raised in 1945 and 38% above the average 1935-44. The acreage was 8% greater than the record of 1945 and 21% above the average, 2,087,000 ac. in 1946, and 1,725,800 ac. average 1935-44. The yield was about 1% above 1945 and 14% above the average, reflecting the definite gain in production resulting from better seed and culture.

Table I.—U.S. Vegetable Production for Fresh Market, 1946 and 1945

Crop	Unit	1946	1945
Artichokes	boxes	700,000	682,000
Asparagus	crates	9,414,000	8,627,000
Beans, lima	bu.	1,549,000	1,391,000
Beans, snap	bu.	18,349,000	17,445,000
Beets	bu.	2,249,000	2,136,000
Cabbage	tons	1,475,000	1,582,000
Cantaloupes	crates	15,379,000	12,009,000
Carrots	bu.	27,759,000	31,043,000
Cauliflower	crates	12,629,000	11,640,000
Celery	crates	22,722,000	19,316,000
Corn, sweet	ears	319,860,000	314,810,000
Cucumbers	bu.	6,869,000	5,527,000
Eggplant	bu.	1,919,000	1,538,000
Escarole	hmp.	935,000	868,000
Honeyball melons	crates	260,000	252,000
Honeydew melons	crates	4,958,000	4,356,000
Kale	bu.	556,000	665,000
Lettuce	crates	34,504,000	29,767,000
Onions	sacks	51,182,000	36,594,000
Peas, green	bu.	5,327,000	6,045,000
Peppers, green	bu.	7,288,000	6,563,000
Shallots	bu.	710,000	609,000
Spinach	bu.	14,023,000	14,593,000
Tomatoes	bu.	33,750,000	32,975,000
Watermelons	melons	81,237,000	72,949,000

Record crops were grown of cantaloupes, cauliflower, celery, eggplant, honeydew melons, lettuce, onions, peppers and tomatoes. Near records were made by beans, sweet corn, cucumbers, escarole, shallots and watermelons. The lighter crops were artichokes, honeyball melons, kale, green peas and spinach. The summer crops made the largest production, 17% above 1945, while the spring crop was only 9% above 1945, fall crops 8% and winter crops 6% less than the previous year.

The average value of sales of fresh truck crops was 15% below 1945 and nearly one-fourth lower than the record year 1943 but still higher than the average 1935-44. Carrots and artichokes were the only crops to set new high records in 1946. The price declines more than offset the increased crops so that the total value of the fresh truck crops in 1946 was about 7% smaller than the record of 1945. The decline of prices in the fall months of 1946 led to a reduction in planting for the winter season and that crop in 1947 was expected to be about 4% below 1946, though still above the average.

Commercial Truck Crops for Processing.—The total production of vegetables for all processing except dehydration at 6,315,900 tons was 8% above the previous record of 1942, 18% above the 1945 crop of 5,339,330 tons and 47% above the 1935-44 average. This was the fifth year when more than 2,000,000 ac. of truck crops for processing were harvested. The acreage planted to cucumbers, green peas and lima beans were new high records. The tomato crop made a record in spite of heavy losses from blight in some regions. Yields were very unusual in California, more than 10 tons per acre and 6.09 tons on the average of all states. The record-breaking crops were tomatoes, peas, cabbage for kraut, cucumbers for pickles and lima beans. Sweet corn and asparagus made near records.

Table II.—U.S. Production of 11 Vegetables for Processing, 1946, 1945 and 10-year Average

(In tons)

Crop	1946	1945	Average 1935-44
Asparagus	63,960	53,300	50,080
Beans, lima	39,550	33,330	27,720
Beans, snap	200,500	221,500	146,800
Beets	131,400	186,700	91,700
Cabbage	264,800	233,300	152,400
Corn, sweet	1,222,900	1,131,600	935,300
Cucumbers	241,540	191,830	156,460
Peas, green	515,650	496,620	309,940
Pimentos	22,000	12,650	17,060
Spinach	85,000	89,300	66,910
Tomatoes	3,528,600	2,689,200	2,343,200

Prices of processing vegetables were at a new high level through 1946 for all crops except beets, cabbage for kraut and spinach. The total value of processing crops was 22% above the previous record of 1945. The large quantities of frozen and canned vegetables put up in 1946 were expected to cause a reduction in acreage in 1947. The canned vegetable output of 1946-47 was expected to be about 262,000,000 cases which would be 12% above the previous record of 1942. The carry-over stocks of canned vegetables was estimated at 290,000,000 cases. The pack of frozen vegetables of 1946 was estimated at 380,000,000 lb. compared with the previous record of 308,000,000 lb. put up in 1945. Cold-storage stocks of frozen vegetables on Dec. 1, 1946, were at a record of 350,000,000 lb. compared with 199,000,000 lb. a year earlier. The large production and pack of frozen vegetables was depressing prices in late 1946, indicating that production was running ahead of demand.

The consumption of canned vegetables was on a domestic basis since the military and relief requirements were no longer an important item in demand. Exports never took more than 5% of the supply and were expected to decline from that level. Government subsidies terminated July 1 on the 1946 pack and no purchase programs were in effect for the 1946 pack

Table III.—U.S. Cold Storage Holdings of Frozen Vegetables,
Dec. 1, 1946 and 1945

Crop	1946	1945
Asparagus	18,609,000	8,836,000
Beans, lima	28,280,000	15,030,000
Beans, snap	28,470,000	18,095,000
Broccoli	13,781,000	4,522,000
Cauliflower	7,237,000	3,842,000
Corn, sweet	40,271,000	23,169,000
Peas, green	115,355,000	63,363,000
Spinach	26,242,000	15,413,000
Brussels sprouts	5,253,000	2,172,000
Pumpkin and squash	12,005,000	7,336,000
Vegetable purées	127,000	446,000
Other vegetables	54,436,000	34,906,000

such as for 1945. Commercial stocks were low at the beginning of the year. (See also AGRICULTURE; CORN; HORTICULTURE; LETTUCE; POTATOES; TOMATOES.) (J. C. Ms.)

Velloso, Pedro Leão (1887–), Brazilian diplomat and government official, was born Jan. 13 in Pindamonhangaba (São Paulo state), Brazil. He attended the University of Rio de Janeiro, graduating in 1907 with a degree of bachelor of laws, and entered the ministry of foreign affairs that same year in a minor post. Later he was transferred to the diplomatic service and held a number of legation or embassy posts in Europe. He was minister plenipotentiary to China (1929–35) and ambassador to Japan (1935–39). In 1939 he was transferred to the Brazilian embassy in Rome and two years later he returned to Rio de Janeiro to become secretary general in the foreign ministry. In Aug. 1944 he became acting foreign minister in the Getúlio Vargas government. He was Brazil's delegate to the Inter-American Conference on the Problems of War and Peace at Mexico City (Feb. 21–March 8, 1945). He headed the Brazilian delegation at the United Nations conference in San Francisco, Calif. (April–June 1945) at which he campaigned for admission of Argentina to the United Nations. He also represented his country at the U.N. Security council sessions that opened in New York city, March 25, 1946. Andrei Gromyko's charges (Sept. 23) that the presence of U.S. troops in Brazil constituted a menace to peace brought a statement from Velloso that the handful of U.S. technicians in Brazil were there at his government's request.

Venereal Diseases. Throughout the eastern hemisphere, restoration of health services, widely disrupted during World War II, proceeded toward reduction of war-induced increases in venereal disease incidence and prevalence. In the western hemisphere, where established venereal disease control programs had been enlarged during the war, the problem was less acute but not without difficulties.

Studies completed by the U.S. public health service during the year 1946 indicated that, despite the adverse influences of World War II, measurable progress had been made in venereal disease control since enactment of the Venereal Disease Control act in 1938. These studies showed that the number of deaths due to all forms of syphilis declined steadily from 15 per 100,000 population in 1939 to a new low estimated at 10.7 in 1945. Infant deaths due to syphilis were reduced from 57 per 100,000 live births in 1939 to 27 in 1944. Admissions to institutions and recorded deaths indicated a steady decline in the incidence of late forms of neurosyphilis. The paresis death rate was reduced from 6.3 per 100,000 in 1920 to 3.5 in 1944, and the *tabes dorsalis* death rate dropped from 2.1 per 100,000 in 1920 to 0.4 in 1944.

Because of the extremely complex and variable factors influencing morbidity and mortality reporting of venereal diseases it is difficult to determine incidence rates precisely. It is even more difficult to determine by comparison of data available from year to year whether or not attack rates are increasing or decreasing. For example, increased casefinding activities and better reporting could result in larger numbers of cases being re-

ported for any period even though the actual number of new cases occurring per 100,000 population decreased during the same period. Furthermore, declining death rates for all forms of syphilis reflect attack rates or casefinding and treatment activities of earlier years, and may or may not be accompanied by declining incidence rates.

For this reason, there was no certainty whether venereal disease rates were going up or down in the first year following World War II. During the fiscal year 1946 a total of 760,000 cases of venereal disease were reported from all sources¹ to state and territorial health departments, an increase of 12.4% over the number of cases reported for the previous year. These included 372,000 cases of syphilis, 375,000 cases of gonorrhoea, and 12,000 cases of other venereal diseases, representing an increase of 0.7% for syphilis and an increase of 26.4% for gonorrhoea. Clinics¹ admitted a total of 499,000 patients, an increase of 18.4%. This included 254,000 admissions for syphilis, a decrease of 8.8% and 237,000 admissions for gonorrhoea, an increase of 16.4%.

Rapid treatment centres¹ admitted 176,000 patients, an increase of 37.5%, including 120,000 cases of syphilis, an increase of 94%, and 32,000 cases of gonorrhoea, a decrease of 53%.

The number of cases of primary and secondary syphilis reported was 97,000, and the number admitted to clinics was 57,000, of which 47,000 were referred to rapid treatment centres. The number of cases of early latent syphilis reported was 111,000, and the number admitted to clinics was 89,000 of which 46,000 were referred to rapid treatment centres.

The number of clinics receiving federal, state and local finan-

¹Cases reported to state and territorial health departments are cases reported for the first time. Clinic admissions and rapid treatment centre admissions include cases which may have been reported previously. Clinic admissions include rapid treatment centre admissions.

CHILD being given a sample blood test during a venereal survey in Oklahoma City. The survey was conducted by the U.S. public health service in co-operation with the city and state during April-May 1946. Submission to the test was voluntary, and free treatment was offered to persons found infected



cial assistance was 3,324, or 153 fewer than in the previous years. For the fiscal year a total of \$17,240,000 in federal funds was appropriated for venereal disease control. Of this total, \$5,647,000 was designated by congress for expenditure in connection with rapid treatment centres and other inpatient care, and \$8,756,876 was allocated to states for operating clinics and laboratories, casefinding and similar purposes.

The large proportion of early syphilis patients treated in rapid treatment centres reflected the ascendancy of intensive, inpatient therapy employing penicillin in combination with arsenical drugs and bismuth and the emergence of the rapid treatment centre as an integral part of the over-all venereal disease control programs in 38 states, the District of Columbia and 1 territory. Treatment employed at rapid treatment centres included schedules extending over periods from 9 to 14 days and providing from 1,200,000 to 4,200,000 units of penicillin in aqueous solution or in oil and beeswax administered intramuscularly in from 9 to 168 injections from 2 to 24 hours apart, with a maximum of 300 mg. of arsenoxide administered in 5 equal doses at equal intervals, and 600 mg. of bismuth administered in 3 equal dose-intervals.

In a small number of clinics initial trials of methods for treating syphilis patients with penicillin in oil and beeswax on an ambulatory, outpatient basis were undertaken.

Although optimum time dosage relationships for the treatment of syphilis with penicillin, and the final evaluation of the efficacy of the drug remained to be determined, penicillin, after three years of use, was regarded as the safest antisyphilitic drug developed up to 1947 for the treatment of infectious syphilis. The increasing uniformity of the commercial product, along with the prospect that synthesized penicillin or possibly even more effective synthetic penicillin-like antibiotics might be developed, strengthened early hopes that the problem of safe, effective and rapid treatment of syphilis was near solution.

In the treatment of gonorrhoea, penicillin administered in one injection of a beeswax oil mixture or in several injections of aqueous solution had been established as the drug of choice.

One of the critical problems in venereal disease control remaining at the end of 1946 was that of casefinding. The fact that no decrease in the incidence of syphilis and gonorrhoea was discerned despite remarkable advances in treatment made it evident that progress toward elimination of these diseases would be made at a rate dependent upon the ability of health workers to find and render noninfectious by treatment, persons with syphilis more rapidly than new infections could be spread.

In a series of intensive 45-day programs of information and public education large proportions of the entire populations of five cities and counties were persuaded to appear voluntarily for physical examinations for venereal disease or for blood serologic tests for syphilis. The programs were conducted as demonstrations by state and local health departments, with medical societies and the U.S. public health service co-operating. Paid newspaper, radio, billboard, car card, motion picture theatre, sound truck and other forms of advertising were used to inform the people of the prevalence, dangers, symptoms and cure of venereal diseases, and to urge persons in susceptible age groups to report for diagnosis and treatment if necessary. The communities in which demonstrations were conducted and the results of the demonstrations are shown as follows:

	Estimated Population 1943	Number tested or examined	New cases syphilis dis- covered	New cases gonor- rhea dis- covered	Total new cases venereal disease dis- covered
Oklahoma City, Oklahoma county, Okla.	257,000	48,623	846	697	1,543
Columbus, Muscogee county, Ga. . . .	97,000	52,992	1,531	425	1,956
Macon, Bibb county, Ga.	101,800	53,193	1,195	854	2,049
Augusta, Richmond county, Ga. . . .	88,870	37,555	766	218	984
Louisville, Jefferson county, Ky. . . .	432,775	6,205	752	1,907	2,659

A total of 5,090 new cases of syphilis, and 4,101 new cases of gonorrhoea were discovered in the five demonstrations.

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Great Britain and Europe.—Social conditions in Great Britain and Europe during the war years favoured considerably the spread of venereal diseases. Sexual promiscuity was rife and, according to the report by the chief medical officer of the ministry of health in Great Britain, on a scale never previously attained in that country. The incidence of venereal diseases in 1946 was still high, especially when compared with what it was in 1939. There was, however, every indication (at least in Britain) that the marked increase during the years of World War II had been checked.

In Norway and Denmark the figures for the first six months of 1946 indicated that the incidence of both gonorrhoea and syphilis would be higher than in 1945. The incidence of venereal disease in Poland in 1946 showed a marked rise (gonorrhoea 300%, syphilis 700%) when compared with what it had been in prewar years.

Defense regulation 33B in Britain (which provided for the notification of persons alleged to have spread disease) was shown to have been even more effective than in the war years in bringing contacts forward for examination, as unofficial action was usually taken after one notification. The Central Council for Health Education continued its educational and enlightenment campaign in conjunction with the work of the local authorities through whom advertisements appeared in magazines and daily papers.

Large numbers of patients who had run the risk of infection attended clinics, and, although many were free from disease, there was a definite increase in the early attendance of infected persons.

Advances in treatment continued. There were known to be at least four varieties of penicillin, one of which, 4, or K as it was known in the U.S., being relatively inactive. Fortunately the method of manufacture in Britain produced very little of this inactive fraction. The chemical structure was completely elucidated opening up considerable scope for the making of therapeutically more active drugs, as had been in the case of sulfanilamide. Since M. J. Romansky and G. E. Rittman suggested a suspension of penicillin in peanut oil and beeswax to delay absorption of the drug and prolong its therapeutic action, various other vehicles including ethyl oleate were introduced. Instead of multiple injections (usually four or five at two-hourly intervals) many venereologists treated gonorrhoea with one injection of penicillin in one of these suspensions. Syphilis, too, was being treated with one or two daily injections of high dosage, but many workers continued to give three-hourly injections of penicillin in aqueous solution over a period of seven or more days, a method which has the disadvantage of making admission to hospital necessary. The gonococcus is very sensitive to penicillin and several workers obtained excellent results in the treatment of gonorrhoea by oral administration of the drug, the method being especially useful in the treatment of young children.

It had previously been considered that penicillin could not be administered orally, as it was destroyed by the hydrochloric acid in the stomach and by penicillinase in the intestines. Penicillin was the drug of choice in the treatment of gonorrhoea but the incidence of syphilis was still high and there was always the danger of the small dosage, effective in curing gonorrhoea, masking the development of a concomitantly acquired syphilis. There is, therefore, much to be said in favour of the few who

still prescribed in the first place the sulfonamide drugs in the treatment of gonorrhoea and only employed penicillin in the treatment of the failures, after a thorough clinical examination had shown the absence of the primary lesion of syphilis. The sulfonamide drugs were still used in the treatment of chancreoid or soft sore and *lymphogranuloma inguinale*: they were only occasionally effective in the treatment of nongonococcal urethritis.

The incidence of nongonococcal urethritis in 1946 was still high in all parts of the world, but great advances were made in elucidating the causation of this disease. Pleuropneumonia-like organisms were cultured from the urethral discharge in a small percentage of cases and evidence accumulated to show that, though they were pathological in men, they were to be found in 10% to 20% of apparently normal women. Several workers also found inclusion bodies in epithelial cells and considered that the disease in some cases was due to a virus. These inclusions might, however, be a phase in the development of pleuropneumonia-like organisms. No outstanding advances were made in the treatment of nongonococcal urethritis. (See also EPIDEMICS AND PUBLIC HEALTH CONTROL.) (A. H. Hs.)

Venezuela.

A north-coast South American republic, bounded on the west, south, east and north, respectively, by Colombia, Brazil, British Guiana and the Caribbean. Area, 352,143 sq.mi.; pop. (1942 est.), 3,996,095, including 100,670 forest-dwelling Indians and 23,320 Venezuelans living abroad. Racial distribution has never been officially calculated or estimated, but important fractions are mestizo, Negro and mulatto; about 80% of the population is rural. The capital is Caracas (pop., 1942 est., 269,930); other important cities (with pop. by 1941 census) are Maracaibo (112,519), Valencia (53,938), Barquisimeto (54,176), San Cristóbal (31,447), Maracay (32,992), Cumaná (25,893), Ciudad Bolívar (19,789), Coro (18,962), Puerto Cabello (22,087, town), Carúpano (16,548). The constitution of 1936 established a federal republic with 20 states, headed by a congressionally elected president; the bicameral congress was composed of a senate of 40 members and a chamber of deputies of 98 members. However, a new constitution was being drafted at the close of 1946. President in 1946: Rómulo Betancourt.

History.—The revolutionary junta which had controlled Venezuela after the upset of the Medina Angarita regime in Oct. 1945, had originally promised a new constitution within six months. On March 2, 1946, however, it enacted a law setting elections for a constituent assembly of 160 members for Aug. 26; the election was later postponed to Oct. 27. The state of siege which had been imposed in Oct. 1945 was lifted March 15, 1946, and on the following day the government freed all political prisoners. The next few days, however, brought serious disturbances between communists and police. The third quarter of 1946 brought a tightening of political lines as between the conservatives and the liberal Acción Democrática (which had spearheaded the 1945 revolution) and also between the latter group and the Communist party. Some 50 U.S. businessmen in Venezuela were reported on Aug. 10 to have appealed to the U.S. state department to combat a rising communist tide in Venezuela; the report soon turned out to have been exaggerated, but it resulted in considerable temporary criticism of the U.S. Political tension grew in September. Four persons were killed Sept. 17 in a small-scale and abortive barracks uprising. Communist criticism of U.S. Ambassador Frank P. Corrigan and of U.S., British, and Dutch oil interests in Venezuela increased and the leftist Acción Democrática was forced into a definite split with the communists. Frequent later conspiracies were allegedly discovered and the government charged

supporters of ex-Pres. Isaías Medina Angarita with a share of the responsibility. The strongest opposition party in the October elections was the conservative Copei, supported by the Catholic Church. The elections resulted in an overwhelming victory for Acción Democrática.

The constituent assembly met subsequently to begin drafting Venezuela's 21st constitution.

Education and Religion.—School enrolment in 1946 exceeded 300,000. The revolutionary junta made substantial educational appropriations in 1946, including 22,000,000 bolívares for the new university city; 10,063,000 bolívares for five high schools, 14 grade schools and a normal school; and almost 5,000,000 bolívares for 140 small rural schools. Total cost of the university city plans was estimated at 70,000,000 bolívares; work on the development slackened in March, however, pending readjustment of contracts.

The government made a supplementary appropriation of 10,000,000 bolívares for a housing project for the faculty of medicine of the Central university.

Venezuela is predominantly Roman Catholic.

Finance.—The monetary unit is the bolívar, valued Nov. 15, 1946, at 29.85 cents, U.S. The 1946-47 budget as presented totalled 787,109,000 bolívares, the largest original budget in Venezuelan history; that of 1945-46 was 860,888,283 bolívares (an original budget of 495,376,395 and supplements of 365,511,888 bolívares). Federal revenues in the first nine months of 1946 were 641,254,000 and expenditures 660,761,000 bolívares; the treasury surplus Sept. 30 was 212,105,000 bolívares as against a bonded domestic debt (there was no foreign debt) Jan. 31 of 24,500,000 bolívares. The government on Dec. 31, 1945, decreed a graduated surtax on excess profits; the estimated revenues of 120,000,000 bolívares were earmarked for low-cost housing, a merchant marine and industrial and agricultural development. It enacted a decree Feb. 16 nationalizing the funds and properties of the German and Japanese governments and nationals in Venezuela as reparations.

Trade and Communication.—Exports in 1945 were 50,364,000 metric tons valued at 1,026,000,000 bolívares (petroleum exports accounted for 50,300,000 tons valued at 965,000,000 bolívares); imports were valued at 580,980,000 bolívares. Coffee exports in the first seven months of the crop year (beginning Oct. 1, 1945) were 253,858 bags of 60 kg. Gold exports in 1945 were valued at 7,382,000 bolívares (1944: 7,124,000). The government in 1945 renewed most-favoured-nation trade agreements with Brazil, Canada, Chile, Spain, Haiti, Switzerland and Colombia.

Venezuela took steps to establish jointly with Colombia and Ecuador a merchant marine, operated by an official corporation with a capital of \$20,000,000 contributed 45% each by Venezuela and Colombia and 10% by Ecuador. TACA (Transportes Aereos Central Americanos) planned to open plane connections between Caracas and Curaçao, the Dominican Republic, Cuba, Florida, Colombia and Brazil.

The government on Jan. 29 established an autonomous state railways administration.

Mining.—Petroleum production in 1945 was 323,361,253 bbl. (1944: 255,549,128 bbl.), thus giving Venezuela second rank in the world. In 1945, 509 new wells were completed. Venezuela reached an agreement with Trinidad to delimit their respective areas for submarine oil drilling in the Gulf of Paria between the two. The republic expanded its refining industry, the goal being 225,000 bbl. daily. The government took steps to exploit coal deposits in the state of Anzoátegui, and began iron ore explorations in the Orinoco delta.

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Vermiculite.

Sales of vermiculite in the U.S. increased from 46,645 short tons in 1943 to 54,116 tons in 1944, and another new record of 64,808 tons in 1945. Its use as a fire retardant in building construction, as an admixture in plaster for walls and ceilings, and in concrete flooring, increases materially the time required for a fire to pass from one room to another, through walls, ceiling or floor.

It is also used as a heat and sound insulator in walls and ceilings, and as an oil absorbent, paint extender, refractory and soil conditioner.

(G. A. Ro.)

Vermont.

A north Atlantic state of the United States of America, the only one of the New England states without a sea coast; popularly known as the "Green Mountain state"; admitted to the union in 1791. Area, 9,609 sq.mi., of which 331 sq.mi. are water. Population (1940), 359,231 (including 235,992 rural, 123,239 urban); 327,079 native white, 31,727 foreign-born, 384 Negro, 41 of other races. On July 1, 1945, the U.S. bureau of the census estimated the civilian population of the state at 310,211. Montpelier is the capital city, with a population (1940) of 8,006. The chief cities are Burlington (27,686), and Rutland (17,082).

History.—The general assembly met in special session, Sept. 26–28, 1946. Legislation enacted or amended included bills relating to student housing at the Vermont Agricultural college, Burlington, and public welfare. George D. Aiken and Warren R. Austin were U.S. senators from Vermont; elected in Nov. were Ralph E. Flanders, senator, and Charles A. Plumley, representative to congress. U.S. Senator-elect Ralph E. Flanders was appointed by President Truman to complete the unexpired term of Sen. Warren R. Austin, who had been appointed U.S. delegate to the United Nations Security council. Chief state officers elected were: Ernest W. Gibson, Jr., governor; Lee E. Emerson, lieutenant governor; Rawson C. Myrick, secretary of state; and Levi R. Kelley, state treasurer.

Education.—There were 896 elementary schools in the state in 1946, with a teaching staff of 1,723 and enrolment of 38,608; of these schools, 608 were one-room rural schools. There were 86 approved public high schools, with a teaching staff of 613 and enrolment of 14,874. The three state normal schools had a total enrolment of 187 and a teaching staff of 28. State superintendent of schools in 1946 was the commissioner of education, Ralph E. Noble.

Social Insurance and Assistance, Public Welfare and Related Programs.—Relief in general was administered by the overseer of the poor in each town. A total of \$1,601,258 was expended by the old-age assistance department; 5,439 persons received aid from the department in Dec. 1946. Dependent children receiving aid from state funds during the year ending June 30, 1946, numbered 1,620 in 609 cases; 1,136 children were committed as wards of the state. Blind assistance funds

were distributed to 165 persons. There were 3 state correctional institutions and training schools with a total of 369 inmates. Payments of unemployment compensation benefits made amounted to \$800,201; those individuals establishing benefit years and receiving one or more checks in 1946 were 4,027 in number.

Communication.—Total mileage of the public highways system (state, state-aid, and town highways) as of June 30, 1946, was 14,227.87, of which 1,807.68 mi. were in the state highway system and 2,709.74 mi. in the state-aid highway system. Maintenance expenditures for state highways amounted to \$1,633,357.15 during the fiscal year ending June 30, 1946, and for state-aid highways in the same period, \$508,124.92. There were 954.79 mi. of steam railroads and 4.25 mi. of electric, Dec. 31, 1946. There were 18 operating airports in Vermont, including municipal and private. Mileage of airways was 207. Telephone subscribers numbered 67,721.

Banking and Finance.—The number of state and national banks as of June 30, 1946, was 80, of which 41 were state banks with total deposits of \$195,457,183.89. There were 9 building and loan associations with total resources of \$2,858,133.85.

Total receipts of the state as of June 30, 1946, were \$23,359,251.36; disbursements \$23,478,003.90; outstanding obligations \$2,682,031.90; unappropriated surplus \$2,151,891.90.

Agriculture.—Total acreage of harvested crops in 1946 was 1,163,000 compared with 1,162,000 in 1945. There were 390,463 head of cattle in the state in 1946; of this number 279,076 were cows and heifers 2 years old and over; there were 464,944 hens more than 3 months old; 9,000 colonies of bees produced 424,000 lbs. of honey.

Table I.—Leading Agricultural Products of Vermont, 1946 and 1945

Crop	1946 (est.)	1945
All corn, bu.	2,320,000	2,331,000
Hay, all, tons	1,499,000	1,582,000
Oats, bu.	1,530,000	1,408,000
Potatoes, late, bu.	1,392,000	1,225,000
Maple syrup, gal.	607,000	351,000
Apples, bu.	329,000	106,000

Manufacturing.—The total output value of manufacturing and processing industries, exclusive of minerals and public utilities, as reported to the state department of industrial relations, was \$287,215,503 for the year ending June 30, 1946; 34,214 persons were employed in these industries and a total of \$7,001,488 was paid in wages; 40,028 were employed in all manufacturing industries, and the over-all total of wages paid was \$17,959,030.

Table II.—Principal Manufacturing Industries of Vermont, 1946 and 1945

Industry	Value of products 1946	1945
Machines and machine tools	\$71,520,380	\$93,481,640
Dairy products	53,167,512	51,418,265
Woolen and cotton goods	40,610,595	41,520,650
Paper and paper products	19,107,551	18,405,560
Woodworking	17,462,350	16,267,418

Mineral Production.—Total output value of mineral products of the state as reported to the state geologist for the year

Table III.—Principal Mineral Products of Vermont, 1946 and 1945

Mineral	Value, 1946 (est.)	Value, 1945
Granite	\$12,682,000	\$10,731,000
Marble	3,308,000	1,537,000
Lime products	1,263,170	1,276,865
Talc	763,834	841,012

ending June 30, 1946, was \$21,134,274 (est.). (C. E. Fe.)

Veterans' Administration. The rapid demobilization of the armed forces during 1946 raised the number of veterans of all wars from 6,700,000 at the end of July 1945 to 16,800,000 by June 30, 1946, and to 17,900,000 by Nov. 30, 1946. In order to take care of the tremendously expanded volume of business which resulted, activities of the Veterans' administration were largely reorganized and decentralized to 13 branch offices covering every part of

the United States and its possessions.

Medicine and Surgery.—Medical activities of the Veterans' administration were reorganized under authority of public law 293, 79th congress, approved Jan. 3, 1946. Standards of qualifications and pay for professional personnel were improved; research programs were initiated; residency training was inaugurated at Veterans' administration hospitals; and sites for new hospitals were being chosen near centres of medical progress.

There were 119 Veterans' administration hospitals by Nov. 30, 1946, with 92,214 authorized standard beds, and more than 13,000 beds being allotted by other agencies, in addition to 9,354 emergency beds available for service-connected cases through contracts with state and civil hospitals.

As of Nov. 30, 1946, approximately 53% of all hospitalized veterans were neuropsychiatric cases, for whom 33 hospitals existed, with 2 under construction, 9 more to be built and 1 to be acquired from the navy. Mental hygiene clinics were treating those not needing hospitalization.

VA was operating 14 tuberculosis hospitals and 40 tuberculosis departments in general and neuropsychiatric hospitals and was treating some 8,950 tubercular patients. Periodic surveys of all patients at the end of each 12 months' residence in hospitals and X-rays of outpatients, serve to ensure prompt diagnosis and treatment.

There were 72 general medical and surgical hospitals in 1946. Treatment for medical conditions also was furnished in tuberculosis and neuropsychiatric hospitals. As the medical and surgical care of patients is carried out, an intensive course in medical rehabilitation also is provided to aid the veteran in adjusting satisfactorily after he leaves the hospital.

Outpatient treatment for service-connected medical conditions, or conditions aggravating a service-connected condition, was being rendered in VA regional and subregional offices.

Veterans requiring artificial aids may choose the prosthetic appliances they need, and amputees may obtain immediate repair service, up to \$35, with VA paying the bill.

Agreements or contracts were arranged with 33 state-wide medical groups to provide hometown outpatient medical service to eligible veterans, at government expense. VA also had contracts with mental hygiene clinics, outpatient departments of hospitals, general medical and surgical clinics and dentist groups for treating outpatients.

Of the 346,036 veterans admitted to VA hospitals during the fiscal year 1946, 67.6% were World War II veterans. 28.9% World War I veterans and 3.5% were veterans of other wars and men discharged or retired from all branches of the regular military service. General medical and surgical cases constituted 80.3% of the total; pulmonary tuberculosis cases, 4.4% and neuropsychiatric, 15.3%. Of all admissions 16% were for service-connected disabilities.

Domiciliary Care.—To be admitted to a VA home, a patient must have a condition essentially chronic in character, not susceptible of cure or decided improvement by hospital treatment, and must be incapacitated from earning a living for a prospective period. As of Nov. 30, 1946, there were 11 homes with a total capacity of 14,991 authorized beds. Almost 13,000 veterans were receiving domiciliary care on November 30, 1946. Admissions during the fiscal year totalled 14,056. Of this total, 2,445 were World War II veterans, 10,395 served in World War I and 1,216 were other eligible veterans.

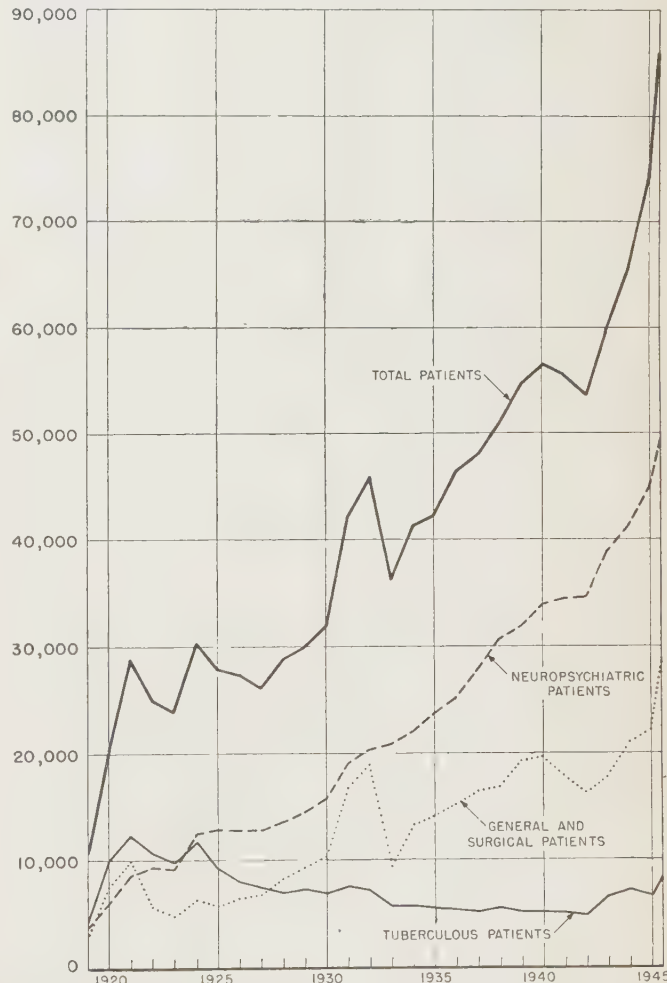
Pensions and Compensation.—Death pensions and compensations may be paid to the widows, children and dependent parents of veterans who served in the Mexican, Civil and Indian Wars, Spanish-American War, Boxer Rebellion, Philippine Insurrection and World Wars I and II, as well as to dependents of those who served in the regular establishment during peace-

time.

At the end of the fiscal year June 30, 1946, 36% of the death pension and compensation benefits paid by VA were based on World War II service; 42% were for World War I service; 3% for peacetime service and 19% for service in the Spanish-American and prior wars. Disbursements for compensation and pension from July 1, 1945, to June 30, 1946, totalled \$1,254,000,000 of which \$732,000,000 was for World War II service; \$346,000,000 for World War I service; \$24,000,000 for service in the regular establishment and \$152,000,000 for service in the Spanish-American and previous wars. On June 30, 1946, compensation or pension at an average monthly rate of \$59.33 was being paid to the dependents of 180,938 veterans of World War II.

Vocational Rehabilitation and Education.—Education and training for World War II veterans is authorized by two laws. Public law 16, 78th congress (as amended by public laws 346, 78th congress and 268, 79th congress) pertains to eligible disabled veterans with handicaps removable by training with the purpose of restoring employability. Title II of the Servicemen's Readjustment act of 1944 (public law 346, 78th congress), amended by public law 679, 79th congress, pertains to all veterans of World War II.

Veterans with service-incurred or aggravated disabilities, who need training to restore employability, can enroll under public law 16. They must have extensive, scientific advisement and guidance by VA trained personnel in selecting their courses and throughout their training. While in training, and for two months after employability is determined, they receive a subsistence allowance of \$65 a month if without dependents or \$90



NUMBER OF VETERANS remaining in all hospitals from 1919-46 by types of disability, as compiled by the Veterans' administration

a month with dependents, in addition to their disability pensions. If pension plus allowance does not total \$105 for a veteran without dependents, or \$115 for one with dependents, an additional sum is paid to make up the difference. The sum is increased further if there is more than one dependent.

Veterans choose their own course of study or job training under public law 346. The place where they enroll must have the approval of the appropriate state agency. The training or education to which a veteran is entitled depends upon his length of active service and ranges up to 48 months. If he enrolls in an educational institution, VA will pay his tuition, fees, book and supply costs up to a \$500-a-year maximum. If he takes a full-time course, he will receive a \$65 a month subsistence allowance if he has no dependents, or \$90 a month with dependents. In accordance with public law 679, 79th congress, income limitations are imposed which in some cases reduce the subsistence allowance payable under these programs.

By Nov. 30, 1946, 100,341 disabled veterans were in educational institutions under public law 16, and 78,156 were taking on-the-job training—at the same time, 1,465,558 veterans were in educational institutions under public law 346, and 614,882 were taking on-the-job training.

Insurance.—The National Service Life Insurance act of 1940 (public law 801, 76th congress) authorized insurance for all members of the armed forces ordered to active duty for more than 30 days. It could be obtained in amounts of not less than \$1,000 or more than \$10,000 in multiples of \$500. National service life insurance originally was issued as term insurance on the five-year level premium plan to provide the maximum amount of temporary protection at the lowest cost. The term period for all N.S.L.I. issued prior to Jan. 1, 1946, was extended three more years by public law 118, 79th congress, July 2, 1946. It was stipulated that on policies issued after Dec. 31, 1945, conversion to a permanent plan must be made within five years of date of issue.

The Insurance act of 1946 (public law 589, 79th congress, Aug. 1, 1946) liberalized the provisions of the National Service Life Insurance act of 1940, as amended, to meet the needs of veterans under peacetime conditions. Restrictions were removed from the choice of beneficiaries; three endowment plans were added to the ordinary life, 20-payment life and 30-payment life plans to which conversion had already been authorized; provision was made for additional optional settlements; and protection against total disability for six months or more was made available in a separate policy provision for an extra premium and compliance with health requirements.

The Armed Forces Leave Act of 1946 (public law 704, 79th congress, Aug. 9, 1946) authorized VA to accept "terminal leave" bonds of former enlisted personnel, in lieu of cash, for the payment of premiums on all forms of government life insurance.

VA's life insurance business is the largest mutual insurance system in the world. Within six years (to Nov. 30, 1946) it had written about 19,000,000 national service life insurance policies having a total face value of about \$149,000,000,000. As of Nov. 30, 1946, almost one-third of this still was in force, or an estimated 5,675,000 policies for \$34,560,000,000. As a direct result of war casualties and other deaths of 376,155 insured veterans, monthly instalments were being paid to beneficiaries on more than \$3,500,000,000 of insurance awarded on death claims up to the end of Nov. 1946.

United States government life insurance, originally known as War Risk insurance in the days of World War I, was authorized by amendment to the War Risk Insurance act (public law 90, 65th congress, Oct. 6, 1917), to enable those who served in World War I to purchase insurance from the government in

amounts from \$1,000 through \$10,000, in multiples of \$500. About 4,500,000 persons applied for this insurance between Oct. 6, 1917 and Nov. 11, 1918, for an amount of nearly \$40,000,000,000. Under provisions of the original act, conversion from term to permanent United States government life insurance could not be made until after the close of World War I. As of Nov. 30, 1946, there were in force 542,759 United States government life insurance policies representing nearly \$2,400,000,000.

Article IV of the Soldiers' and Sailors' Civil Relief act of 1940 (public law 861, 76th congress), as amended by public law 732, 77th congress, provided a method whereby the government under certain conditions, upon application by the insured, guaranteed commercial life insurance policies against lapse for the nonpayment of premiums while the insured was in active service and for two years after discharge. By Nov. 30, 1946, approved applications under this provision totalled 89,071 for an amount of \$222,031,818.

Finance.—Disbursements for fiscal year 1946 from appropriated funds are listed below.

Total	\$4,425,000,511.64
National service life insurance	1,380,001,457.81
Readjustment benefits	1,351,525,422.02
Army and navy pensions	1,258,863,619.89*
Salaries and expenses	382,598,916.84
Hospital and domiciliary facilities	34,313,351.79
Military and naval insurance	15,384,969.36
Printing and binding	1,124,752.31
Penalty mail costs	624,392.40
Vocational rehabilitation revolving fund	479,291.69
Others	84,337.53

*Includes \$5,173,410.98 for readjustment benefits paid from army and navy pension appropriated funds.

It was estimated that in the fiscal year beginning July 1, 1946 disbursements would approximate \$7,000,000,000.

Readjustment Allowances.—The program of readjustment allowances, in operation under title V, public law 346, 78th congress, provides financial assistance up to a maximum of 52 weeks for eligible veterans during periods of unemployment, or when self-employed and earning less than \$100 per month. The program is administered by state unemployment compensation commissions under individual contracts with VA, which reimburses them both for the allowances and for administrative expenses.

At the end of Nov. 1946, 964,748 veterans were drawing readjustment allowances for unemployment. During November, state unemployment compensation offices paid out \$74,402,000. For the month of November, 172,295 self-employed veterans drew \$15,591,000 in readjustment allowances. For the year as a whole, about 43% of veterans applied for readjustment allowances.

Guaranty and Insurance of Loans.—Title III of public law 346, 78th congress, amended by public law 268, 79th congress, made provisions, within certain limitations, for the guaranty of loans or insurance of credit through private lending institutions to World War II veterans who desired to purchase or construct homes, farms and business property.

Amount of guaranty may not exceed 50% of the loan, or a maximum of \$4,000 on real estate and \$2,000 on non-real estate loans. If a veteran receives loans of both types, the maximum guarantee is prorated on these amounts. Farm realty loans must be paid off within 40 years, other real estate loans within 25 years, and non-real estate loans within 10 years.

As of Nov. 25, 1946, 540,549 veterans received loans amounting to nearly \$3,000,000,000. VA guaranteed and insured about \$1,300,000,000 of this amount. More than 88% of these veterans, or 478,049, borrowed more than \$2,600,000,000 to buy or build homes; 44,267 borrowed \$139,000,000 for business purposes; and 18,233 borrowed \$68,000,000 for farms and farm equipment. At the same time, 5,750 loans had been repaid in

full, relieving VA of commitments amounting to more than \$8,000,000. Only 1,564 veterans defaulted on their loans, resulting in the payment by VA of more than \$375,000 for 400 net claims to lending institutions to Nov. 25, 1946. The bulk of defaults, 843, were for business loans. Home loans accounted for 668 and farm loans for 53.

Construction, Supply and Real Estate.—Since VA was estimated to have about 20,000,000 potential applicants for hospital service, it embarked upon the world's greatest hospital construction program, a program which was expected to cost nearly \$1,000,000,000 and to provide about 89 new hospitals and a number of additions to existing hospitals, located near medical centres as far as possible.

Guardianship.—VA's guardianship load rose from 100,974 wards on Nov. 30, 1945 to 137,728 wards one year later. Of the 137,728 wards 86,279 were entitled to benefits because of service by veterans of World War I and other wars; and 51,449 wards were entitled to benefits on account of service by veterans of World War II.

The total number of full-time employees rose from 90,371 on Dec. 31, 1945 to 215,747 on Nov. 30, 1946. Of these totals, employees appointed with veterans' preference comprised 40.0% and 60.0%, respectively.

Personal Contact Service.—Contact representatives are located in populated areas throughout the United States and in insular and overseas possessions to assist and advise veterans, their dependents and beneficiaries as to their rights and benefits. More than 2,000,000 personal contacts were made with veterans and their beneficiaries during Aug. 1946 alone.

Insular and Foreign Relations.—This office was established on April 1, 1946 to carry out an effective program for veterans in the Philippine Islands and in foreign countries through liaison offices or representatives in co-operation with the state department. (See also MEDICAL REHABILITATION OF DISABLED VETERANS.) (O. N. B.)

Veterans of Foreign Wars. The position of nearly 2,000,000 overseas veterans during 1946 on issues of national and international import was forcibly expressed in resolutions adopted at the 47th national encampment of the Veterans of Foreign Wars of the United States at Boston, Mass., Sept. 1-6.

With 15,000 registered delegates and another 15,000 visitors in attendance, the encampment demonstrated the growth in size and power of the V.F.W. during the year. The accession of World War II veterans to places of responsibility in the "old line" organization was significant.

Encampment delegates showed greatest interest in matters affecting national security. The heads of the army, navy and air forces—Gen. Dwight D. Eisenhower, Adm. Chester W. Nimitz and Gen. Carl Spaatz—appeared before the encampment to urge maintenance of strong military forces, and the delegates backed them up in resolutions.

One resolution placed the V.F.W. on record as favouring extension of selective service and universal military service; another called for integrated and balanced land, sea and air forces large enough to deal with any emergency; still another asked for maintenance of stockpiles of strategic materials needed in wartime.

At the same time the V.F.W. members reiterated their faith in the United Nations as an agency for preserving world peace and called upon all United Nations members to renounce war as a sovereign right.

On the subject of atomic power, the V.F.W. held fast to its previous stand that the U.S. should retain exclusively the processes and equipment used in making atom bombs.

Decision on the V.F.W. stand on the issue of unification of the armed forces was reserved until further evidence could be obtained.

Some of the most strongly worded resolutions adopted by the V.F.W. were directed at the activities of communists, fascists and all exponents of un-American ideologies within the U.S. The overseas veterans went on record with a demand that members of the Communist party be denied a place on federal and state ballots.

The V.F.W. urged that the existing veteran housing program be revised to place greater control in the hands of a single administrator and eliminate bottlenecks. A congressional investigation of diversion to nonessential construction of materials which should go to veteran housing was asked.

Warm endorsement was given the proposed National Employment and Economic Development Corporation act, designed to create new jobs and open opportunities to veterans through a lending agency similar to the Reconstruction Finance corporation.

Officers' reports to the encampment revealed that V.F.W. membership had increased from approximately 1,000,000 at the 1945 national assembly to nearly 2,000,000 as of Sept. 1, 1946, and that the number of posts had grown from 4,500 to more than 8,000.

Louis E. Starr of Portland, Ore., was elevated by unanimous vote from the post of senior vice commander in chief to commander in chief. Other 1946-47 officers were: Ray H. Brannaman, Denver, Colo., senior vice commander in chief; Lyall T. Beggs, Madison, Wis., junior vice commander in chief; R. B. Handy, Jr., Kansas City, Mo., quartermaster general; Ed McAloon, New York city, judge advocate general; Dr. Matthew S. Levitas, Brooklyn, N.Y., surgeon general; and the Rev. Gerald M. Dougherty, Chicago, Ill., national chaplain. (B. Y.)

Veterinary Medicine. Because of the rapid increase in the purebred dog population and phenomenal growth of the fur-farming industry the nutrition of the fast-growing and short-lived carnivora concerned became so closely tied to modern dietetics and medical practices that the manufacture of chemically and biologically assayed foods on a vast scale was developed to provide their alimentary needs on the basis of economic and scientific feeding.

Utilizing and supplementing the abundant materials available in large meat-packing plants, research chemists aided by expert caretakers and bioassayers of experimental dogs succeeded in producing balanced rations that fulfil the alimentary needs for growth and maintenance at all ages and concurrently prevent the deficiency diseases and digestive disorders arising from table leavings and rejected cuts of the butcher's block. The achievement was based upon selecting ingredients for their biological values and bringing up their mineral and vitamin components to uniform standards.

From 1937 to 1941 the production of canned dog foods increased from 412,436,000 lb. to 700,000,000 lb. and of the dry, packaged type from 128,681,000 lb. to 300,000,000 lb. The production of the latter type in 1945 was 500,000,000 lb.

Penicillin in Mastitis of Milk Cows.—Important developments in medicinal dosage, method of use and results obtained were signalized widely in periodical veterinary literature during the year. Quite generally, penicillin was pronounced the most dependable treatment yet employed for reducing the incidence of latent mastitis in dairy herds. Ten thousand to 30,000 Oxford units freshly dissolved in 50 to 100 cu.cm. of sterile water were infused into the udder after milking every 24 hr. to 48 hr. Clinical cures after the second infusion were reported. In "dry" cows one infusion of 30,000 units was generally sufficient to rid

the udder of *Streptococcus agalactiae*, the usual causative agent. Severe cases required several treatments. No benefit was derived from oral administration, nor in mastitis, because of the staphylococcal type of mastitis.

Pneumoencephalitis (Newcastle Disease of Poultry).—This serious virus disease, in mild form, was detected for the first time in the United States during 1946. It was diagnosed in 20 or more states. Known only as an exotic poultry plague, its appearance in widely separated places caused alarm among U.S. poultrymen and poultry pathologists. The chief of the U.S. bureau of animal industry convened a conference at St. Louis in July for the purpose of planning a vigorous control program. The survey of the situation revealed that the disease had existed in California, after 1935 at least, without being identified as the fowl plague of Europe and southern Asia known as Newcastle disease. Poultry pathologists of the University of California reported the disease under the name of pneumoencephalitis and described it as a highly contagious virus infection. The malady is an acute, respiratory-neurotrophic infection capable of causing a mortality of 100%. In the main, the enzootics in the United States took the mild, or respiratory, form. The trend the disease would take in the U.S. was not foreseeable.

Listerellosis in Farm Animals.—The meningo-encephalitis known as listerellosis, or "circling disease," which was regarded as a disease of laboratory animals only until identified in farm animals in New Zealand (1931), in Indiana (1932), in Iowa (1939), in Illinois (1945), in Pennsylvania (1943-44, 1946) and in Ohio (1946) was reported in 1946 to be a grave microbial disease of unknown potentiality among U.S. livestock, in view of these scattered outbreaks, the high mortality and reports in the literature (*q.v.*).

Canine Rabies.—The incidence of rabies remained high in the United States. In the absence of federally directed regulations, control measures were left for local functionaries to enforce. The morbidity was lowest in the large cities where vaccination was quite extensively practised compared with that among the free-roaming dogs of the country, few of which were immunized. Not being classed as livestock in the federal statutes, dogs did not come under the jurisdiction of the U.S. bureau of animal industry. A bill before the 79th congress designed to effect the long-desired change was not advanced for passage because of alleged protests of certain elements of the dog-owning public. The sanitary problem involved 13,000,000 dogs (*Dog World* est.) more or less at liberty to spread disease. In 1946, the dominion of Canada and the Union of South Africa prohibited the importation of U.S. dogs while the other species of domestic animals continued to be accepted unchallenged, as a token of confidence in their health.

The Insecticide DDT in Veterinary Medicine.—DDT (2,2, bis[parachlorophenyl]1,1,1-trichloroethane) came into use in veterinary medicine in 1943 and in the following three years its worthiness in animal production was proved by large-scale trials on farms and ranches. Independent of their role as vectors of infections, insects keep many a ton of meat, leather and milk off the market. The estimated figures in terms of deaths and lost poundage were extraordinary. To name two out of many insect pests other than vectors of specific infections, there are the horn fly (*Haematobis serrata*) and the ubiquitous stable fly (*Stomoxys calcitrans*). The former literally drive pastoral animals to cover and run them thin, reducing meat and milk production by one-half during the fly season. The latter, or common, blood-sucking stable fly, unless effectively controlled, is a nuisance of the highest rank, especially in dairy farming. DDT, as demonstrated by extensive trials, disposed of both. Its value in veterinary medicine may be summed up from these two examples, since there were few ectoparasites that did not respond to its

diligent use.

Brucellosis.—Despite vigorous control programs, bovine brucellosis continued to hinder normal productivity among the congested dairy cattle populations of the world. The attenuated culture of *Brucella abortus* (vaccine) developed by the animal disease research laboratory of the U.S. bureau of animal industry was released in 1940 for general use after five years of trials in the field but in the absence of uniform regulations to restrict its use among the states and its promiscuous use in nonprofessional hands, the benefits derived were disappointing up to 1946; that is, morbidity had not diminished and human brucellosis continued to show increases in the public health reports. In the U.S. corn belt, an area of intensive swine production, swine brucellosis which proved to be more virulent for the human being than the bovine type was more effectively subdued.

Leptospirosis Transmitted from Dogs to Man.—That leptospirosis (Weil's disease) was contracted directly from dogs was long suspected but proof to that effect was lacking. Human cases that could not be connected with exposure to rats or rat-contaminated swimming pools were suspected but not proved to be of direct canine origin. The two species of *Leptospira* involved—*L. icterohaemorrhagiae* and *L. canicola*—having slightly different serologic and clinical attributes were thought to be strictly host specific. Late studies, however, showed that there is but one leptospirosis. That the two specific spirochetes are interchangeable among rats and dogs and man was shown in critical studies made in France. In short, man may contract the disease by exposure to infected dogs. The spirochetoses of dogs and man designated leptospirosis, Weil's disease, Stuttgart disease, canine typhus, infectious icterus or spirochetosis icterohaemorrhagiae are one and the same disease.

The Histamine Theory of Founder.—When founder-like phenomena were produced experimentally in horses and oxen by injections of histamine and, moreover, spontaneous cases in horses were found to be associated with a marked histaminemia which responded to the administration of antihistaminic drugs, the pathology of a baffling disease was clarified.

Founder, formerly named laminitis in English veterinary literature is caused by overeating, overwork, tiresome journeys, difficult parturition and sundry extreme exposures which lead to the formation and liberation of toxic debris in the digestive or genital tracts. The experimental work with histamine indicted that product of catabolism as the toxic agent. The chemically complex phenylic and pyridinic compounds, antergan and neo-antergan, under trial for use in human medicine were used in foundered horses with remarkably good results. As prior biochemists had shown, the horse, because of its vast muscular system and its use under extreme stress, was found to be an excellent animal for the study of histamine and also for the action of antihistaminics.

Swine Erysipelas in Turkeys.—Although isolated cases of *Erysipelotrix rhusiopathiae* infection in animals other than swine were casually reported from time to time, the outbreak in a flock of 5,000 turkeys in Colorado with a 20% mortality put new values to the potentiality of that organism in turkey breeding. The onset resembled the cutaneous erysipelas of swine: swollen head, nasal discharge, sinusitis, anorexia, loss of weight, stiff gait, cyanosis, diarrhoea, tibiometatarsal arthritis and subnormal temperature.

The necropsy revealed enlarged liver with necrotic areas, purplish spleen, brownish lungs, blotchy ecchymosis and petechiation of the heart, striated musculature and serosa. The specific organism was isolated in the heart blood, bone marrow, liver, spleen, kidneys and subcutaneous tissue. Emphasis was placed on the fact that swine erysipelas in turkeys was infectious to human beings and that precautions should be taken to prevent

it among those killing, plucking and dressing these birds.

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Vickery, Howard Leroy (1892-1946), U.S. naval officer, was born on April 20 in Bellevue, O. He attended the U.S. Naval academy at Annapolis and was graduated in 1915 with the commission of an ensign. During World War I, he was assigned to a ship escorting the first convoy to France. He served with the Haitian government, 1925-28, as a treaty engineer, was a member of the navy bureau of construction and repair at Washington, D.C., 1928-29, was head (1934) of the war plans section of the bureau's design branch and served, 1937-40, as assistant to Adm. Emory S. Land, U.S. maritime commissioner. He was appointed a member of the maritime commission in 1940. During World War II, Adm. Vickery, who played an important role in construction of the U.S. merchant fleet, was appointed chairman (Aug. 1943) of a newly-created postwar planning committee designed to develop long-range postwar plans for the U.S. shipping industry. Adm. Vickery resigned from the maritime commission in Dec. 1945. He died at Palm Springs, Calif., on March 21.

Victor Emmanuel III (1869-), former king of Italy, was born at Naples, Nov. 11, the son of King Humbert I and Margherita of Savoy-Genoa. He formally assumed the throne of Italy on Aug. 9 and 11, 1900. See *Encyclopædia Britannica*. Toward the end of World War II, he relinquished (June 5, 1944) the duties of the throne to his son, Crown Prince Humbert, whom he named lieutenant general of the realm; Victor Emmanuel, however, retained his nominal status as king. Never popular with republican elements in Italy because of his association with Benito Mussolini, the king was the target of increasing antiroyalist criticism after the close of the war. The strongly pro-Republican trend of the Italian municipal elections between March 10 and April 7, 1946, indicated that the days of the house of Savoy in Italy were numbered, but it was not until the Christian Democratic party at its convention (April 25) voted three to one in favour of a republic that Victor Emmanuel lost his last base of mass political support. Two weeks later (May 9), he abdicated, concluding a reign of 45 years and 9 months, and went into exile in Alexandria, Egypt. In an effort to save the tottering house of Savoy, he named his son as King Humbert II; Humbert's reign was as brief as his father's was long and after a rule of little more than a month, Humbert, too, went into exile.

Victoria. A state of the Australian commonwealth. Area: 87,884 sq.mi.; pop. (est. June 30, 1945): 2,013,489. Chief cities (pop., Dec. 31, 1943): Melbourne (cap., 1,107,000); Geelong (40,250); Ballarat (38,600); Bendigo (30,200). Governor in 1946: Major General Sir W. J. Dugan.

History.—The Labour government under the premiership of John Cain remained in office throughout 1946. Among bills introduced were ones for workmen's compensation, providing larger benefits for the dependents of workers; the abolition of late shopping on Friday nights; the provision of 14 days' paid annual holiday for all workers; and an increase in the government guarantee for building loans to co-operative housing societies from £A5,000,000 to £A10,000,000. The government plan for reafforestation began with the planting of softwoods at the rate of 10,000 ac. *per annum*. This would continue until a total of 250,000 ac. had been reached. Plans to spend £A25,000,000 over ten years to double the state's water storages by the construction of an immense earth dam at Eildon weir were announced.

Among other postwar development plans the Melbourne harbour trust started work on re-equipping Melbourne's port facilities which promised to make it one of the world's finest ports. Heavy planting of grain and favourable weather conditions combined to produce an estimated wheat crop of more than 1,815,000 short tons, the highest for 30 years.

The term of office of Sir Winston Dugan as governor was extended for another term to Jan. 1948.

Education.—In 1941: number of schools (state) 2,640, (private) 518; teachers (state) 8,868, (private) 2,744; scholars (state) 225,023, (private) 81,308; average attendance (state) 187,316, (private) 76,305.

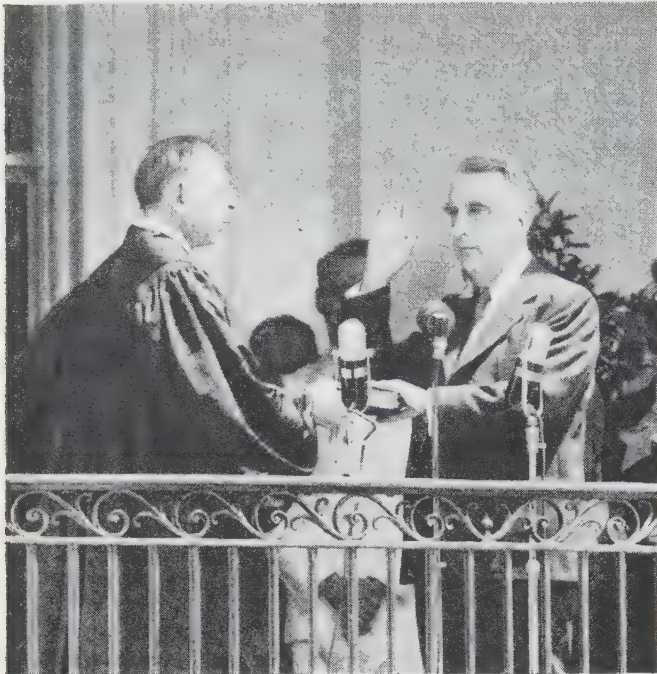
Finance.—In 1944-45: revenue £A35,272,800; expenditure £A34,924,000; debt outstanding (June 30, 1945) £A179,405,000. (£A1 = \$3.2 U.S.)

Communication.—Roads (1941) 110,000 mi.; railways (1945) 4,758 mi. Motor vehicles licensed (Dec. 31, 1945): cars 141,856, commercial vehicles 96,088, cycles 21,480. Wireless receiving set licences (Dec. 31, 1945) 413,492. Telephones (June 30, 1941) 228,936.

Agriculture, Manufacturing, Mineral Production.—(In short tons) Wheat (1945-46) 975,000; wool (1944-45) 88,500; coal, brown (1942) 5,526,000; gold (1942) 101,497 fine oz. Industry and labour (1944-45): factories 9,669; employees 258,573; gross value of output £A287,421,875; unemployment (trade union returns) (Feb. 1946) 1.3%. (W. D. MA.)

Vinson, Frederick Moore (1890-), U.S. politician and jurist, was born Jan. 22 at Louisa, Ky. He was graduated from Kentucky Normal college, 1908, received his B.A., 1909, and his law degree, 1911, from Centre college and practised law in Louisa in 1911. He served seven terms in the national house of representatives, and was a key man in congress during the early days of the Roosevelt administration. In 1937, he accepted President Roosevelt's offer of the post of associate justice in the U.S. court of appeals for the District of Columbia, and in May 1943 he was named director of the Office of Economic Stabilization. Vinson changed posts three times in 1945. President Roosevelt made him federal loan administrator in charge of the Reconstruction Finance corporation, March 5, and director of the Office of War Mobilization and Reconversion, April 2. President Truman appointed him secretary of the treasury, after Henry Morgenthau's resignation, and Vinson was sworn in office, July 23. He signed the Anglo-U.S. agreement Dec. 6, under which Britain was to secure loans from the United States totalling about \$4,400,000,000.

On June 6, 1946, Vinson was appointed by President Truman



FREDERICK M. VINSON being sworn in as the 13th chief justice of the U.S. supreme court on June 24, 1946

to become chief justice of the U.S. supreme court. A skilled conciliator, the new chief justice was expected to bring harmony to the court, which was split into "conservative" and "liberal" blocs at the time of his appointment. Vinson took office June 24.

Virginia. One of the 13 original United States, Virginia is known as the "Old Dominion" and as the "Mother of Presidents." Southernmost of the middle Atlantic states, it has an area of 40,815 sq.mi., including 916 sq.mi. of water. Pop. (1940) 2,677,773, 35.3% urban and 64.7% rural. On July 1, 1944, the bureau of the census estimated the state's civilian population at 3,199,115. Capital, Richmond (193,042 in 1940 and 225,000 in July 1944). Other cities include Norfolk (144,332 and 167,900), Roanoke (69,287 and 66,641) and Portsmouth (50,745 and 59,472).

History.—The general assembly convened in regular session in Jan. 1946 and wrote 400 new laws before its adjournment in March. Legislation was enacted creating a state Water Control board to reduce pollution in public waters, and a state board of elections to maintain general supervision over all public elections. An increase in the state gasoline tax was approved, with funds earmarked for improvement of secondary roads. The first step was taken toward abolition of the state poll tax by constitutional amendment. A state Apple commission was created to boost the production and sale of Virginia apples; other agricultural laws included regulatory measures for the sale of seed, eggs and fertilizer, and for the operation of frozen food plants. Pay raises were voted for state employees and public school teachers, and a budget was adopted providing for more than \$30,000,000 in construction work at state institutions. Virginia's Senator Carter Glass died in May; Congressman A. Willis Robertson, of Lexington, was chosen to succeed him at the general election in November. Three new members of the house of representatives and seven incumbents, all Democrats, also were named to congress. As 1946 ended, Governor William M. Tuck called the assembly back in extraordinary session to grant teachers a further raise in pay and to consider bills guaranteeing a right to work despite "closed shop" labour union agreements and prohibiting strikes in public utilities. L. Preston Collins was lieutenant governor in 1946; G. Tyler Miller was superintendent

of public instruction.

Education.—In 1945-46, elementary school enrolment was 426,595 with a teaching staff of 12,526; secondary school enrolment was 131,728 with a teaching staff of 5,858.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ended June 30, 1946, 11,817 persons received \$904,126 in general relief; 17,452 received \$2,670,412 in old-age assistance; 5,086 families with 14,799 dependent children, \$1,445,096; 1,135 blind, \$218,867; and in 1946 from Jan. 1 through Dec. 21, 339,975 civilian unemployment compensation checks were written for \$5,538,239, and 706,521 war veterans' checks were written for \$19,532,386. The civilian payments were more than 500% greater than for the same period of 1945. An average daily population of 4,499 was in six penal institutions for adults, and of 621 in four industrial schools for juveniles at the end of the fiscal year in June 1946.

Communication.—On Jan. 1, 1946, there were 9,075.82 mi. of highway in the state's primary system; on July 1, 1946, there were 37,834.32 mi. in the secondary system. During the year ended June 30, 1946, the state spent \$29,850,653 on its highways. The total railroad mileage was 4,093.5 on Jan. 1, 1946. There were 397,289 telephones in Virginia on Nov. 30, 1946.

Banking and Finance.—On June 29, 1946, Virginia had 184 state banks with 54 branches and two "facilities" and 130 national banks and branches. On June 29, 1946, deposits of national banks were \$1,079,295,000 and assets, \$1,152,101,000. On June 29, 1946, deposits in state banks totalled \$719,956,740 and assets, \$773,874,688. Resources on Dec. 31, 1945, of 14 industrial loan associations were \$7,989,291; of 56 building and loan associations, \$37,988,776; of 26 credit unions, \$1,208,283. For the fiscal year ended June 30, 1946, the state treasury received revenues of \$198,828,495, some 16% more than in the previous year. The gross debt on June 30 was \$15,578,052; there was no net debt, since a sinking fund of \$17,373,675 left an excess of \$1,794,623. The fiscal year ended with a general fund surplus of \$21,602,085.

Agriculture.—A phenomenal growing season in 1946, beginning early in March and continuing until mid-November, boosted the value of Virginia's principal crops to a record \$302,870,000, an increase of 20% over 1945. Farmers harvested 3,657,000 ac., a decline of 5.4% from 1945. The tobacco crop, valued at \$73,447,000, had the greatest value and second largest volume in history. The shortage of farm labour improved slightly during the year, but a scarcity of farm equipment provided a severe handicap. The state department of agriculture noted a sharp increase in acreage planted to hybrid corn, and a survey found steadily increasing use of soil building and land conservation practices. Cash receipts to Virginia farmers in 1946 from the sale of crops and livestock products were estimated at 8% more than in 1945, when receipts were \$347,603,000.

Table 1.—Leading Agricultural Products of Virginia, 1946 and 1945

Crop	1946	1945
Tobacco, lb.	167,000,000	153,315,000
Cotton, lint, bales	16,000	16,000
Corn, bu.	36,368,000	39,270,000
Oats, bu.	4,260,000	3,976,000
Barley, bu.	2,272,000	1,836,000
Apples, commercial, bu.	13,680,000	3,900,000
Peaches, bu.	2,407,000	536,000
Wheat, winter, bu.	8,344,000	7,595,000
Hay, all tame, tons	1,744,000	1,794,000
Lespedeza seed, lb.	6,200,000	6,700,000
Potatoes, bu.	10,676,000	8,772,000
Sweet potatoes, bu.	3,250,000	2,940,000
Peanuts for nuts, lb.	187,500,000	149,460,000
Soybeans for beans, bu.	1,106,000	1,264,000

Manufacturing.—The total value of manufactured products for the year ended Dec. 31, 1945, was \$2,197,718,834. Wage earners received \$307,672,769 in this period and total salaries amounted to \$70,338,849; an estimated 210,000 persons were engaged in manufacturing during this period, a marked decline

from the war years. Principal industries were tobacco products, food and kindred products, transportation equipment, textiles, paper and printing and chemical products.

Table II.—Principal Industries of Virginia, 1945 and 1944

Industry	Value of products	
	1945	1944
Tobacco products	\$790,582,323	\$760,800,542
Food and kindred products	308,793,770	298,882,246
Textiles and their products	400,185,194	377,549,300
Wood products	95,684,644	105,860,200
Paper and printing	134,072,940	142,556,943
Chemical products	121,750,914	111,694,596
Metals and machinery	78,910,459	70,437,607
Transportation equipment	200,419,947	244,324,461

Mineral Production.—The production value of raw mineral resources in the year ending Dec. 31, 1945, fell off slightly to \$84,081,000, compared with \$88,528,000 in 1945 and \$50,003,672 in 1940. Coal production in 1945 was valued at \$61,140,000, off 5% from the \$64,476,000 of 1945 primarily because of two strikes aggregating nearly ten weeks. Approximately 4,000 bbl. of petroleum and 54,000 cu.ft. of natural gas were produced. The nonmetallic minerals had a production value in 1945 of \$17,210,000. The value of metallic ores exclusive of coal, chiefly zinc, titanium and manganese, was about \$5,731,000.

(J. J. Kt.)

Virginia, University of. A state institution for higher education at Charlottesville, Va. Dr. John Lloyd Newcomb, the second president of the University of Virginia, submitted his resignation, and Edward Reilly Stettinius, Jr., succeeded R. Gray Williams as rector of the University's Board of Visitors during 1946. The Woodrow Wilson School of Foreign Affairs and a new school of geography were added to the other schools in the college department, and plans for a school of business administration were announced. Temporary housing units and a naval ordnance research laboratory were under construction at the end of the year, and plans had been drawn for a student activities building, substantial additions to the University hospital, and dormitories. The opening of the 125th session of the university in October marked a return to a regular nine-month session after four years on an accelerated program. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

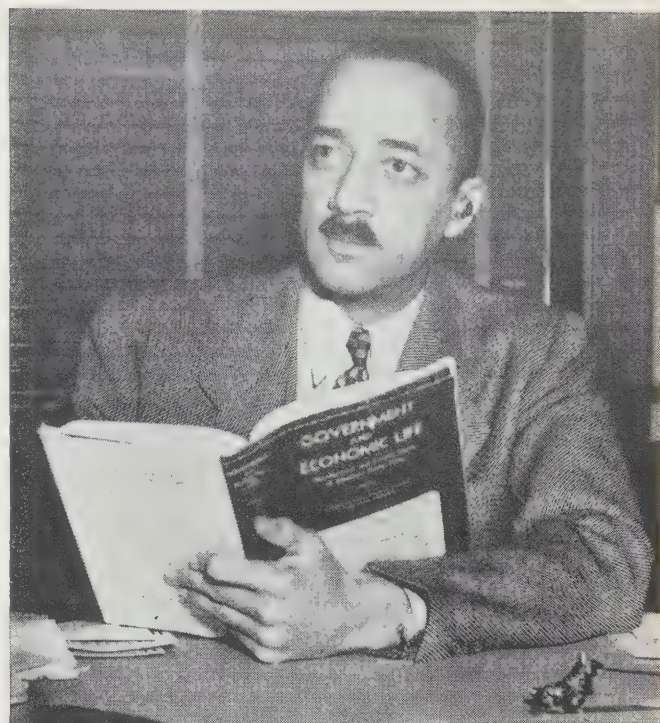
(J. L. N.)

Virgin Islands. A United States dependency in the West Indies, east of Puerto Rico, comprising St. Thomas (pop. 12,902); St. Thomas (11,265) and St. John (722) islands. Area, 133 sq.mi.; pop. (1940) 24,889, 13.1% more than in 1930 with whites 9%, Negroes 69% (1930: 78.3%), "mixed and other races" 22% (1930: 12½%). The chief cities are: Charlotte Amalie, the capital on St. Thomas, 9,801 (1930: 7,036); Christiansted 4,495 (1930: 3,767) and Frederiksted, 2,498 (1930: 2,698) on St. Croix. The governor in 1946 was William Henry Hastie.

History.—President Truman's appointment in 1946 of a Negro as governor of an area where the population is predominantly Negro was of unusual importance and interest. The appointment was received with great enthusiasm in the islands. Hastie was federal district judge in the Virgin Islands in 1939-40. He was dean of Howard University Law school, Washington, D.C., immediately prior to his appointment as governor.

The year showed a steady improvement in shipping to St. Thomas and prospects were good for continued improvement. The tourist trade, dormant during World War II, was only beginning to revive.

Because of excessively high bids, coal and shipping strikes and material shortages, the Federal Works agency was unable to start construction of public works for which \$2,200,005 was



WILLIAM HENRY HASTIE, first Negro to be appointed governor of the Virgin Islands, assumed that office on May 17, 1946

appropriated by the congress in 1944 and 1945.

Education.—The public school enrolment in St. Thomas was 2,494, of which 781 pupils were enrolled in the junior and senior high school grades. In St. Croix the enrolment was 1,528 with 346 in high school grades. The average salary of teachers in St. Thomas was \$1.200 per annum, and in St. Croix \$889.69.

Finance.—The monetary unit is the United States dollar. Because of the decrease in revenues from income taxes paid by the distilling industry during the war, the municipalities were encountering difficulties in maintaining essential government operation. It was necessary for the municipality of St. Croix to request a deficit appropriation from congress. St. Croix receipts during the fiscal year 1946 were \$262,258; budgeted expenditures, \$421,658; U.S. subsidy \$150,000. Receipts of the municipality of St. Thomas and St. John were \$1,112.002; budgeted expenditures \$1,083,852.

Trade.—Three hundred and fifty-three ocean-going vessels entered the St. Thomas harbor, as compared with 204 vessels in 1945. The prewar peak, however, was reached in 1941, when 1,220 vessels called at St. Thomas. Imports into the Virgin Islands from the United States during the calendar year 1945 totalled \$4,575,865; exports from the Virgin Islands to the United States for the same period amounted to \$4,117,624, of which \$2,127,308 represented 929,912 proof gallons of rum.

Communication.—External communication is by steamer and Pan American airways and Caribbean Atlantic airlines. St. Thomas and St. Croix are adequately provided with roads. There are no roads on St. John, which has only trails. Radio telephone service to the continental United States through Puerto Rico was installed during 1946.

Agriculture.—Agriculture supplements shipping to support St. Thomas, St. Croix and St. John are largely agricultural. In 1940 (census) there were 828 farms of 3 ac. or more totalling 55,228 acres. St. Croix produces almost the entire sugar crop of the islands amounting to 4.970 short tons in 1946 (4,040 short tons in 1945).

A co-operative association of cattlemen in St. Croix, operating the federally-owned abattoir, exported 921 beef carcasses as

compared with 720 during the preceding year, and 360 sheep and 45 hog carcasses as compared with 277 and 171, respectively, in the preceding year. These meats were slaughtered under rigid government inspection. Exports were chiefly to Puerto Rico, but the municipal market and cold storage plant in St. Thomas procured part of the meats for sale in St. Thomas from St. Croix. (E. G. A.)

Virgin Islands, British: see LEeward ISLANDS.

Viruses: see INFANTILE PARALYSIS; MEDICINE; PNEUMONIA.

Vishinsky, Andrei Y. (1883–), soviet statesman, jurist and diplomat, was born in Kiev of an ancient Polish family. He studied law at the University of Kiev and joined the Menshevik group of the Social Democrats in 1902. He participated in the revolt of 1905 and served a year in prison. When the Bolsheviks took power, Vishinsky deserted the Mensheviks, served in the red army for a year and joined the Communist party in 1920. He was professor of jurisprudence at Moscow university, 1925–27, was named the all-union deputy public prosecutor in 1933 and was public prosecutor from 1935 to 1939. He rose to fame as the public prosecutor in the treason and purge trials, 1936–38, and was appointed vice chairman of the council of peoples' commissars and deputy commissar for foreign affairs in 1940. He attended virtually all of the important inter-Allied and United Nations conferences in 1945–46. At the U.N. sessions in London (Jan.–Feb. 1946) he and Ernest Bevin engaged in a series of bitter debates, with Vishinsky opposing a council probe of Iran's accusations of soviet interference in its internal affairs. In turn, he demanded withdrawal of British troops from Greece and asked for an investigation of the Indonesian situation.

Throughout the 1946 meetings of the Allied Council of Foreign Ministers and the peace conference in Paris, Vishinsky opposed the western Allies on many important issues, although he showed a more conciliatory mood at the U.N. meetings at Lake Success, N.Y. He declared Nov. 29, 1946, that the atomic bomb was a "sword of Damocles suspended over our heads by a single thread," and said that disarmament must be premised on prohibition of its manufacture.

Vital Statistics: see BIRTH STATISTICS; CENSUS DATA, 1946; DEATH STATISTICS; INFANT MORTALITY; MARRIAGE AND DIVORCE; SUICIDE STATISTICS.

Vitamins. The chemical structure of the vitamin known as folic acid was announced in 1946. It was found to be composed of a molecule each of a pteridine, para-aminobenzoic acid and glutamic acid, and the name pteroyl glutamic acid was proposed for the complete compound. It had been found the year before that folic acid was quite effective in the treatment of macrocytic anaemias and sprue. The effect of cooking on the folic acid content of a variety of meats was reported. Losses ranged from 54% to 90%. These data placed folic acid in the same group as thiamin, biotin, pyridoxine, inositol and pantothenic acid, all of which are more easily destroyed than riboflavin, niacin or choline. The destruction of B-vitamins during cooking may have serious consequences in many human dietaries.

The type and activity of micro-organisms inhabiting the alimentary tract, especially the large intestine, definitely influence animal nutrition and are probably of profound importance in human nutrition. If the synthesis of vitamins by organisms in the intestine is a normal and necessary method of supplementation of the diet, then the inhibition or change of this flora as a result of disease, drugs or diet would predispose man to nutri-

tional disease. The extent of the synthesis of nutrients in the alimentary tract was emphasized by a study in which the intake and excretion of B-vitamins in seven healthy young men on a normal diet during a 12-week period were reported. The dietary intake of thiamin, riboflavin, pyridoxine and niacin exceeded the combined urinary and faecal output. The reverse was true with all of the other B-vitamins. Studies were needed on the availability of nutrients made by the intestinal flora for it was not known if the body could make effective use of them.

In studies on the effect of vitamin deficiencies on the course of malarial infection it was found that in chicks vitamin A deficiency caused a somewhat milder infection, and choline deficiency appeared to have the opposite effect. Thiamin deficiency had no influence on the infection, and nicotinic acid deficiency resulted in a much more severe infection.

Studies at the research laboratory of the Children's Fund of Michigan added much to the knowledge of the vitamin content of human milk. The vitamins studied were vitamin A and carotene, ascorbic acid, thiamin, riboflavin, nicotinic acid, pantothenic acid and biotin. The results showed that there was considerable variation in the concentrations of vitamins in human milk during the first ten days and then relatively constant concentrations were reached. Vitamin A and carotene were in high concentration in the colostrum and decreased to half of the initial value in mature milk. Ascorbic acid was about the same in colostrum and mature milk, while the other vitamins mentioned above were low in colostrum and gradually obtained maximum values in mature milk. A somewhat parallel study on the vitamin composition of cow's milk was carried on at Cornell university, Ithaca, N.Y. Of considerable interest to public health workers were the investigations on the relation of pasteurization and exposure to sunlight upon the vitamin content of milk. No losses of niacin, pantothenic acid or biotin were observed during either pasteurization or exposure to two hours of February noonday sunlight. Previous studies showed that riboflavin in milk is readily destroyed by exposure to sunlight.

The vitamin content of body tissues is of interest particularly as it may be affected by disease. In 1946 a study on biotin, choline, inositol, para-aminobenzoic acid and pyridoxine content of mouse skin during the experimental production of cancer was reported. No significant changes were observed in these vitamins except in the case of biotin which was reduced about one-third. Previous studies of tumour tissues have shown specific findings of biotin changes; however, the exact significance of biotin to carcinogenesis or to tumour metabolism is not yet clear.

In considering the vitamin sources for man, one should have data on the vitamin content of foods after they are cooked, that is, just as the food is consumed. Most of the vitamin values as given in food composition tables are on raw foods. In a study of the vitamin content of restaurant food it was found that riboflavin and nicotinic acid allowances were readily met by varied restaurant diets. Thiamin allowances could be met if care was taken in selecting the foods; it was necessary to include fresh fruit juices to obtain desired amounts of ascorbic acid. The vitamins most readily lost in cooking were thiamin and ascorbic acid. Foods from three separate restaurants were assayed, and though the foods differed as to cost and attractiveness as served, there was no essential difference in the vitamin content.

Vitamin supplementation of the diets of industrial workers is frequently suggested as a desirable procedure. A study on this problem was under way in an aircraft factory in California and in general no impressive benefit was found by the routine provision of large vitamin supplements to industrial workers.

For those interested in following progress in vitamin research and other phases of nutrition, attention should be called to the journal, *Nutrition Reviews*. This is published monthly by the

Nutrition Foundation, Inc., Chrysler building, New York city, and provides an authoritative, unbiased review of the world's current research progress in nutrition. (See also BIOCHEMISTRY; CHEMISTRY; CHEMOTHERAPY; DIETETICS; FISHERIES; FLOUR; FOOD RESEARCH; MEDICINE.)

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Vocational Education: see EDUCATION.

Vocational Rehabilitation, Office of. Physically and mentally handicapped civilians of working age, who require vocational rehabilitation services in order to obtain or retain employment commensurate with their potential capacities, in 1946 numbered at least 1,500,000 in the United States, not including veterans of the armed forces with service-incurred disabilities. The number increases at the rate of 200,000 a year. To help the civilian disabled achieve their best possible vocational usefulness, the 48 states, the District of Columbia, Puerto Rico and Hawaii entered into partnership with the federal government to provide the necessary services and facilities, and Alaska had plans to inaugurate a program.

There were during the year 51 general rehabilitation agencies administered by the state boards of education through divisions of vocational rehabilitation. In 34 states, there were agencies authorized by state laws to provide vocational rehabilitation services to rehabilitate blind persons. In 16 states, general rehabilitation agencies provided services for all types of handicapped clients, including the blind.

Services furnished by the states comprise thorough physical examinations; necessary medical, surgical, psychiatric and hospital treatment; necessary prosthetic devices such as artificial limbs, hearing aids, braces and the like; individual counselling and guidance; training for jobs; maintenance and transportation during rehabilitation, if necessary; occupational tools, equipment and licences; placement on the right job and follow-up after placement to make sure workers and jobs are properly matched. The states and territories actually operate the programs, purchasing rehabilitation services from existing facilities and necessary medical care from general practitioners, specialists, clinics, hospitals and other sources—either public or private—available in the communities. The federal government, through the Office of Vocational Rehabilitation in the Federal Security agency, assists the states and territories through financial grants-in-aid, establishment of standards of service, and technical aid. The federal government assumes all necessary administrative costs incurred by the states as well as their expenditures for guidance and placement of disabled individuals. Medical examinations and treatment, training and the costs of other services are shared equally by the states and the federal government. The states are fully reimbursed by the federal government for cost of services to disabled civilians such as merchant seamen, members of the Civil Air Patrol and the aircraft warning service injured in performance of duty.

During the fiscal year 1946, 36,106 clients—27,066 men and

9,040 women, including the blind—were rehabilitated into employment and their cases were closed to the mutual satisfaction of themselves and their employers. Total annual earnings—not including those of clients who became self-employed and whose earnings were difficult to estimate—increased almost 400% after rehabilitation, rising from an estimated \$11,600,000 before rehabilitation to an estimated annual rate of \$56,300,000 afterward. Of this group, 27,022 or 75% were unemployed when they applied to the states for services, 5,734 never having worked before and 6,993 only part-time.

In addition, 27,276 other clients made vocational adjustments during the same period without requiring major rehabilitation services, and 101,450 were still in process of rehabilitation at the close of the fiscal period.

Clients found employment in professional and semi-professional fields, and in skilled, semi-skilled and unskilled occupations. Included were accountants, auditors, teachers, draftsmen, laboratory technicians, retail managers, bookkeepers, secretaries, stenographers, clerks, office machine operators, waiters and waitresses, kitchen workers, barbers and beauticians, hospital attendants, guards and watchmen, jewellers, shoe makers, machinists, welders, carpenters, aeroplane mechanics, auto mechanics, textile workers, bus and truck drivers, filling-station attendants, construction workers, farmers and household workers.

Clients' disabilities were varied. Persons with orthopedic involvements, amputations and congenital absence of members constituted almost half of the completed rehabilitations. Other major categories of disability were: cerebral palsy, poliomyelitis, pulmonary tuberculosis, cardiac, hernias, vision defects, hearing defects, speech defects, mental disorders, epilepsy,

AMPUTEE who learned to paint while a patient at the army's Thomas M. England General hospital during 1946, uses a brush attached to the hook of his artificial hand





BLINDED VETERAN, who was learning to be a piano tuner and repairman during 1946, is shown listening to a tuning fork held by an instructor

asthma and fibroid tumours.

During the fiscal year 1946, the states purchased the following services for the number of clients indicated:

Examinations—medical, 53,512; psychiatric, 1,050; psychological, 2,109.

Treatments—medical, 1,834; psychiatric, 268; surgical, 4,331; dental, 558; other, 226.

Prosthetic appliances—artificial limbs, 3,473; braces, 1,002; hearing aids, 1,081; glasses, 1,592; orthopedic shoes, belts, trusses, etc., 776; repair of appliances, 337.

Training—educational institutions such as colleges or universities, business colleges, private trade schools or public vocational schools, 25,028; on-the-job, 4,311; correspondence courses, 1,707; tutors, 2,501.

Maintenance—during training, 15,366; during medical treatment, 686.

Transportation—for examinations, 1,865; for medical treatment, 1,790; for training, 4,243.

Auxiliary services—training supplies and equipment, 16,218; placement equipment, 1,208; occupational licences, 234.

There were 5,570 clients who received hospitalization; 107 who were treated in convalescent homes; 364 who received occupational therapy.

State-federal vocational rehabilitation programs were conducted during the 1946 fiscal year at a total cost of \$14,136,000, of which the federal share was \$10,239,500. The states' participation totalled \$3,896,500, which represented state and local governmental funds supplemented by contributions from interested welfare, health, fraternal and other organizations. (See also VETERANS' ADMINISTRATION.) (M. J. Sy.)

Von (in personal names): see under proper names.

WAC: see WOMEN'S ARMY CORPS.

Waesche, Russell Randolph (1886–1946), U.S. coast guard officer, was born on Jan. 6 at Thurmont, Md. He studied electrical engineering at Purdue university and later entered the Coast Guard academy, from which he was graduated in 1906 with the rank of ensign. Thereafter, he served as a line officer in Atlantic, Pacific and Arctic waters and in 1916 became the first chief of the communications division. After the prohibition amendment became law, he was charged with combating rum-runners; in 1928 he became chief ordnance officer in Washington and in 1931 reorganized the field forces of the service. He was appointed commandant of the coast guard in 1936, with rank of rear admiral, and after the Neutrality act was passed in 1939, supervised the prevention of shipments of war materials from the United States to the European belligerents. Under his guidance the coast guard grew during World War II to ten times its original size. It reached a peak size of 170,000 men, many of whom manned troop and attack transports and participated in amphibious operations. On April 4, 1945, he became the first full admiral of the coast guard and on Dec. 31, 1945, retired from the service. Adm. Waesche died at Bethesda, Md., on Oct. 17.

Wages and Hours. During the first seven months of 1946 the manufacturing pay rolls of the U.S. were lower than in the corresponding months of 1945, but in August were higher (Table I). The index numbers for January were about one-third lower than the figures for Jan. 1945. In August they were 25 points lower. Reconversion, unprecedented strike idleness and shortages of materials, together with the disappearance of most of the overtime worked during World War II, combined to hold down employment. Hourly wage rates were higher than in 1945 in many industries but weekly earnings were a little lower.

Table I and the chart on page 817 show employment indexes for 1945 and the first eight months of 1946 in all manufactures, durable goods and nondurable goods. The table shows wage-earner employment and pay rolls in both durable and nondurable goods industries. These indexes were based upon 1939 as 100.

Table I.—Indexes of Production-Worker Employment and Pay Rolls in Manufacturing Industries
(1939 average=100)*

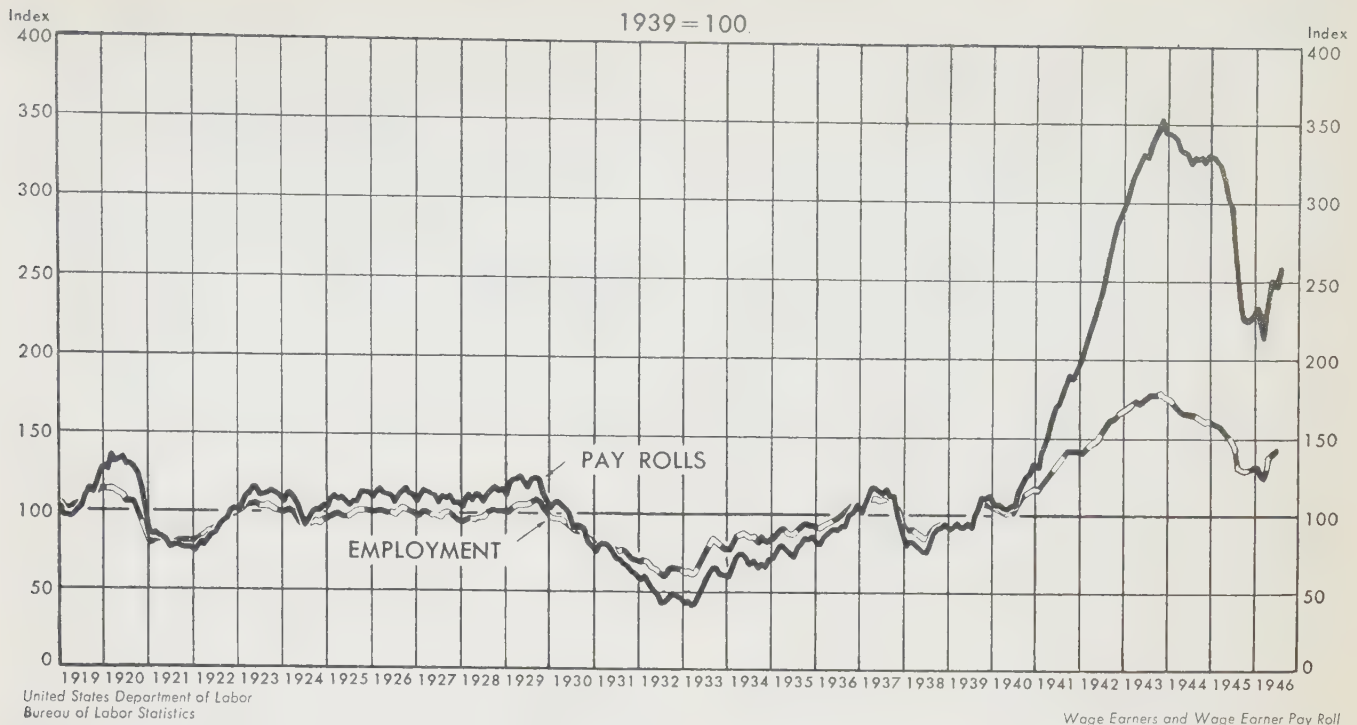
Months	All manufacturers				Durable goods				Nondurable goods			
	Wage-earner employment		Wage-earner pay roll		Wage-earner employment		Wage-earner pay roll		Wage-earner employment		Wage-earner pay roll	
	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945
Jan.	130.2	162.4	229.2	335.2	144.1	219.4	243.0	461.5	119.2	117.4	215.7	211.7
Feb.	121.9	167.5	210.5	344.8	122.6	225.5	199.6	472.0	121.4	121.9	221.3	220.4
March.	129.9	166.0	232.9	341.7	138.4	222.6	236.8	465.1	123.1	121.4	229.2	221.0
April	135.9	163.0	249.2	333.3	151.6	217.5	267.3	451.6	123.5	120.1	231.4	217.5
May	136.9	159.8	247.8	318.7	154.6	211.5	266.6	427.6	123.0	119.0	229.4	212.2
June	139.3	156.9	257.1	314.6	158.2	204.4	280.7	414.2	124.4	119.5	234.0	217.3
July	141.0	152.1	261.2	298.7	161.4	195.3	287.7	387.1	125.0	118.0	235.4	212.1
Aug.	145.0	148.7	278.2	267.3	166.1	187.7	306.9	335.4	128.4	117.9	250.2	200.6
Sept.	146.7	128.5	284.3	224.2	168.7	144.9	314.6	246.2	129.4	115.6	254.7	202.6
Oct.	...	121.4	...	212.7	...	136.4	...	233.8	...	109.5	...	192.1
Nov.	...	121.7	...	212.3	...	136.7	...	231.3	...	109.8	...	193.7
Dec.	...	128.4	...	226.2	...	141.2	...	240.0	...	118.4	...	212.7

This table compiled from statistics released by the Monthly Labor Review, United States bureau of labour statistics.

*Indexes are based on 1939 average and adjusted to census of manufacturers. They are not comparable to indexes published prior to Dec. 1942 by the bureau of labour statistics.

Table II shows the average hours and earnings in July 1946 and 1945 in the principal manufacturing and nonmanufacturing industries. It is evident that a high level of wage earners' weekly "take-home" continued through July 1946, as the result of higher hourly earnings.

Incentive systems of wage payment were used extensively during World War II. This was another factor contributing to high weekly earnings in manufacturing. It was undoubtedly true that more wage earners were employed on an incentive basis than before 1941.



EMPLOYMENT and pay rolls for all manufacturing industries, 1919 to 1946, as compiled by the U.S. bureau of labour statistics (1939=100)

Table II.—Average Weekly Earnings, Average Weekly Hours and Average Earnings per Hour in Major Industrial Classifications, Month of July 1946 and 1945: U.S.

Industry	Average weekly earnings		Average weekly hours		Average hourly earnings	
	1946	1945	1946	1945	cents	cents
ALL MANUFACTURING	\$43.35	\$45.42	39.6	44.0	109.3	103.2
Durable goods	46.15	50.60	39.2	44.9	117.7	112.6
Nondurable goods	40.49	38.58	40.1	42.8	101.0	90.2
Iron and steel	46.57	50.22	38.4	45.2	121.2	111.0
Electrical machinery	45.38	47.95	39.3	45.4	115.4	105.7
Machinery, not electrical	49.92	53.54	40.4	46.6	123.5	114.8
Transportation equipment, except automobiles	53.46	59.64	39.2	45.8	136.5	130.2
Automobiles	51.29	53.05	37.8	42.4	135.6	125.2
Nonferrous metals	46.75	48.81	40.1	45.7	116.6	106.8
Lumber basic	35.09	33.64	38.6	41.5	90.9	81.0
Furniture	38.48	36.89	31.0	43.3	93.9	85.2
Stone, clay and glass	41.77	40.32	39.5	43.3	105.7	93.1
Textile-mill products	34.81	31.50	39.6	41.3	87.9	76.3
Apparel products	33.97	30.38	36.1	36.7	94.1	82.9
Leather	36.50	35.47	38.3	41.7	95.4	85.1
Food	43.21	39.98	43.8	45.8	98.8	87.4
Tobacco	33.24	30.73	39.1	41.0	85.1	74.9
Paper and allied products	43.10	40.78	42.8	46.3	100.6	88.1
Printing and publishing	51.77	46.62	40.2	41.5	128.7	112.4
Chemical products	44.65	44.99	40.6	45.1	109.9	99.9
Products of petroleum	54.19	58.01	40.0	47.7	135.5	121.7
Rubber products	50.00	51.81	39.2	45.5	129.2	113.8
NONMANUFACTURING						
Coal mining:						
Anthracite	49.22	47.47	31.3	39.4	155.8	121.9
Bituminous	50.69	50.70	34.1	40.8	147.5	125.5
Metalliferous mining	48.17	45.64	40.0	43.9	120.5	103.9
Quarrying	45.58	42.91	44.9	48.0	100.7	89.5
Crude petroleum	52.45	54.40	40.3	45.0	131.3	120.9
Telephone	44.82	*	39.7	*	113.5	*
Telegraph	41.15	37.98	45.2	46.0	91.0	82.6
Electric light	51.96	50.34	41.5	43.4	125.8	114.6
Street railways and buses	54.60	51.21	48.4	51.6	109.7	97.9
Wholesale trade	48.06	44.92	41.4	43.1	115.5	103.7
Retail trade	32.94	29.40	41.2	41.9	88.9	77.5
Hotels	26.63	24.40	44.0	44.0	60.2	54.4
Private building construction	*	55.57	*	40.1	*	138.7

*Not available.

Compiled from *Monthly Labor Review*, United States bureau of labour statistics, Washington, D.C.

Table III shows a steady rise in average hourly earnings from 1941 to 1946. It was not possible to separate the increment added to hourly earnings by overtime work from the prevailing rates paid for standard hours of employment but increases of 15 cents to 20 cents per hour occurred in many industries in 1946.

It was apparent during the closing months of 1945 and in 1946 that the industries generally were eliminating overtime and returning to prewar standards of normal working hours.

Table III.—Rise in Hourly Earnings Rates in U.S.A., 1940-46

Industry	Hourly earnings in August						
	1940	1941	1942	1943	1944	1945	1946
Manufactures in general	\$.668	\$.745	\$.864	\$.965	\$ 1.016	\$ 1.025	\$ 1.111
Durable goods manufactures	.731	.830	.966	1.060	1.111	1.114	1.184
Nondurable goods	.613	.658	.738	.811	.865	.908	1.036
Iron and steel	.777	.871	.967	1.037	1.076	1.109	1.222
Machinery	.745	.844	.976	1.063	1.120	1.136	1.247
Lumber and products	.526	.588	.677	.744	.803	.816	.919
Food and kindred products	.615	.658	.732	.805	.844	.882	1.015
Tobacco products	.492	.520	.587	.658	.715	.761	.887
Rubber products	.779	.861	.936	1.015	1.102	1.119	1.295
Anthracite mining	.926	.989	.992	1.073	1.179	1.331	1.598
Bituminous mining	.887	1.033	1.061	1.147	1.189	1.248	1.467
Wholesale trade	.736	.798	.861	.944	.939	1.013	1.148
Building	.956	1.001	1.174	1.246	1.323	1.383	*

*Not available.

The much higher hourly earnings in some industries were the result of one or more of the following factors: (1) character of the labour supply employed, as to sex, age and skill; (2) productivity of the industry, principally determined by its degree of modernization, technical equipment and proportion of skilled workers; (3) degree to which union working conditions prevailed and (4) necessity of paying high wages to attract labour supply.

Weekly earnings measure wage-earner welfare better than do hourly rates. There were 9 industries of the 34 studied in which average weekly earnings exceeded \$50 per week in July 1946. The maximum was \$54.60 in street railways and buses. But their 48.4 hr. per week was the reason for having the highest weekly earnings. The lowest weekly earnings were in hotels: \$26.70. Of course, hotel earnings are supplemented by tips, and the statistics do not reveal this part of the employees' income. In July 1946, there were 26 industries in which average weekly earnings were between \$40 and \$54.60 and 7 industries between \$30 and \$40. The average weekly earnings of durable goods manufacturers were \$46.15 in July 1946 compared with \$53.54 in 1945.

The wages of farm labour, both monthly and daily wages, rose a little from 1945 levels, judging by the reports of the U.S. bureau of agricultural economics; adequate statistical data was not yet available. (See also AGRICULTURE; BUSINESS REVIEW; CANADA; CENSUS DATA, 1946; LAW.) (D. D. L.)

Great Britain.—In Sept. 1946 the ministry of labour published a volume. *Time Rates of Wages and Hours of Labour*,

showing the wage rates and hours in force for the principal occupations in Aug. 1946. In agriculture, minimum time rates for men more than 21 were 80s. in England and Wales and 70s. in Scotland for a week of 48 hr., with higher rates for special classes of workers in many areas. For women the corresponding minima were 60s. and 47s. In coal mining the national minimum wage was 100s. for underground workers for 6 (or in some areas $5\frac{1}{2}$) shifts of $7\frac{1}{2}$ hr. each; the surface workers' minimum was 90s. Higher rates were paid in some areas and, of course, most pieceworkers earned more. Skilled engineers' rates ranged from 107s. in London to 97s. in a few remote areas, 100s.-102s. being the commonest provincial rates. Engineering labourers received from 89s. to 84s., and women a national minimum of 62s.6d. The hours in engineering were 47 a week. Building workers' wages were on an hourly basis, usually with a week of 44 hr.: the craftsmen's rates ranged from 2s.7 $\frac{1}{2}$ d. to 2s.4d. an hour, the labourers' from 2s.1 $\frac{1}{2}$ d. to 1s.10 $\frac{1}{2}$ d., according to area. In printing, compositors had widely varying rates, from 186s. a week (London morning newspapers) to 96s. for general printing in small towns and rural areas; there were many different rates for higher and lower degrees of skill. Working hours varied, but the usual working week, except for newspapers, was 45 hr.; this, however, was to be reduced by stages under an agreement reached in Oct. 1946, and wages were to be increased. Wages in the textile trades depended mainly on piecework earnings and can not be simply stated: the working week was of 48 hr. On the railways, male porters ranged from 91s.6d. to 84s. and engine drivers from 126s.6d. to 113s.6d., for a week of 48 hr. Dockers got 19s. a day in the larger and 18s. in the smaller ports, with a working week of 44 hr. For road haulage, rates ranged from 89s. to 107s. in London, and from 82s. to 98s. in the provinces, with a few exceptional higher rates for a working week of 48 hr. Seamen had widely varying rates, with a week of 56 hr. Shop assistants were largely on graded age scales, rising to 80s. or more for men at 24 or 25, with a much wider range for women, whose rates at 24 or 25 varied from 54s. to 64s. for a 48-hr. week. In industries covered by the Wage Councils act (formerly Trade Boards act) the standard hours were usually 48, and hourly rates were usually from about 1s.6d. to 1s.8d. for men and from 11d. to 1s.3d. for women, though both higher and lower rates existed.

For earnings, as distinct from time rates, no figures were available at the end of the year for a date later than Jan. 1946. At that date average earnings for all types of workers were roughly 74% higher than in Oct. 1938. The official cost-of-living index was in Jan. 1946 only 31% higher than in 1938; but this grossly understated the actual rise in living costs, which could not be put at less than 60% for the average working-class household. In comparison with 1938 women and less skilled workers improved their relative position. During 1946 rates of wages rose in many industries, but much of the increase was offset by a fall in earnings because of the cessation of highly paid war work and to some fall in average hours actually worked, especially by women. Up to Aug. 1946 there had been during the 8 mo. an increase of £2,349,000 in the weekly wages of 6,697,000 workers, as compared with a rise of £1,422,000 in the wages of 5,825,000 workers during the corresponding months of 1945. In general, the trade unions in 1946 were restraining their members from asking for large wage increases in order to avoid embarrassing the government by setting inflationary forces in motion. (See also LABOUR UNIONS; PRICES.)

(G. D. H. C.)

Wake Island: see PACIFIC ISLANDS, U.S.

Wales: see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

Walker, James J. (1881-1946), U.S. politician, was born on June 19 in New York city. He studied at the New York Law school and was admitted to the New York state bar in 1912. Gravitating easily into politics, he became a district captain, a member of the assembly, 1909, and under the tutelage of Alfred E. Smith, was elected to the state senate, 1914. With the backing of the Tammany organization and Gov. Smith, Walker was nominated in 1925 as the democratic mayoralty candidate in the primary elections. He served as mayor of New York city for two terms, 1925-32.

During his first term he created the department of sanitation, brought about unification of the city's public hospitals, made considerable improvements in the playgrounds and park systems and under his guidance the board of transportation approved contracts for the construction of an elaborate subway system.

Re-elected to office in 1929, his personal integrity and the soundness of his administration came under critical fire from several sources. In 1931 the New York legislature formed a committee to investigate the affairs of New York city. As a result of this investigation extensive corruption was revealed and 15 charges were levelled against Walker. Accused, among other things, of being actuated by improper and illegal considerations and of being unable to explain satisfactorily the large sums of money deposited in his bank account, he resigned Sept. 1, 1932. He was named chairman of the National Cloak and Suit industry in 1940; he later became the president of the Majestic Records company. Walker died in New York city Nov. 18.

Wallace, Henry Agard (1888-), U.S. statesman. (See *Encyclopædia Britannica*.) Wallace was secretary of agriculture in the cabinet of Franklin D. Roosevelt from March 4, 1933, until Sept. 5, 1940, when he resigned to campaign for the vice-presidency, to which he was elected the following Nov. 5.

President Roosevelt appointed him head of the Economic Defense board (later the Board of Economic Warfare) on July 31, 1941, and chairman of the Supply Priorities and Allocations board on Aug. 28 of that year. At the Democratic national convention in July 1944, Wallace was defeated for renomination as Roosevelt's running mate, but he played an active part in the campaign for the president's re-election. On Jan. 22, 1945, Roosevelt nominated Wallace to succeed Jesse Jones as secretary of commerce and directing head of the Reconstruction Finance Corporation and its affiliated lending agencies. The senate commerce committee rejected Wallace as head of the RFC; his nomination for secretary of commerce, however, was confirmed March 1.

On Sept. 12, 1946, Wallace delivered a speech in New York in which he denounced the administration's alleged "get-tough-with-Russia" policy. The address caused an uproar and resulted in charges that it embarrassed the position of Secretary of State James Byrnes at the Paris peace conference, in session at that time, and finally ended in President Truman's request for Wallace's resignation as secretary of commerce. Wallace complied Sept. 20, declaring that he felt that "winning the peace" was more important than holding public office. Later, he became editor in chief of the *New Republic*.

Walnuts: see NUTS.

War Assets Administration: see SURPLUS PROPERTY DISPOSAL.

War Brides: see IMMIGRATION AND EMIGRATION.

War Communications, Board of: see FEDERAL COMMUNICATIONS COMMISSION.

War Contracts: see CONTRACT TERMINATIONS.

War Crimes. On Jan. 13, 1942, an Inter-Allied conference met in London with delegates present from the governments of Belgium, Czechoslovakia, Free France, Greece, Luxembourg, the Netherlands, Norway, Poland and Yugoslavia. Representatives of Great Britain, Australia, Canada, India, New Zealand, the Union of South Africa, the United States of America, the Union of Soviet Socialist Republics and China were present as guests. In a joint declaration on the punishment of war crimes the conferees resolved to "place among their principal war aims the punishment, through the channel of organized justice, of those guilty of or responsible for these crimes, whether they have ordered them, perpetrated them, or participated in them."

On Oct. 7, 1942, President Franklin D. Roosevelt for the United States and Lord John Simon, lord chancellor for the British government, in separate declarations announced "the intention to apprehend and punish war criminals, as well as to create an agency to investigate war crimes."

The following year on Oct. 20, 1943, at a meeting of the government representatives at the foreign office in London, the commission was brought into being under the title, United Nations War Crimes commission.

The commission consisted of 16 members—the representatives of the governments of Australia, Belgium, Canada, China, Czechoslovakia, France, Greece, India, Luxembourg, the Netherlands, New Zealand, Norway, Poland, the United Kingdom, the United States of America and Yugoslavia.

The commission was created as a fact-finding body, but was later also given advisory functions. Its purposes, according to the terms of reference, were to investigate war crimes committed against the nationals of the United Nations, recording the testimony available, and to report from time to time to the governments of these nations cases in which such crimes appeared to have been committed, naming and identifying wherever possible the persons responsible.

Some little time after the creation of the commission its functions were enlarged to include that of making recommendations to the governments on such matters as the methods adopted to ensure surrender or capture of persons wanted for trial as war criminals and the tribunals by which they should be tried. The U.S.S.R. was not represented.

The Hon. Robert C. Pell, formerly U.S. minister to Portugal and Hungary and former member of congress, was the first commissioner to represent the United States. He was succeeded on May 10, 1945, by Col. Joseph V. Hodgson, judge advocate general's department, army of the United States, who had served both as deputy and acting commissioner since Jan. 1, 1945. Lt. Earl W. Kintner, then deputy commissioner, served as acting commissioner after the resignation of Col. Hodgson on May 17, 1946. Col. Robert M. Springer, judge advocate general's department, U.S. army, was appointed commissioner by President Harry S. Truman on July 18, 1946.

National War Crimes Office.—It soon became apparent that the commission could not itself investigate the mass of charges and reports of war crimes. Shortly after its formation the commission, therefore, urgently recommended to each of the member nations that it establish a national war crimes office to investigate war crimes against the citizens of its own country. Each had a war crimes office which detected, investigated and recorded evidence of war crimes. When a national office determined that a case was reasonably complete it forwarded a summary of the same to the United Nations War Crimes commission or its subcommission in the far east which examined the information and materials.

The U.S. War Crimes branch was originally established in the judge advocate's office in Washington, D.C., under the direction

of Brig. Gen. John M. Weir, assistant judge advocate general. He was succeeded by Col. David Marcus, general staff corps, on Feb. 18, 1946. The mission of the U.S. War Crimes branch was:

To collect from every available source of evidence of cruelties, atrocities, and acts of oppression against members of the armed forces and other Americans, including the people of any dependencies of the United States, such as the Philippines; to examine, evaluate and organize such evidence; to arrange for the apprehension and prompt trial of persons against whom *prima facie* case is made out, and for the execution of sentences which may be imposed.

On March 4, 1946, the functions and duties of the War Crimes branch were transferred from the judge advocate general's department to the civil affairs division, war department special staff.

War Crimes Office of the European Theatre of Operations.—On Dec. 25, 1944, the war department directed that there be established a branch in the office of the theatre judge advocate to have as "its primary function the investigation of alleged war crimes, and the collection of evidence relating thereto, including, for transmission to the governments concerned, evidence relating to war crimes committed against nationals of other United Nations." It was also directed pending further instructions "no war criminals will be tried before military tribunals, except those cases in which the offenses involve the security or the successful carrying out of military operations of occupation." The first comprehensive directive concerning the trial of war criminals was issued by the joint chiefs of staff and was identified as J.C.S. 1023 series. The responsibility for the prosecution of war crimes in the European theatre was vested in the deputy theatre judge advocate, whose headquarters were located in Augsburg, Germany.

The secretary of the navy, upon the suggestion of the secretary of war, joined in the setting up of the office and provided for participation through a navy division and navy personnel under the judge advocate general of the navy. The agency thus established in the war department, by agreement between the state, navy and war departments, was authorized to act jointly for the three departments in handling war crimes matters. It thus performed the functions of the U.S. National War Crimes office.

Office of Chief of Counsel—Nuernberg.—On May 2, 1945, the president by executive order established the Office of Chief of Counsel, designating Associate Justice Robert H. Jackson "the representative of the United States as its Chief Counsel, in preparing and prosecuting charges of atrocities and war crimes against such of the leaders of the European Axis powers and their principal agents and accessories as the United States may agree with any of the United Nations to bring to trial before an international military tribunal." In the United States there was established a supporting unit under the office of the assistant secretary of war. In conformity with the Moscow declaration of Oct. 30, 1943, Justice Jackson completed in Aug. 1945 an agreement with the British, French and soviets for the prosecution and punishment of major axis war criminals.

International Military Tribunal—Nuernberg.—The tribunal at Nuernberg opened on Nov. 21, 1945. The four nations whose forces were occupying Germany were represented, viz., Great Britain, France, the United States and the U.S.S.R.

In Justice Jackson's report to the president June 7, 1945, he reported on the accomplishments after he was named chief of counsel. He outlined the necessity for the trial, procedure and defenses at the trial, named the defendants (individuals and organizations), the crimes to be charged, the legal charges, the legal position of the United States and the time and duration of the trial. Germans Hermann Wilhelm Goering, Rudolf Hess, Joachim von Ribbentrop, Robert Ley, Wilhelm Keitel, Ernst

Kaltenbrunner, Alfred Rosenberg, Hans Frank, Wilhelm Frick, Julius Streicher, Walther Funk, Hjalmar Schacht, Gustav Krupp von Bohlen und Halbach, Karl Doenitz, Erich Raeder, Baldur von Schirach, Fritz Sauckel, Alfred Jodl, Martin Bormann, Franz von Papen, Arthur Seyss-Inquart, Albert Speer, Constantin von Neurath and Hans Fritzsche were accused of war crimes and crimes against humanity and of a common plan of conspiracy to commit these crimes, as defined in the charter of the tribunal. The following named groups or organizations were indicted by reason of their aims and the means used for the accomplishment thereof and in connection with the conviction of such of the named defendants as were members thereof: *Die Reichsregierung* (reich cabinet), *Sozialistischen Deutschen Arbeiterpartei* (leadership corps of the nazi party), *Die Schutzstaffeln der Nationalsozialistischen Deutschen Arbeiterpartei* (commonly known as the SS) and including *Die Geheime Staatspolizei* (secret state police, commonly known as the gestapo), *Die Sturmabteilungen der Nationalsozialistischen Deutschen Arbeiterpartei* (known as the SD) and the general staff and high command of the German armed forces.

After more than 10 months and more than 1,000 hours of sessions—after about 200 witnesses had spoken and about 5,000,000 words of testimony heard, 21 of the available leaders and 7 organizations were called to account for their crimes against the world. Only 21 defendants were on the dock, although the indictment listed 24. Martin Bormann, who succeeded Hess as deputy party leader, was tried *in absentia*. He was believed to have died during the fall of Berlin. Robert Ley had committed suicide on Oct. 25, and the proceedings against Gustav Krupp von Bohlen und Halbach were postponed because of his physical condition. The tribunal had sought, through these defendants, to present the world with a vast documented study and judicial history of the nazi movement—a study which would make people know what that movement did to Germany and to the world and how it did it.

Hjalmar Schacht, Franz von Papen and Hans Fritzsche were acquitted by a 3-1 vote of the court. The judge representing the soviets filed a minority opinion, in which he stated that he was of the opinion that Schacht, von Papen and Fritzsche were guilty. Rudolf Hess, Walther Funk and Erich Raeder were

sentenced for life; Baldur von Schirach and Albert Speer were given 20 years, Constantin von Neurath, 15 years and Karl Doenitz, 10 years; the remainder of the defendants received the death penalty. Executions were carried out by hanging, except Goering, who committed suicide. The following organizations were declared noncriminal: the reich cabinet, general staff and high command and "SA."

The court ruled (1) that aggressive war was an international crime; (2) that individuals who are responsible for planning and waging aggressive war were individually responsible; (3) that the fact that a defendant had acted pursuant to order of his government or superior did not free him from responsibility and that the true test was not the existence of the order, but whether moral choice was in fact possible. The tribunal limited the meaning of aggressive war in defiance of treaties and assurances and ruled that a conspiracy must be clearly outlined in its criminal purpose—that is, must not be too far removed from the time of decision and action; that the planning to be criminal must not rest merely on a party program such as was found in the 25 points of the nazi party in Hitler's *Mein Kampf*; it must be found that a concrete plan to wage war existed and only the participants under that concrete plan could be guilty of conspiracy.

Brig. Gen. Telford Taylor succeeded Justice Jackson as chief of counsel, conducting trials in the zonal courts at Nuernberg. Twenty-three doctors had been indicted for crimes committed by the German medical profession.

International Military Tribunal—Tokyo.—The International Prosecution section in Tokyo was prosecuting the major Japanese war criminals before the International Military Tribunal for the Far East composed of members from 11 United Nations. In many respects the International Prosecution section setup was similar to the organization at Nuernberg. One major difference was that Joseph B. Keenan, the prosecutor, was appointed by Gen. Douglas MacArthur in his capacity as

DEFENDANTS at the war crimes trial at Nuernberg, Germany, where on Oct. 1, 1946, they received their sentences. Left to right, front row: Hermann Goering; Rudolf Hess; Joachim von Ribbentrop; Field Marshal Wilhelm Keitel; Ernst Kaltenbrunner; Alfred Rosenberg; Hans Frank; Wilhelm Frick; Julius Streicher; Walther Funk; Hjalmar Schacht. Back row: Grand Admiral Karl Doenitz; Grand Admiral Erich Raeder; Baldur von Schirach; Fritz Sauckel; Col. Gen. Alfred Jodl; Franz von Papen; Arthur Seyss-Inquart; Albert Speer; Constantin von Neurath; Hans Fritzsche





TOJO pleading not guilty on all counts, before the International Military tribunal at Tokyo on May 6, 1946

the supreme commander for the Allied powers (S.C.A.P.)

Outstanding judges were appointed from Australia, Canada, China, Great Britain, the Netherlands, New Zealand, soviet union, United States, France, India and the Philippine Islands. The prosecution, in its indictment charging certain Japanese leaders with the commission of war crimes such as plunging Japan into an unjust and illegal war in breach of treaty under international law, chose the technical weapon of the doctrine of conspiracy. But it did not employ a conspiratorial doctrine which was limited to any particular legal system. It adopted a generic concept of conspiracy which was suitable and just, according to international law, in a case of first impression, because it embraced juridical materials which were common to the great legal systems of the world. The date after which acts were regarded as war crimes by the tribunal was set as the Mukden incident of Sept. 18, 1931. Those accused were: Sadao Araki, Kenji Doihara, Kingoro Hashimoto, Shunroku Hata, Kiichiro Hiranuma, Koki Hirota, Naoki Hoshino, Seishiro Itagaki, Okinoro Kaya, Koichi Kido, Heitaro Kimura, Kuniaki Koiso, Iwane Matsui, Yosuke Matsuoka, Jiro Minami, Akira Muto, Osami Nagano, Takasumi Oka, Shumei Okawa, Hiroshi Oshima, Kenryo Sato, Mamoru Shigemitsu, Shigetaro Shimada, Toshio Shiratori, Teiichi Suzuki, Shigenori Togo, Hideki Tojo and Yoshijiro Umezu.

The legal section of S.C.A.P. was charged with the prosecution of all other war crimes. This section was under the direction of Col. Alva C. Carpenter. Its headquarters was in Tokyo, and it had a branch office in Manila. Trials were held in Yokohama and in Manila. The Tomoyuki Yamashita and Masaharu Homma trials were under the jurisdiction of this section. It was contemplated that during 1947 ten military commissions would be engaged in trying cases selected by the prosecution to ensure that the high U.S. standards of fair play and justice were incorporated into these trials. Gen. MacArthur by a regulation directed: (1) that accused should be entitled to have in advance of trial a copy of the charges clearly worded; (2) that accused should be entitled to be represented prior to and during trial by counsel appointed by the convening authority or by counsel of his own choice; (3) that accused should be entitled to testify in his own behalf, present evidence in his behalf and cross-examine adverse witnesses and (4) that proceedings

should be carried on in a language understood by the accused.

The War Crimes office of the U.S. navy at Guam was performing functions similar to those of the legal section of S.C.A.P. in the prosecution of war crimes. Beginning with the time the U.S. forces retook Guam, the navy was prosecuting various crimes committed on Guam during the Japanese occupation, also war crimes committed in the Kwajalein group and on Wake Island.

As of Dec. 1, 1946, in all theatres, 292 trials had been completed, involving 942 accused. Of these, 85 were acquitted and 857 convicted, 340 were given the death sentence, 102 received life imprisonment and the balance received prison terms ranging from 1-50 years. Offenses for which prisoners were tried included murder, cruelty and torture, starvation and neglect, other assaults and mistreatments, misuse of flag of truce, uniform or emblem and other offenses.

A total of 11,727 suspects were being held in custody under individual suspicion as of Dec. 1, 1946, of which 6,207 were being held for trial by the United States and 5,520 for trial by other nations.

(D. Ms.)

War Damage Corporation: see INSURANCE.

War Damage Insurance: see INSURANCE.

War Debts. A statement follows showing the World War I indebtedness of foreign governments to the United States as of July 1, 1946.

Country	Principal	Accrued Interest	Total Indebtedness
Funded debts:			
Belgium	\$ 400,680,000.00	\$ 111,215,077.60	\$ 511,895,077.60
Czechoslovakia	165,241,108.90	14,418,713.03	179,659,821.93
Estonia	16,466,012.87	8,598,217.94	25,064,230.81
Finland	7,734,932.45	683,583.56	8,418,516.01
France	3,863,650,000.00	820,031,394.40	4,683,681,394.40
Germany (Austrian indebtedness)*	25,980,480.66	44,058.93	26,024,539.59
Great Britain	4,368,000,000.00	2,199,564,782.58	6,567,564,782.58
Greece	31,516,000.00	5,793,375.10	37,309,375.10
Hungary	1,908,560.00	898,748.21	2,807,308.21
Italy	2,004,900,000.00	52,275,159.34	2,057,175,159.34
Latvia	6,879,464.20	3,474,733.84	10,354,198.04
Lithuania	6,197,682.00	3,082,026.11	9,279,708.11
Poland	206,057,000.00	107,606,444.20	313,663,444.20
Rumania	63,860,560.43	12,880,838.94	76,741,399.37
Yugoslavia	61,625,000.00	2,079,843.78	63,704,843.78
Total	\$11,230,696,801.51	\$3,342,666,997.56	\$14,573,363,799.07
Unfunded debts:			
Armenia	\$ 11,959,917.49	\$ 16,029,157.71	\$ 27,989,075.20
Russia	192,601,297.37	265,108,005.45	457,709,302.82
Total	\$ 204,561,214.86	\$ 281,137,163.16	\$ 485,698,378.02
Total of above	\$11,435,258,016.37	\$3,623,804,160.72	\$15,059,062,177.09
Germany:†			
Army costs (reichsmarks)	\$ 997,500,000.00	\$ 75,606,895.25	\$1,073,106,895.25
Awards of Mixed Claims Commission (reichsmarks)	2,040,000,000.00	216,240,000.00	2,256,240,000.00
Total (reichsmarks)	\$3,037,500,000.00	\$291,846,895.25	\$3,329,346,895.25
Total (in dollars at 40.33 cents to the reichsmark)	\$1,225,023,750.00	\$117,701,852.85	\$1,342,725,602.85

*The German government had been notified that the government of the United States would look to the German government for the discharge of this indebtedness of the government of Austria to the government of the United States.

†Indebtedness to the United States under agreements of June 23, 1930, and May 26, 1932.

(E. F. B.)

War Department, U.S.: see GOVERNMENT DEPARTMENTS AND BUREAUS.

War Manpower Commission: see UNITED STATES EMPLOYMENT SERVICE.

War Medicine: see MEDICINE; PSYCHIATRY.

War Mobilization and Reconversion,

Office of. The U.S. Office of War Mobilization and Reconversion was established on Oct. 3, 1944, by act of congress, to co-ordinate the mobilization of the United States

for war and to plan for and guide the transition of the nation from war to peace. By executive order at the same time, the president transferred to OWMR the functions and authority of the Office of War Mobilization, which had been created by executive order May 27, 1943.

Subject to the direction of the president, the director of war mobilization and reconversion is responsible for: co-ordinating and directing federal agencies in reconversion programs, and to this end, issuing orders and regulations to them, and settling disagreements among them; promoting and assisting the development of demobilization and reconversion plans by them; determining the need to simplify, consolidate or eliminate emergency war agencies; determining the need to relax or remove emergency war controls; recommending appropriate legislation to the congress; consulting and co-operating with state and local government, industry, labour, agriculture and other national and local groups on the problems of reconversion; submitting quarterly reports to the president, the senate and house of representatives on activities undertaken or contemplated under the provisions of the War Mobilization and Reconversion act of 1944.

On June 25, 1946, John Roy Steelman, special assistant to the president of the United States, was appointed director of war mobilization and reconversion. Previous directors had been Secretary of the Treasury John W. Snyder (July 1945 to June 1946), Chief Justice of the United States Fred M. Vinson (April 1945, to July 1945) and Secretary of State James F. Byrnes (Oct. 1944 to April 1945).

The act creating OWMR also authorized the president to delegate various powers to the director of reconversion. To advise with the director on reconversion policies, procedures and legislation, the act established an advisory board to represent the general public and the public interest. During 1946 members of the OWMR advisory board were: (public) Dr. George W. Taylor, chairman, Mrs. Anna M. Rosenberg, one membership vacant; (agriculture) Albert F. Goss, Edward A. O'Neal, James G. Patton; (labour) T. C. Cashen, William L. Green, Philip F. Murray; (business) Nathaniel Dyke, Jr., Eric A. Johnston and George H. Mead.

On July 25, 1946, the functions and personnel of the Office of Economic Stabilization were transferred to OWMR and Mr. Steelman became also director of economic stabilization. OES had been established Oct. 3, 1942, in the Office for Emergency Management by executive order of the president, to control as far as possible inflationary tendencies which would hamper the war effort and the operation of the domestic economy. The OES was also made responsible for formulating and developing national policy for the control of civilian purchasing power, prices, rents, wages, salaries, profits, rationing, subsidies and related matters in order to prevent avoidable increases in the cost of living.

On Aug. 15, 1946, when the first full year of reconversion was completed, the director of reconversion reported that considerable progress had been made toward achieving the nation's four major domestic economic goals. These had been set forth when reconversion began: (1) jobs for all those willing and able to work; (2) a steadily rising standard of living; (3) stabilization of the economy to avoid either inflation or deflation; and (4) increased opportunities for farmers and businessmen.

(1) Substantially full employment was reached a year after the surrender of the Japanese, with civilian employment in the United States at 58,100,000 in Aug. 1945, as against 51,200,000 in the slump that followed V-J day. (2) The annual rate of U.S. production of goods and services in Aug. 1946 for civilians was \$73,000,000,000, as against \$127,400,000,000 during the

third quarter, 1945. The rate of production of capital goods and materials going into business inventories had multiplied almost three times—from a rate of \$11,200,000,000 in the third quarter, 1945, to \$33,000,000,000 a year later. Total construction, residential and nonresidential, had increased from a rate of \$2,900,000,000 to \$10,000,000,000. Income payments to individuals reached a rate of more than \$163,000,000,000, or more than 60% above the previous U.S. peacetime peak. (3) Although 13,000,000 men and women had been demobilized by the armed forces (10,000,000 of them after V-J day) their absorption into the civilian economy had been generally smooth and rapid; the nation had avoided the deflation which threatened when war production ceased and readjustment to peacetime began. (4) Business profits before taxes, in most segments of the economy, continued good, while profits after taxes were at record levels. U.S. farmers were harvesting record grain crops and were selling at good prices all the foods and other crops they could produce.

The principal task of the OWMR in 1946 toward achieving these goals was to direct and co-ordinate activities of federal agencies toward securing stabilization of the economy at a high level of production. During this time it was necessary for OWMR-OES to retain some emergency stabilization controls, particularly affecting the relationship between wages and prices, as well as some production controls, as a safeguard against runaway inflation.

As special reconversion problems developed, the OWMR took steps to meet them. To deal with the scarcity of housing, particularly of homes for veterans, the OWMR recommended the appointment of a housing expediter. When the expediter was appointed in Jan. 1946, the director of reconversion delegated appropriate powers to him. The reconversion director took steps to bring scarce building materials under priority, and into construction of moderate priced housing. Throughout 1946 the OWMR co-ordinated activity of federal agencies in developing the Veterans Emergency Housing Program.

An OWMR pilot study on veterans' education, completed early in the year, indicated that 1946 fall enrolment of student veterans in U.S. colleges and universities would severely tax their facilities. To aid them in meeting the educational needs of as many veterans as possible, the director of reconversion drew up a nine-point program of federal interagency action. The OWMR study and program paved the way for appointment by the president of the National Commission of Higher Education to examine the long range problems of higher education in the United States.

On Aug. 5, 1946, the director of reconversion, in order to minimize the inflationary effect of government spending for deferrable public works construction, ordered a cutback in federal construction outlay for the 1947 fiscal year. He directed agencies to stop letting new construction contracts for 56 days, or until Oct. 1, and at the end of the moratorium to let new contracts only after projects had received a strict screening for essentiality.

As a result of these various actions, on Oct. 1, 1946, the director of reconversion was able to report, "We have a chance to maintain high levels of employment for extended periods, and to progress toward higher levels of production and a steadily rising living standard." Nevertheless, inflationary pressures persisted, and he warned: "But we do face an acute threat—the danger that we will be unable to shift from the present situation where demand exceeds supply to one where demand and supply are approximately in balance, without falling to a point of equilibrium on a far lower level of income and production than we now have." (See also CIVILIAN PRODUCTION ADMINISTRATION.)

BIBLIOGRAPHY.—An account of OWMR policies and actions of 1946 appears in the publications of the agency for the year, which include:

Battle for Production, fifth quarterly report of the director of reconversion to the president and the congress (Jan. 1, 1946); *Rubber*, first report of the OWMR Inter-Agency Policy Committee on Rubber (Feb. 19, 1946); *Production Moves Ahead*, sixth quarterly report (April 1, 1946); *The Veteran and Higher Education*, special report to the president (May 20, 1946); *At the Crossroads*, seventh quarterly report (July 1, 1946); *Rubber II*, second report of the OWMR Inter-Agency Policy Committee on Rubber (July 22, 1946). This included the committee's supplementary report, issued June 13, 1946, on the disposal of butadiene and copolymer plants; *The Second Year of Peace*, eighth quarterly report. (Oct. 1, 1946). (J. R. SN.)

War Prisoners: see PRISONERS OF WAR AND DISPLACED PERSONS.

War Production Board: see CIVILIAN PRODUCTION ADMINISTRATION; PRIORITIES AND ALLOCATIONS.

War Relocation Authority. The U.S. War Relocation authority, which had been created on March 18, 1942, to provide maintenance and useful employment for the people of Japanese ancestry evacuated from the west coast military zone, realized substantial completion of its wartime job with the closing of its last centre, at Tule Lake, Calif., on March 20, 1946. It had closed the eight remaining relocation centres according to schedule, late in the previous year. One centre was closed on June 30, 1944. During its four-year existence the agency had jurisdiction over a total of about 120,000 individuals. It directly assisted about 110,000 persons to relocate to normal outside communities, slightly more than 50% of whom returned to their west coast homes following revocation of the military ban on Jan. 2, 1945. The remaining few thousands included persons committed to various institutions, deaths and those who were designated by the department of justice as ineligible for relocation.

Certain of the WRA field relocation offices, particularly on the west coast, remained active for several weeks following the closing of the Tule Lake centre and completed the job of assisting the more recent resettlers, some of whom were still living in temporary housing projects, in making more permanent readjustments to life outside the centres. In all localities where any number had gone, the authority arranged for continuation of necessary services to resettlers through recognized local community services, both public and private.

The Washington office was closed June 30, 1946, on schedule. It was expected that final disposition of property and records would be completed by the end of the 1947 fiscal year. This activity was made the responsibility of a small liquidation unit within the department of the interior.

WRA completed its administration of the Emergency Refugee Shelter at Oswego, N. Y., early in Feb. 1946. Under a Dec. 22, 1945, decision by the president, the refugees had been declared eligible to apply for admission to the United States under the regular immigration laws and the quotas of their various countries. Of the shelter's 900 residents at that time, all but a very few elected and were permitted to enter the U.S. They were directly assisted in their resettlement problems by the National Refugee Service and co-operating agencies. (See also ALIENS.) (B. N. L.)

War Risk Insurance: see INSURANCE.

War Savings Stamps: see POST OFFICE.

War Shipping Administration. Established by presidential order Feb. 7, 1942, its wartime operation of the world's largest merchant fleet well done and the initial steps toward peacetime operation taken, the War Shipping administration, by congressional action, transferred its remaining tasks to the U.S. maritime commission at midnight Aug. 31, 1946.

WSA controlled, at the end of World War II, 4,286 ships manned by 250,000 officers and men, of whom 5,800 were killed or missing. About 733 major vessels were lost from direct war causes.

Of the 268,000,000 long tons of outbound cargo, 75% moved on U.S. flagships, but by Aug. 31, a short year from the war's end, WSA had reduced ship allocation to the army and navy from 2,695 to 713, to essential civilian programs from 1,062 to 713, to United Nations Relief and Relief administration and related programs from 1,040 to 655 and assigned 1,593 vessels to the nation's reserve fleet. About 700 government-owned ships had been interim-bareboat chartered to U.S. private operators, 835 redelivered to former private owners, 212 transferred to the army and navy, 56 sold for scrapping and 51 lost from various causes. On Sept. 1 the total ships under government control had been reduced to 1,672.

The domestic service fleet of 467 vessels bore the brunt of shipping needs at the outbreak of war and was reduced to about 200 vessels through war losses. To restore these vital coastwise, intercoastal and noncontiguous services WSA applied for and was granted authority by the Interstate Commerce commission. Unless further extended, this authority was to terminate Feb. 28, 1947. (W. W. SH.)

Washington. A state in the extreme northwest United States, popularly known as the "Evergreen state," admitted to the union Nov. 11, 1889. Total area, 68,192 sq.mi. of which 66,977 sq.mi. are land; pop. (1940) 1,736,191; native 1,525,812; foreign born 210,379. On July 1, 1945, the bureau of the census estimated the civilian population of the state at 1,953,725. Capital Olympia (13,254). According to 1945 estimates the three largest cities had grown perceptibly after 1940; Seattle from 368,302 to 470,000 (est.); Spokane from 122,001 to 144,000 (est.); Tacoma from 109,308 to 139,000 (est.). The urban population in 1940 was 921,969 or 53.1%; in 1945 it was 1,370,134 (est.) or 67.4%.

History.—Despite the largest registration of voters in the state's history, the numbers of votes cast at the primary and general elections were far below those of 1944. The incumbent United States senator and the six congressmen were all re-nominated in the primaries. Political reversals came in the general elections. Harry P. Cain, Republican, defeated Hugh B. Mitchell, Democrat, for the senate by a vote of 358,847 to 298,683. The Republicans elected five of the state's six congressmen. Whereas Democrats had substantial majorities in the 29th state legislature, the count in the 30th would be: house of representatives, Republican 71, Democrats 28; state senate, Republicans 23, Democrats 23.

The voters rejected one initiative measure and two referendum measures. Initiative measure no. 166, upon which the two largest utility companies in the state took opposite views, would have required the approval of voters in utility districts "as a prerequisite to acquisition of any operating electrical utility properties." Referendum measure no. 26 was intended to make the state game commission responsible to the governor, and referendum measure no. 27 was to create a state timber resources board. An amendment to the state constitution "to permit the state to tax the United States and its instrumentalities to the extent that the laws of the United States will allow" was ratified by the electorate.

State officers for 1947: governor, Mon C. Wallgren; lieutenant governor, Victor A. Meyers; secretary of state, Belle Reeves; treasurer, Russell H. Fluent; auditor, Cliff Yelle; attorney general, Smith Troy; state superintendent of public instruction, Pearl A. Wanamaker (elected on nonpartisan basis); chief justice of the state supreme court, Joseph A.

Mallery; speaker, house of representatives, Herbert M. Hamblen.

Education.—During the school year 1945-46, average daily attendance in elementary and secondary schools was 298,944; the total number of certified personnel was 13,353 whose average salary was \$2,529.99. Total expenditures were \$54,274,976.62 and the cost per pupil in attendance was \$181.29.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the period of Oct. 1945 to Sept. 1946 inclusive, the total amount spent for public assistance in the state, including federal direct expenditures and state aid, was \$64,084,446.88. An average of 109,015 persons received assistance to the total amount of \$60,874,727.89. An average of 24,886 persons per month received a total of \$8,276,305.22 for general assistance. An average number of 64,196 old persons received a total of \$45,673,630.01. An average number of 19,316 children received a total of \$6,492,602.67. An average number of 617 blind persons received a total of \$432,220. Ten state charitable institutions which on Nov. 30, 1946, had a total population of 9,606 cost the state \$4,188,063.91 during the year April 1, 1945, to March 31, 1946; four state correctional institutions at this date had a total population of 2,215 and spent \$1,283,043.27 during the above fiscal year.

Communication.—In 1944 there were 5,524 mi. of railroad in the state. In 1946 mileage of both state and rural highways, exclusive of cities or incorporated towns, was 46,049; federal aid funds apply to 8,260 mi. of these. During 1946 up to Sept. 30, the state spent \$10,323,267.84 for construction. In 1944 there were 174,734 business telephones and 275,057 residential units in the state.

Banking and Finance.—The total assessed valuation of all real and personal property subject to tax for the year 1945 was \$1,204,467,845; the bonded indebtedness was \$7,019,000, easily covered by various bond retirement funds. The state aggregate cash balance on Sept. 30, 1946, was \$132,908,861. Total treasury receipts during the biennium ending Sept. 30, 1946, were \$498,032,365, whereas disbursements amounted to \$448,835,071. One hundred and twenty-six banks in the state reported a total capital of \$37,158,000; capital surpluses and undivided profits of \$88,904,000; deposits of \$2,235,425,000 and assets of \$2,347,149,000.

Agriculture.—In 1945 the state had 82,437 farms whose acreage totalled 16,798,214 of which 4,160,000 acres were devoted to the average 52 crops, not including orchards. The total farm income was \$512,399,000; from crops \$311,546,000; from livestock \$159,219,000; from governmental payments \$12,747,000.

Leading Agricultural Products of Washington, 1946 and 1945

Crop	1946 (est.)	1945
Wheat, bu.	77,965,000	61,512,000
Apples, bu.	31,684,000	26,900,000
Hay (all), tons	1,811,000	1,882,000
Pears, bu.	8,960,000	7,770,000
Peas (100-lb. bags)	3,478,000	2,726,000
Hops, lb.	20,230,000	21,352,000
Potatoes, bu.	10,120,000	9,120,000
Cherries, tons	33,200	36,500
Oats, bu.	6,144,000	6,450,000

Manufacturing and Trade.—In 1939, the latest year for which figures were available in 1946, the total value of products was \$636,649,809; 101,136 salaried persons and wage earners received a total of \$143,412,064. In 1944 the six basic industries were general manufacturing, food products manufacturing, forest products manufacturing, logging, mining and construction. There were 869,200 salaried workers and wage earners; all industry employed labour for 1,003,431,671 man-hours; and the payroll for all industry was \$1,270,266,925. In 1945, all industry employed labour for 804,459,712 man-hours, and the payroll for all industry was \$1,008,495,496.

The Washington customs district reported \$310,879,000 of exports and \$115,072,000 of imports. Landings of sockeye salmon for 1946 exceeded by more than 250% the average for the previous ten years.

Mineral Production.—Mineral production in 1944 amounted to \$36,320,000; estimates for both 1945 and 1946 indicate \$30,000,000 each year. Value of leading metals for 1945 were: zinc, \$2,604,750; gold, \$2,012,500; copper, \$1,604,800; lead, \$619,200. Henry Kaiser acquired the Tacoma and Mead aluminum reduction plants and the Trentwood aluminum rolling mill—war plants.

(H. J. DE.)

Washington, DISTRICT OF COLUMBIA, national capital of the U.S.A., 11th largest of U.S. cities; pop. (1940) 663,091; estimated pop. in 1946, 930,000 and that of the metropolitan area 1,380,000. Government employees at the end of 1946 numbered about 250,000 in the district, more than twice the peak of World War I and 50,000 less than the peak of World War II.

In 1946 there was an acute housing shortage in Washington. Fairlington across the river in Virginia, with 3,439 housing units and McLean Gardens in the D.C. with 728 units, built by Defense Homes Corp., were sold at the close of 1946 to private real estate interests. The National Capital Housing authority continued to administer public housing built under the Alley Dwelling act and the National Housing act, that inherited from PWA and certain war projects—about 8,000 units in all.

Early in 1946, proposals to add permanent wings to the White House for executive offices were disapproved by congress. These would be provided for in the Old State building, across Executive avenue from the White House and the state department was to move into the first of the war department buildings authorized under the plan for the northwest quadrangle but not needed after the erection during World War II of the vast Pentagon building across the Potomac in Virginia.

New legislation in 1946 amended the Capper-Cramton act of 1930 to ensure the ultimate completion of the George Washington parkway from Mount Vernon in Virginia and Fort Washington in Maryland to the Great Falls of the Potomac.

For the year ending June 30, 1947, estimated expenditures for the District of Columbia were expected to amount to \$86,240,248.91. There had been no bonded indebtedness from 1924. The \$8,000,000 federal contribution authorized by congress in 1946 was less than 10% of the total. Once the federal contribution was half, then 40%. In the meantime, private lands were shrinking and in July of 1945 amounted to 15,385 ac. in a total of 31,016, exclusive of streets and alleys. The sole reason for establishing the city of Washington was to provide a seat for the federal government.

BIBLIOGRAPHY.—National Park Service, Department of the Interior, *Thomas Jefferson and the National Capital* (1946). (H. Js.)

Washington, University of (Seattle). In Jan. 1945 the board of regents formally established schools of medicine and dentistry. Instruction of the first classes, consisting of 50 members each, was begun on Oct. 2, 1946.

On Sept. 1, 1946, the resignation of President Lee Paul Sieg became effective and Dr. Raymond B. Allen, formerly executive dean of the Chicago colleges of the University of Illinois, was elected 21st president of the institution.

Due to the large postwar enrolment an appropriation was made by the state government to be used for increased building facilities. Construction was begun on two new buildings, David Thomson hall and C. C. More hall, in the fall of 1946. Further construction was to be started on a new administration build-

ing, a fine arts building, and a student union building.

Many organizations and individuals contributed gifts to the university in 1946; among these were a \$5,000 grant-in-aid from the Research corporation of New York, \$7,700 from the National Foundation for Infantile Paralysis, an E. I. DuPont De Nemours and company postgraduate fellowship in chemistry, and \$25,000 for the endowment of a professorship in pharmacy by Mrs. Edna J. Quick of Seattle. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(R. B. A.)

Washington University (St. Louis). Washington university, nondenominational and co-educational, is located in St. Louis, Mo. The schools of the university are the college of liberal arts, the schools of engineering, architecture, law, social studies, fine arts, business and public administration, medicine, dentistry, nursing, botany, graduate studies and the university college (principally adult education).

The ninth chancellor, Dr. Arthur Holly Compton, Nobel prize winner and a leader in the development of atomic energy, was inaugurated Feb. 22, 1946.

A 70-family apartment building for faculty members was under construction during the year. Larger gifts during 1945-46 included \$1,564,205.29 for the school of medicine; \$1,250,000 for the establishment of a technological college; \$160,000 for a department of music; and \$40,000 for a new pipe organ for Graham memorial chapel. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(A. H. C.)

Water Supply: see PUBLIC HEALTH ENGINEERING.

Wavell, Archibald Percival, 1ST VISCOUNT, OF CYRENAICA AND WINCHESTER (1883—), British army officer, was born May 5, the son of Maj. Gen. A. G. Wavell. He enlisted in the Black Watch in 1901 after studying at the Royal Military college and the staff college and saw action in the Boer War, in India and in World War I.

From 1937 to 1938 he commanded the British troops in Palestine and Trans-Jordan, and in 1940 he became commander in chief of the British forces in the middle east. His small force of empire soldiers swept the Italians out of Cyrenaica in Libya, and he supervised the operations in East Africa which recaptured British Somaliland and took Italian Somaliland, Eritrea and Ethiopia from the Italians. He suffered serious reverses at the hands of the Germans, however, in Libya, Greece and Crete, and on July 1, 1941, he was dispatched to India as commander of British forces there. On Jan. 3, 1942, he was named supreme commander of Allied armies in the far east, but in March of the same year, he was returned to command of his former post, the India-Burma area. On June 19, 1943, he was appointed viceroy of India and on July 1 was elevated to the peerage as Viscount Wavell. At the Simla conference at which proposals for Indian independence were discussed, Wavell appealed (June 25, 1945) to the Indians for assistance in advancing India "toward prosperity, political freedom and greatness." The conference came to no agreement. After further negotiations in early 1946 produced no results, Wavell and the British cabinet mission in New Delhi agreed to enforce independence and Wavell announced (Aug. 24) appointment of an executive council headed by Pandit Jawaharlal Nehru to govern India as an interim regime pending the drafting of a constitution. He also attended (Dec. 1946) the London parleys on Indian independence. (See also INDIA.)

WAVES: see WOMEN'S RESERVE OF THE NAVY.

Waymack, William Wesley (1888—), U.S. newspaper editor, was born on Oct. 18 in Savanna, Ill. After graduating from Morningside college at Sioux City, Ia., in 1911, he became a reporter for the *Sioux City Journal*, rose to the post of city editor, and was chief editorial writer when he left in 1918 to take a similar position with the *Des Moines Register and Tribune*. He was awarded the Pulitzer prize in 1937 for distinguished editorial writing. Named vice president of the Register and Tribune company in 1939, he became editor of the newspaper in 1942. Mr. Waymack devoted much of his career to public service and held numerous official assignments with the federal reserve bank, the National War Labor board, the War Food administration, the departments of state and agriculture and was a member of Pres. Roosevelt's Committee on Farm Tenancy. He also was a director of the Carnegie Endowment for International Peace, the American Association for United Nations, Freedom House, Inc., the Woodrow Wilson foundation, the National Conference of Christians and Jews, Council for Democracy, Russian War Relief, Inc., and a member of the Allied commission that observed the Greek elections in 1946. On Oct. 28, 1946, Pres. Truman named him to the U.S. Atomic Energy commission, created for the purpose of directing and controlling the development of atomic energy in the U.S.

Wealth and Income, Distribution of.

U.S.—A report on the distribution of liquid assets and income was published in 1946 by the U. S. bureau of agricultural economics for the federal reserve board. The report was entitled *National Survey of Liquid Asset Holdings, Spending, and Saving*, and provided data for the year 1945 on the basis of a small field canvass of family spending units.

The summary data on liquid asset holdings are provided in Tables I and II. The liquid assets covered by these data include government bonds and saving and checking accounts. The survey was unable to obtain satisfactory information on holdings of currency.

Table I.—Distribution of Spending Units and Liquid Assets by Amount of Liquid Asset Holdings*

Total liquid asset holdings	Proportion of spending units	Percent of total liquid assets held
None	24%	0%
1-399	26	3
400-1799	30	20
1,800-3,399	10	17
3,400 and over	10	60
All spending units	100%	100%

*The term "total liquid assets" is used to represent total holdings in U.S. government bonds and in savings and checking accounts.

Table I shows the distribution of the spending units—either single individuals or family groups who pool their major items of income and expense—according to their holdings of liquid assets. It may be seen that these holdings were very unevenly distributed over the spending units. The majority of spending units held either no liquid assets or only small amounts, while a small minority of the units held sizable amounts of government bonds and bank deposits. Almost one quarter of the spending units held no assets of the types covered by this survey, while the second quarter of the spending units held small amounts ranging up to \$400 and accounting for only 3% of total liquid assets. This means that 50% of the spending units had virtually no reserves of government bonds and bank deposits.

The unevenness of the distribution of liquid assets continues through the upper half of the spending units. In the group with asset holdings ranging from \$400 to \$1,800, there were 30% of

the spending units, but this 30% held only 20% of the total liquid assets. At the upper end of the distribution in the group holding \$3,400 and over, there were only 10% of the spending units, but they held 60% of the total liquid assets.

Table II.—Distribution of Spending Units and Liquid Assets by Income Classes

Income bracket	Proportion of spending units	Percent of total liquid assets held*
\$ 0-999	20%	7%
1,000-1,999	27	14
2,000-2,999	23	17
3,000-3,999	15	16
4,000-4,999	7	10
5,000-7,499	5	13
7,500 and over	3	23
All spending units	100%	100%

*The term "total liquid assets" is used to represent total holdings in U.S. government bonds and in savings and checking accounts.

Table II shows the distribution of spending units and liquid assets by the size of income of the spending units. It is readily apparent from these data that the 50% of the spending units holding negligible liquid assets is not so highly concentrated at the lower end of the income scale. While 20% of the spending units had incomes under \$1,000, they, nonetheless, held 7% of total liquid assets. The group with incomes of under \$2,000 contained almost 50% of the spending units, and these units held more than 20% of the assets total.

There was, however, a very marked tendency for the higher income groups to have substantially larger accumulated savings in the form of liquid assets. The group with incomes of over \$4,000 contained 15% of the spending units, but this group owned 46% of total liquid assets.

Interest in the distribution of liquid assets arose from its possible effect upon the postwar level of economic activity. Because the holdings of these assets were so concentrated, it must be concluded that the effect on the postwar economy would depend largely upon the decisions of a small part of the population. The survey inquired into the intentions of the spending units in regard to possible disposal of their liquid assets and found that the majority considered their liquid assets as a nest egg for long-range purposes. They did not intend to use those assets for their current expenditures even for durable goods and housing but planned to finance these outlays out of current income or borrowing. It is interesting to note that the majority of the savers expected to save much less in 1946 than they did during the war years, even though they did not plan to spend a sizable proportion of their accumulated holdings. The data on current savings in the year 1946 show that these intentions were carried out.

As the survey of liquid assets included information on the size distribution of income, the changes in the distribution over the past ten years can be traced by comparison with earlier studies. Such a comparison is presented in Table III. It can be seen that the distribution of income at the present time differs greatly from the prewar pattern.

Table III.—Distribution of Spending Units, Income, and Saving by Income Classes in 1935-36, 1941 and 1945*

Annual income (money income before taxes)	1935-36			1941			1945		
	Spending units	Total income	Total saving	Spending units	Total income	Total saving	Spending units	Total income	Total saving
Under \$1,000	53%	20%	30%	35%	9%	6%	20%	4%	1%
\$1,000-\$1,999	31	33	15	30	21	9	27	16	11
\$2,000-\$2,999	10	17	21	20	24	11	23	23	14
\$3,000-\$4,999	4	11	22	10	18	18	22	32	36
\$5,000 and over	2	19	72	5	28	68	8	25	40
All classes	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Figures for 1935-36 and 1941 are taken from *Spending and Saving of the Nation's Families in Wartime*, Bureau of Labour Statistics Bulletin No. 723, Oct. 1942. Table I of this BLS bulletin gives the distribution of income by income classes, and Tables I and IV were used to estimate total net saving by income classes.

The 1935-36 data were originally developed in the *Study of Consumer Purchases, 1935-36*, made by the National Resources Committee. The material for 1941 represents a combination of the results of two surveys—the one a survey of spending units in urban areas made by the Bureau of Labour Statistics, and the other a survey of spending units in rural areas made by the Bureau of Home Economics, U.S. Department of Agriculture. For 1945, the data are taken from the national liquid assets survey.

Readers are cautioned that the findings of these three surveys are not strictly comparable. The various surveys differ somewhat in the definition of spending units, in the coverage of spending units and in the methods used in collecting the data. The figures in this table, therefore, can not be used to measure precise changes in income and saving by income classes. However, it is believed that the table accurately shows the nature of certain broad changes which occurred in the pattern of income and saving during the war years. In the table, income refers in all cases to money income before taxes and excludes income in kind.

The major trends over the war period were a shifting of spending units from the lower to the higher income groups and a large decline in the percentage of saving that was accounted for by the spending units with high incomes. In 1945, the spending units were relatively evenly distributed over the income classes up to \$5,000, while in both the earlier years for which data were available they were much more concentrated in the lower income groups. More than half of the spending units in 1935-36 had incomes of under \$1,000, but as economic conditions improved this income class declined to 35% in 1941 and to only 20% in 1945. A large change came in the number of units receiving over \$2,000. In 1945, more than half of the spending units had incomes of \$2,000 and over in contrast to 35% in 1941 and to only 16% in 1935-36. At

the upper end of the income scale in the group with earnings of \$5,000 and over, there were 8% of the spending units in 1945 compared with only 2% ten years earlier.

Inasmuch as the rise in incomes had the effect of shifting family units out of the smaller income groups, the families remaining in those groups received a much smaller proportion of the total income in 1945 than they did in 1935-36. For example, the spending units with incomes of under \$2,000 received 20% of total income in 1945, while the much larger number of units in this income class received 30% of total income in 1941 and 53 percent in 1935-36. This does not mean that the low income families failed to participate in the increase in income but rather that, by participating in the increase in income, they had been shifted out of the low income category.

State Distribution of Income Payments.—Estimates of income payments to individuals by states are presented in Table IV for the years 1940, 1944 and 1945.

Table IV.—Distribution of Income Payments by States

State and region	Aggregates (\$'000,000)			Percentage increase in total income payments		Per capita income payments (\$)	
	1940	1944	1945	1940-1945	1944-1945	1940	1945
United States	75,852	149,660	152,704	+101	+2	375	1,150
New England	6,124	10,624	10,744	+75	+1	725	1,288
Connecticut	1,417	2,688	2,608	+84	-3	827	1,449
Maine	431	853	830	+93	-3	509	1,051
Massachusetts	3,309	5,416	5,592	+69	+3	766	1,321
New Hampshire	269	411	446	+66	+9	546	971
Rhode Island	511	950	948	+86	*	715	1,268
Vermont	187	306	320	+71	+5	521	1,023
Middle East	24,319	41,671	43,036	+77	+3	752	1,370
Delaware	239	400	398	+67	-1	896	1,381
District of Col.	905	1,509	1,617	+79	+7	1,080	1,361
Maryland	1,222	2,509	2,467	+102	-2	713	1,212
New Jersey	3,138	5,739	5,655	+80	-1	803	1,373
New York	11,830	19,280	20,308	+72	+5	863	1,595
Pennsylvania	6,225	10,878	11,134	+79	+2	628	1,199
West Virginia	760	1,356	1,457	+92	+7	398	839
Southeast	9,043	21,051	21,703	+140	+3	322	761
Alabama	763	1,902	1,980	+160	+4	268	700
Arkansas	493	1,098	1,171	+138	+7	252	654
Florida	900	2,283	2,387	+165	+5	471	996
Georgia	986	2,336	2,369	+140	+1	315	745
Kentucky	880	1,826	1,916	+118	+5	308	735
Louisiana	847	1,967	1,931	+128	-2	357	785
Mississippi	444	1,147	1,159	+161	+1	202	556
North Carolina	1,131	2,484	2,575	+128	+4	316	732
South Carolina	545	1,245	1,265	+132	+2	286	663
Tennessee	927	2,202	2,353	+154	+7	317	813
Virginia	1,127	2,561	2,597	+130	+1	450	903
Southwest	3,908	9,078	9,095	+133	*	399	906
Arizona	237	566	581	+145	+3	473	918
New Mexico	190	404	431	+127	+7	356	812
Oklahoma	829	1,781	1,820	+120	+2	356	889
Texas	2,652	6,327	6,263	+136	-1	413	917
Central	21,664	41,763	42,610	+97	+2	605	1,217
Illinois	5,740	10,223	10,589	+85	+4	726	1,360
Indiana	1,858	3,946	3,985	+114	+1	541	1,152
Iowa	1,233	2,287	2,516	+104	+10	485	1,109
Michigan	3,425	7,080	6,672	+95	-6	649	1,212
Minnesota	1,424	2,426	2,666	+87	+10	509	1,061
Missouri	1,914	3,602	3,806	+99	+6	505	1,063
Ohio	4,448	8,901	8,925	+101	*	643	1,289
Wisconsin	1,622	3,298	3,451	+113	+5	516	1,161
Northwest	3,363	7,365	7,676	+128	+4	454	1,101
Colorado	589	1,131	1,238	+110	+9	524	1,100
Idaho	232	521	512	+121	-2	440	1,054
Kansas	757	1,931	1,938	+156	*	422	1,113
Montana	321	549	539	+68	-2	574	1,172
Nebraska	569	1,272	1,347	+137	+6	433	1,117
North Dakota	237	559	588	+148	+5	368	1,123
South Dakota	242	518	599	+148	+16	376	1,083
Utah	265	622	641	+142	+3	480	1,023
Wyoming	151	262	274	+82	+5	605	1,096
Far West	7,431	18,108	17,840	+140	-1	750	1,443
California	5,606	13,175	13,124	+134	*	805	1,480
Nevada	92	198	196	+113	-1	836	1,243
Oregon	633	1,602	1,549	+145	-3	579	1,266
Washington	1,100	3,133	2,971	+170	-5	632	1,407

Source: United States Department of Commerce.

*Less than five-tenths of 1%.

Owing to the severe decline in war production following the end of the war in the Pacific, state income payments increased by only 2% in 1945. This was the smallest gain in income since 1939. In all regions of the country, the change in income in 1945 was of small proportions. For six of the seven regions, the flow of income was equal to or slightly larger than the record levels of 1944, while in the far west there was a small decline. The change in the income pattern by states was similarly restricted to a narrow range, from a decline of 5% at one end of the scale to an increase of 16% on the other. However, 42 states had changes in total income that ranged from a rise of 7% to a decline of 3%. In the main, the agricultural states gained in income in 1945, while the states showing decreases were those accounting for large proportions of war production.

Over the entire war period from 1940 to 1945, the regional changes in income were much more varied. Only the central states region experienced an increase in income which was approximately equal to the national average. With income payments for the nation rising 101%

over this period, the central states recorded a rise of 97%. New England and the middle east states were the two regions which had gains significantly less than the national average, 75% and 77% respectively. On the other hand, the other regions had increases substantially exceeding the national average: 140% in the southeast; 133% in the southwest; 128% in the northwest; and 140% in the far west.

It may be seen that these changes in income involved a relative shift of income from higher income regions to lower income regions, thereby reducing the relative differences in the income levels over the country. This pattern of change is largely in accord with prewar trends, though these trends were accelerated during the war years.

Despite a tendency toward reduction of inequality among the states in per capita income—accelerated by war developments—broad differentials still existed, as shown by the table. In 1945, states in which per capita income was less than that of the country as a whole had a composite average two-fifths below the comparable average of states where per capita income exceeded the nation-wide average.

Underlying the differentials in per capita income were significant geographic differences in industrial structure. In general, states with per capita income above the national average showed relatively large proportions of the labour force employed in manufacturing, mining, construction, and the distributive and service industries; relatively small proportions were in agriculture and domestic service. Characteristics of the low-income states were exhibited in marked degree by the southeastern states, where average incomes were the lowest in the country. The southeast placed heavy dependence upon agriculture and domestic service as sources of income. On the other hand, it had relatively fewer workers in the manufacturing and distributive and service industries, where average earnings were considerably higher than in agriculture and domestic service. This "unprofitable" distribution of the southeast's working population explained in large measure the lowness of the region's per capita income. Furthermore, the level of farm income in this region was substantially lower than elsewhere. (See also INCOME AND PRODUCT, U.S.) (M. Gr.)

Great Britain, Commonwealth and Europe.—During 1946 reliable estimates of income distributions were published in Canada, Sweden and the United Kingdom only, but no distributions of wealth were published for recent years. The latest statistics available for Sweden

Table V.—Distribution of Incomes in Sweden, 1943

Ranges of income Kr.	Number of incomes 000's	%	Amount of income million kr.	%
600–1,000	289	9.8	233	2.2
1,000–2,000	749	25.3	1,108	10.3
2,000–4,000	1,056	35.7	3,085	28.7
4,000–8,000	683	23.1	3,646	33.9
8,000–15,000	132	4.5	1,359	12.6
15,000–30,000	36	1.2	721	6.7
30,000 and over	11	0.4	607	5.6
TOTAL	2,956	100.0	10,759	100.0

Source: Swedish Statistical Yearbook, 1945.

analyzed the distribution for 1943, a summary of which is given in Table V.

In the United Kingdom a distribution of income was published for 1944 in the annual official estimates relating to national income and expenditure. This was in a form comparable with the similar distribution for 1938, and is given in Table VI. The Swedish estimates excluded incomes below a low level, mainly occasional incomes, but in the United Kingdom the amount of all incomes received by persons was included; it is, however, difficult to estimate the number of incomes in the lowest group, including incomes from social insurance and assistance funds, and a private estimate was added to complete the table.

Table VI.—Distribution of Incomes in the United Kingdom, 1944

Ranges of income £	Number of incomes 000's	%	Amount of income million £	%
Under 250	(20,000)	73.4	3,569	46.4
250–500	5,200	19.1	1,830	23.8
500–1,000	1,400	5.1	995	12.9
1,000–2,000	520	1.9	729	9.5
2,000–10,000	117	0.4	415	5.4
10,000 and over	8	0.03	155	2.0
TOTAL	(27,250)	100.0	7,693	100.0

Note: £1,301,000,000 of private incomes, consisting mainly of excess profits tax and undistributed profits of companies, could not be allocated to ranges of income and are not included in the total shown. Incomes from social insurance and assistance are included in the lowest range.

Source: National Income and Expenditure of the United Kingdom, 1938–1945 (Cmd. 6,784 1946). Figures in brackets are private estimates.

In Canada a pioneer study was published for 1942 in the annual official estimates relating to national income and expenditure. This distribution, however, excluded incomes derived from agricultural occupations which were impossible to estimate accurately. The Canadian estimates were based on a reconciliation of income-tax statistics and the census of 1941, and were prepared by academic and government statisticians in collaboration. Separate distributions were published for married men and others, and for each of the provinces. A summary is given in Table VII. The total covers about one-half of the national income.

A comparison of the three distributions given above can not be fruitful since the basis of estimates is to some extent different in different countries. But on the whole no significant differences can be observed between these distributions. It must be remembered, however, that the figures refer to incomes before tax, and that the incidence of taxation is not the same in these countries.

The estimates for Canada were the first of their kind. The estimates

Table VII.—Distribution of Incomes in Canada, 1942

(Excluding Agricultural Occupations)

Ranges of income \$	Number of incomes 000's	%	Amount of income million \$	%
Under 500	756	18.4	203	3.6
500–1,000	1,091	26.5	828	14.8
1,000–2,000	1,603	39.0	2,318	41.5
2,000–5,000	598	14.5	1,595	28.5
5,000–10,000	47	1.1	311	5.6
10,000–25,000	14	0.3	205	3.7
Over 25,000	3	0.1	132	2.4
TOTAL	4,112	100.0	5,592	100.0

Source: National Accounts: Income and Expenditure, 1938–1945. (Dominion Bureau of Statistics, Ottawa, 1946.) Estimates prepared by L. M. Read.

for the United Kingdom can be compared with prewar figures and show a diminution of the inequality of incomes, due partly to full employment during the war and partly to a great rise in wages, while the higher incomes remained stable because of excess profits taxation and consequent limitation of dividends. The diminution of inequality seems even more marked when wartime changes in the incidence of taxation are also taken into account; taxation on all classes increased heavily but in the higher ranges of income it became almost prohibitive. But with a return to peacetime taxation the inequality of distribution was likely to increase again. (See also BUDGET NATIONAL; CENSUS DATA, 1946.)

FILMS.—*Distributing America's Goods* (Encyclopædia Britannica Films Inc.) (T. BAR.)

Weather: see METEOROLOGY.

Wellesley College. A four-year liberal arts college for women, founded in 1870 by Henry Fowle Durant and located in Wellesley, Mass. Facilities were taxed to the utmost in 1946 to accommodate 1,685 students, who comprised the largest enrolment in the history of the college. Pre-eminently for candidates for the B.A. degree, Wellesley offers also the degrees of M.A., M.A. in education, M.S. and a certificate in hygiene and physical education.

When in Feb. 1946 the Academic council voted unanimously to approve the report of the Faculty Committee on Long Term Educational Policy, Wellesley joined other colleges in adopting a revised curriculum after a prolonged study. While the revised curriculum includes no radical departures, it reiterates the faith of the college in a liberal arts program organized to help students to acquire competence in one field of study and to introduce them to methods of work and ways of thinking in several representative fields of knowledge.

The Second Quadrennial institute of the Mayling Soong foundation was held at the college. "Problems of American Policy in the Pacific" was the title of the institute.

"Windows to the World," which was sponsored by the college government under the guidance of the United Nations Information office, was the first U.N.I.O. project to be undertaken at a college. The entire college participated in the six weeks project aimed at acquainting the students with the conditions, problems and ways of life of various nations.

The Wellesley Institute for Foreign Students conducted for six weeks during the summer was established to orient 45 men and women students from 23 countries to North American college life and community living and to help them acquire greater comprehension of the English language. It was unusual in its attempt to teach students with 11 different language backgrounds, who were registered for entrance to 27 different colleges or universities.

(For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (M. M. HN.)

Wells, Herbert George (1866–1946), British author, was born on Sept. 21 at Bromley, England. For his early career, see *Encyclopædia Britannica*. Historian, sociologist, prophet and Utopian, he authored more than 76 books and was a major literary figure of his time. In 1937, during his first lecture tour in the United States, he predicted the outbreak of war within two years. Wells despaired of the possibilities of peace because he felt that the general edu-

cational standard throughout the world was too low for man to know how to avoid armed conflict. After the start of World War II, he became England's leading pamphleteer, repeatedly expressing his conviction that the nazis could not overcome the English spirit. He branded the Chamberlain cabinet as a "grossly incompetent government," and even after Chamberlain's resignation, he continued to denounce individual cabinet ministers. When the German-soviet nonaggression pact was signed in Aug. 1939, Wells again proved his prophetic discernment in maintaining that the alliance was ephemeral and would be broken by a nazi aggression. In 1941, he published the novel *You Can't Be Too Careful* and one year later won a doctorate in science at the London university with his thesis "Quality of Illusion in the Continuity of the Individual Life in the Higher Metazoa, with Particular Reference to Homo Sapiens." In the latter days of the war, he opposed Winston Churchill, labelling the prime minister as a "would-be British fuehrer" in an article entitled "Churchill Must Go." After the first atomic bomb was dropped on Hiroshima in Aug. 1945, Wells, who had predicted the atomic age in a novel *The World Set Free*, 31 years earlier, warned "this can wipe out everything bad—or good—in this world. It is up to the people to decide which." Perhaps more important than appraisals of his influence was his own evaluation of himself, contained in a self-written obituary issued ten years before his death, in which he said in part: "Wells was a copious and repetitive essayist upon public affairs. . . . His keenest feeling seems to have been a cold anger at intellectual and moral pretentiousness. The question of whether he was to be considered a humorist was never settled and need not trouble us now." After publication of his last book, *Mind at the End of Its Tether* (1944), he said he had nothing more and never would have anything more to say. However, he again aroused public interest in July 1946 with an article in the *Socialist Leader*, in which he called for exile of the British royal family. He implied that its members were involved in financial dealings between the Italian government and Sir Oswald Mosley, British fascist leader—a charge which was ridiculed by the King's Keeper of the privy purse, and Mosley. Wells died in London on Aug. 13.

West Africa, British: see BRITISH WEST AFRICA.

Western Australia. A state of the Australian commonwealth; area: 975,920 sq.mi.; pop. (est. June 30, 1945): 490,152. Chief city: Perth (Dec. 31, 1943, 263,000). Governor: (vacant in 1946); lieutenant governor in 1946: Sir James Mitchell.

History.—The Labour government remained in office throughout 1946, but, as a result of the biennial elections for the legislative council, the Liberals increased their majority in that house. The government appointed William Kitson (chief secretary) to succeed M. F. Troy as agent-general in London. Agricultural returns were above the average and industrial expansion was planned by the government. The plant for potash production, established during the war, was being triplicated, and plans were prepared for the establishment of a major iron and steel industry with an annual output of 110,000 short tons of charcoal iron, as well as methanol and wood naphtha.

Education.—In 1943: state primary schools 748; average attendance 48,337. State secondary schools 6; average attendance 1,770.

Finance.—Revenue (1944-45) £A13,954,000; expenditure (1944-45) £A13,949,000; debt outstanding (June 30, 1945) £A95,895,000.

Communication.—Roads (1940) 29,722 mi.; railways (1945) government 4,381 mi. Motor vehicles licensed (Dec. 31,

1945): cars 30,486; commercial vehicles 25,843; cycles 5,120. Wireless receiving set licences (Dec. 1945) 102,622.

Agriculture and Manufacturing.—Production (in short tons): wheat (1945-46) 615,000; wool (1944-45) 43,000; gold (1945) fine oz. 468,550. Industry and labour (1944-45): factories 1,797; employees 29,146; gross value of output £A31,741,000; unemployment (trade union returns) (Feb. 1946) 1.6%.
(W. D. MA.)

West Indies. An archipelago between Florida and the South American coast opposite the mouth of the Orinoco river. The West Indies include the Greater Antilles (in order of size, Cuba, Haiti, Jamaica and Puerto Rico), the Lesser Antilles between Puerto Rico and the Venezuelan coast, the Bahama group northeast of Cuba, and certain more distant islands, including Curaçao and Aruba near the mouth of Lake Maracaibo in Venezuela. The land area is approximately 92,000 sq.mi. The population is about 13,250,000 (1945 est.) and in racial composition is approximately 75% white and 25% Negro and mulatto in Cuba and Puerto Rico, and from 80% to 100% Negro and mulatto elsewhere, except that in Trinidad about 40% are of East Indian origin. Roman Catholicism is the predominant religion. Languages include Spanish, English, French and Dutch, in addition to various patois largely of African origin. Politically, the West Indies include the three independent republics of Cuba, Haiti and the Dominican Republic, two United States territories, and six British, two French, and one Dutch colony. In addition to prewar bases, the West Indies are the location of five U.S. naval bases, the sites for which were obtained from Great Britain in 1940.

History.—The chief general development of 1946 was the holding of the second West Indian conference and the closer economic and political co-operation that resulted from it. The conference was held in the U.S. Virgin Islands from Feb. 21 to March 13. It had been preceded by an earlier conference, held at Bridgetown, Barbados, in March 1944. The conferences were the outgrowth of an Anglo-United States agreement of March 9, 1942, establishing the Anglo-American Caribbean commission to concern itself with social and economic problems of the two powers' Caribbean possessions. The arrangement was broadened, *de facto*, in 1945 to include representatives of the French and Dutch colonies. Possessions of all four powers sent delegates to the Virgin Islands conference. The conference recommended the holding of successive conferences at two-year intervals. It approved the formal broadening of the territorial scope by which the Anglo-American Caribbean commission became simply the Caribbean commission. Other recommendations included the establishment of an economic section, the setting up of basic norms for social legislation, broadening the work of the previously established research council, publication of a quarterly journal, consideration of widened export markets, agricultural and industrial diversification, soil surveys, the holding of special conferences on industrial development and tourism, control over hotel rates and services, lower freight rates and the elimination of discrimination in the European trade, co-operation in plant and animal disease control, establishment of relations with U.N.E.S.C.O., etc. The governments concerned reached an agreement at Washington July 15 (formally signed Oct. 30) to set up the machinery required. Lawrence W. Cramer, former governor of the U.S. Virgin Islands, was appointed secretary general of the Caribbean commission; it was agreed that the deputy secretary general should be either Dutch or French. Offices of the Caribbean commission were opened at Port of Spain, Trinidad, at the end of October.

The proposed tourist conference was held at New York city, Sept. 30–Oct. 8. It recommended establishment of a Caribbean

Tourist Development association and estimated the West Indies annual tourist potential at 600,000 persons.

Trade and Communication.—The economy of the West Indies is primarily an agricultural export economy, based chiefly on sugar. The only important exceptions are petroleum and asphalt production in Trinidad and oil refining in Curaçao and Aruba, although many of the islands have mineral resources of greater or less potential value. The Cuban sugar crop (much the most important portion of all sugar production) was down in 1946, due to droughts, but greater production was anticipated for 1947.

Cuba maintains the largest mileage, both in railways and highways, of any of the West Indian units. Principal developments during the year were in aviation. Pan American Airways, K.L.M. (Royal Dutch Airlines), and British West Indian Airways all considerably expanded their Caribbean flights.

Agriculture.—Droughts adversely affected sugar and other agricultural production in various West Indian units during 1946. The banana industry, an important one in several islands, was injured by inroads of the Sigatoka disease, although it had almost entirely recovered from the effects of the hurricane of Aug. 20, 1944, felt especially in Jamaica. The St. Thomas conference in March 1946 proposed the early convening of a technical conference of soil scientists in Puerto Rico. (See also BAHAMAS; BARBADOS; CUBA; CURAÇAO; DOMINICAN REPUBLIC; FRENCH COLONIAL EMPIRE; HAITI; JAMAICA; LEEWARD ISLANDS; PUERTO RICO; TRINIDAD; VIRGIN ISLANDS; WINDWARD ISLANDS.)

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West Indies, British: see BAHAMAS; BARBADOS; JAMAICA; LEEWARD ISLANDS; TRINIDAD; WINDWARD ISLANDS.

West Virginia. The 35th state in the union was conditionally admitted on Dec. 31, 1862, and proclaimed a separate state on April 20, 1863, effective 60 days later. It has an area of 24,282 sq.mi., of which 148 sq.mi. are water surface. The population (1940) was 1,901,974, of which 1,742,320 were white and 41,782 were foreign born. The urban residents numbered 534,292 or 28.1% of the total population. Charleston (pop. 67,914) is the capital. Other cities, in the order of size, are: Huntington (78,836), Wheeling (61,099), Clarksburg (30,579), Parkersburg (30,103), Fairmont (23,105) and Bluefield (20,641).

History.—The chief state officers in 1946 were: governor, Clarence W. Meadows; secretary of state, William S. O'Brien; treasurer, R. E. Talbott; auditor, Edgar B. Sims; attorney general, Ira J. Parthlow; state superintendent of free schools, W. W. Trent. In the 1946 general election a registered Democratic majority of 178,000 was all but wiped out at the polls. Harley M. Kilgore (D.), was re-elected to the U.S. senate over Thomas B. Sweeney (R.) by about 3,500 votes, and Frank C. Haymond (D.) was elected by about the same majority to the state supreme court of appeals to succeed Judge H. H. Rose, deceased. Representatives in congress elected in Nov. 1946, were: First district, Francis J. Love (R.); second district, Melvin C. Snyder (R.); third district, E. G. Rohrbach (R.); fourth district, Hubert S. Ellis (R.); fifth district, John Kee (D.); sixth district, Dr. E. H. Hedrick (D.).

Education.—For the year 1945-46 the total pupil enrolment (net) in the 4,229 state elementary schools was 283,989. In the 380 state high schools it was 126,684. There were 10,010 elementary and 5,095 high school teachers. The total state appropriation for elementary and secondary education was \$21,-

364,029. The state supported nine teacher-training colleges which in the first semester had a total student enrolment of 5,669 and teaching staff of 245. It also supported the university (Morgantown), West Virginia State college (Negro institute), West Virginia Institute of Technology (Montgomery), and Potomac State school (Keyser, a junior college under control of the university).

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ending June 30, 1946, the total expenditure for old-age assistance was \$3,641,070.50; for the blind, \$184,408; for dependent children, \$2,653,127. The total cost, including administration, was \$6,857,790.88. The total general relief fund was \$1,198,980.99. Eight correctional institutions were largely self-sustaining but they cost the state in excess of \$150,000, additional.

Communication.—In 1945-46 the state contained about 3,350 mi. of steam railway, or 6,677 mi. including double tracks and sidings. There were about 300 mi. of electric railways, 17,161 mi. of improved highways (15,559 hard surfaced), and a road system aggregating 33,186 mi. both primary and secondary. There were a number of air fields and hangars, and others were in process of construction. There were 247,060 telephones (Bell, 218,795, and connecting lines, 28,265), not including 2,700 local nonconnecting phones.

Banking and Finance.—On June 30, 1946, the total deposits of the 103 state banks and trust companies were \$397,649,285.93; the total for the 76 national banks was \$489,646,489.03; resources of 22 federal savings and loan associations were \$28,888,586.82; resources of 20 active building and loan associations were \$9,620,320.77; and resources of 22 loan companies were \$10,134,071.21. State receipts for 1945-46 were \$164,906,647.13; disbursements, \$163,402,728.54; balance, June 30, 1946, \$31,569,877.50. On July 1, 1946, the total state funded indebtedness was \$62,222,000. Total state debt (gross), \$62,222,000; net, \$57,022,476.

Agriculture.—The total cash income from farm crops and livestock in 1945 was \$86,207,000; income from government payments was \$4,148,000. The number of farms in 1945 was 97,600 with a total acreage of 8,741,017, valued at \$341,000,000.

Principal Agricultural Products of West Virginia, 1945

	Yield, 1945	Value, 1945
Corn, bu.	12,996,000	\$20,534,000
Wheat, bu.	1,768,000	2,882,000
Oats, bu.	1,750,000	1,592,000
Buckwheat, bu.	172,000	227,000
Hay (all), tons	1,020,000	21,216,000
Apples (commercial), bu.	1,950,000	6,298,000
Potatoes (Irish), bu.	2,880,000	5,386,000
Barley, bu.	230,000	283,000

Industry.—In 1944-45 industry and business employed 439,274 persons who earned \$959,561,000 in a total estimated production valued in excess of \$1,000,000,000. In the order of the number of persons employed, the largest industrial groups, together with the total sums paid each, were: coal mining and coke making, 106,386—\$302,576,000; iron, steel and metals, 48,922—\$127,025,000; chemical and allied products, 19,326—\$57,778,000; glass and glassware, 15,866—\$32,543,000; lumber and wood products, 13,974—\$20,490,000; clothing and textiles, 13,420—\$23,353,000; clay, stone, etc., 12,313—\$21,841,000; automobiles and trucks, 11,606—\$23,471,000; petroleum and its products, 9,967—\$21,052,000; construction (not buildings), 9,288—\$18,103,000 and public utilities, 9,129—\$18,935,000.

Mineral Production.—The production of crude oil for 1945 was 2,903,000 bbl.; in 1944 the natural gas production was 200,000,000,000 cu.ft.; coal (1944), 163,845,000 short tons; and coke (bee-hive and by-products, 1944), 3,016,548 short tons. The total value of mineral production (1944) was \$612,366,000.

BIBLIOGRAPHY.—*West Virginia Bluebook* (1945) and various state official departmental reports. (C. H. A.)

Whaling: see FISHERIES.

Wheat. The 1946 United States wheat crop was the third record-breaking crop in succession being 4% more than in 1945 which was 7% more than in 1944. In only one other year in history, 1915, did the wheat crop exceed 1,000,000,000 bu. The 1946 record was attributed primarily to large acreage of winter wheat, low winter loss and favourable growing weather in the spring.

Total production in 1946 was estimated at 1,155,715,000 bu. compared with 1,108,224,000 bu. harvested in 1945; 1,078,647,000 bu. in 1944 and a 10-yr. average of 843,692,000 bu., 1935-44. The crop was made up of 873,893,000 bu. winter wheat and 281,822,000 bu. spring varieties. The acreage harvested was 67,201,000 ac., 3% more than the 62,120,000 ac. of 1945 and the average of 55,404,000 ac., 1935-44. The 1946 acreage was the largest after 1938. The acreage of winter wheat lost from winter damage was estimated at 3,696,000 ac. and of spring wheat 613,000 ac., a relatively small total, since in 1933 19,000,000 ac. of winter and spring wheat were lost. The average yield for the nation was 17.2 bu. per acre compared with 17 bu. in 1945 and a 10-yr. average of 15.3 bu. Winter wheat averaged 18 bu. per acre and spring wheat 15.1 bu. The notably high yields by states were: Washington 29.5 bu. per acre; Idaho 27.5 bu.; New York 26.3 bu.; Ohio, 26.5 bu.; Michigan 26.5 bu. and Oregon 25.6 bu. The leading wheat state, Kansas, had a yield of 16.2 bu. and the second state, North Dakota, 13.7 bu.

The 1946 winter wheat crop of 873,893,000 bu. was 6% more than the previous record in 1931. The area of winter wheat was 48,510,000 ac., which was exceeded only in 1919 and 1938. The seeding was favoured by good weather in the fall and the winter loss was small, only 7.1%. Harvest was favoured by good weather.

Spring wheat production at 281,822,000 bu. was the smallest crop after 1942. The acreage harvested was 18,691,000 ac. compared with a 10-yr. average of 16,290,000 ac., 1935-44. The

crop got a poor start in the spring because of dry weather in the northwest plains states. Yields were high in the Pacific northwest states. The durum crop yield was 14.6 bu. per acre, almost 2 bu. less than in 1945, but the crop was 2,453,000 bu. compared with an average of 2,488,000 bu. in 1935-44. The dry spring reduced the output in the Dakotas while Minnesota had a yield 2 bu. higher than in 1945. Other spring wheats were also affected by the dry spring and the yield, 15.1 bu., was about a bushel less than in 1945.

Production of wheat by classes was: hard red spring 214,361,000 bu.; durum 36,317,000 bu.; hard red winter 581,832,000 bu.; soft red winter 196,947,000 bu. and white wheat 126,258,000 bu. The production of hard red winter and white wheats was the largest on record. Durum was more than in 1944-45 although at low level.

The demand for wheat for relief became acute in early 1946. The total world requirements for imports were put at 1,200,000,000 bu. for the year ending in June 1946. The requirements of the fall of 1945 had been met with difficulty, largely by exports from North America. Jan. 1 stocks in the United States were estimated at 689,000,000 bu. By July 1 these stocks had shrunk to 101,500,000 bu., the lowest in 20 yr. except for 1937, and only one-half the 1932-41 average. To secure the wheat needed for export the government put a 75% milling rate, compared with 1945, into effect. To speed the movement of wheat off farms the Commodity Credit corporation (CCC) began buying wheat in early spring, paying any market price the farmer would choose up to April 1947. On April 19 the government offered a bonus of 30 cents per bushel for wheat delivered by May 25. On May 13 the wheat price ceiling was raised 15 cents per bushel. These plans brought in about 85,000,000 bu. of wheat for export but had the effect of preventing mills from obtaining sufficient wheat, and bread supplies became short in some localities. The government then loaned wheat from its stocks to be replaced by the mills later if needed for export.

The use of wheat in the United States in the year ending June 30, 1946, was the largest in history; civilian and military

WHEAT being piled on the ground at Brandon, Colo., July 6, 1946, because of lack of storage space to accommodate the bumper crop



food 495,000,000 bu.; seed 82,000,000 bu.; alcohol 21,000,000 bu.; feed 320,000,000 bu. Exports in the same period reached 386,000,000 bu. In December the United States agreed to export a total of 400,000,000 bu. of wheat during the year ending June 30, 1946. In order to reach the quota 15,000,000 bu. of corn was substituted for wheat. This amount of 400,000,000 bu. was an all-time record, compared with the previous record for a single year of 335,000,000 bu. shipped in 1914-15. Exports during the July-September quarter were about 75,000,000 bu. and were estimated to reach 150,000,000 bu. by December. By Oct. 1 total stocks of wheat had increased to 956,521,000 bu. compared with 1,030,383,000 bu. in 1945 and an average of 884,744,000 bu., 1937-44. Stocks retained on farms were relatively large because of transportation delays resulting from shortage of cars.

The price of wheat to farmers averaged \$1.54 per bushel in Jan. 1946 compared with \$1.46 a year earlier and a prewar average of 83 cents in Jan. 1935-39. Little advance occurred until May when the average price was \$1.70 per bushel, not including the 30 cents per bushel bonus offered for immediate delivery in that month. By July 15 the price had advanced to \$1.87 per bushel; September \$1.79; October \$1.88 and November \$1.89. The export demand and shortage of cars for shipment were price-supporting factors. On Oct. 24 price controls were removed from flour, bread and bakery products. The CCC began buying in September and by Oct. 25 had bought 85,000,000 bu. to cover export requirements. Shipments were delayed and elevators and farm storage were filled until November.

Domestic consumption of wheat was estimated at 154 lb. per capita in 1946, compared with 164 lb. in 1945 and 153.1 lb. average, 1935-39. This indicates that domestic consumption was held down about 10 lb. per capita to save supplies for export. About 3.5 lb. of wheat per capita are used each year as breakfast foods. The U.S. people had available about 3,320 calories per day compared with 3,250 calories average, 1935-39. They actually consumed more meat, milk, vegetables and canned foods than in 1945. The use of wheat for making alcohol and beverages was prohibited during most of the year. Use of wheat for livestock feed was also limited to 180,000,000 bu. A goal of 71,100,000 ac. of wheat for 1947 was announced by the United States department of agriculture, about 70% to be winter wheat. With yields as good as in 1946 this would return another billion bushel crop. The chief need was to restore domestic stocks against a crop failure.

The world wheat crop was estimated in late 1946 at about 4,200,000,000 bu. compared with 3,570,000,000 bu. in 1945 and a prewar average of 4,040,000,000 bu., 1935-39. This estimate did not include the soviet union or China. This crop for the 1946-47 year would be the largest after 1940; 18% more than in 1945 and 4% more than the prewar average. The European crop was one-third larger than in 1945 but still 16% less than the prewar average. The greatest improvement was in France, Italy, Spain and the lower Danube valley. Floods reduced the crop in the British Isles and Scandinavia. A few private estimates on the soviet union indicated a gain in wheat production over 1945 but still a shortage compared with prewar. The Canadian crop was estimated at 440,567,000 bu. compared with 305,912,000 bu. harvested in 1945. Argentina's crop was expected to be about 200,000,000 bu. and the western hemisphere as a whole was expected to produce more than 40% of the world's total outside of the soviet union and China.

The Canadian government pegged the export price of wheat at \$1.55 per bushel through most of 1946. This policy was changed in September to sell to countries other than the United Kingdom at about the same as United States export prices. The minimum price guaranteed to Canadian producers until 1950

was \$1.35 per bushel for No. 1 Northern. A 4-yr. contract was made with the United Kingdom to sell 160,000,000 bu. wheat in 1946-47 at \$1.55 per bushel; the same in 1947-48; 140,000,000 bu. in 1948-49 at a negotiated price and 140,000,000 bu. in 1949-50 at a price to be agreed upon. The Australian government guaranteed growers a fixed price for five years which would be related to the export price by agreement.

Table I.—U.S. Wheat Production by States, 1946 and 1945

		(In thousands of bushels)			
State	1946	1945	State	1946	1945
Kansas	216,768	207,939	Utah	6,981	6,776
North Dakota	139,824	154,568	North Carolina	6,307	5,712
Nebraska	90,677	82,358	New York	5,648	9,147
Oklahoma	88,262	73,875	Wyoming	5,488	4,233
Washington	77,965	61,512	Kentucky	4,158	5,008
Texas	62,916	48,150	Tennessee	3,878	4,550
Montana	62,395	57,145	Iowa	3,312	2,660
South Dakota	53,197	49,656	New Mexico	2,895	2,778
Ohio	48,522	57,483	South Carolina	2,706	2,972
Colorado	37,080	35,465	Wisconsin	2,263	1,468
Idaho	34,846	32,734	Georgia	2,093	2,470
Indiana	29,692	34,980	New Jersey	1,550	1,323
Minnesota	27,080	21,246	West Virginia	1,501	1,610
Oregon	25,168	21,810	Delaware	1,216	1,306
Michigan	22,896	27,005	Arizona	567	504
Pennsylvania	19,912	20,038	Nevada	545	485
Illinois	19,553	24,817	Arkansas	420	410
Missouri	18,780	18,256	Mississippi	198	378
California	12,597	10,697	Alabama	174	315
Virginia	8,344	7,595	Maine	21	19
Maryland	7,320	6,771			

The stocks of wheat in the 4 principal exporting countries, United States, Canada, Argentina and Australia, were only 373,000,000 bu. on July 1, 1946, compared with an average of

Table II.—World Wheat Production, Revised Estimates for 1946, 1945 and 1944 and Average 1935-39*

	(In million bushels)			Average
	1946	1945	1944	1935-39
United States	1,155	1,108	1,072	758
Canada	440	305	416	312
Mexico	13	13	14	14
Europe	1,288	949	1,348	1,554
Great Britain	72	81	117	62
North Africa	115	77	96	127
Union South Africa	20	10	11	16
Asia	1,500	1,430	1,560	1,442
Argentina	200	143	150	221
Australia	160	144	52	169
World Total less U.S., S.R. and China	4,200	3,570	4,010	4,040

*Revised estimates by the U.S. department of agriculture on basis of incomplete reports from several countries with adjustments for year of harvest.

45,700,000 bu. in 1935-39 and 824,000,000 bu. in 1945. About half of the exports of 1945-46 came from carry-over stocks. The general situation led the United States government to call for another large crop of wheat in 1947 on an acreage almost as large as was sown in 1945-46. (See also FLOUR.)

(J. C. Ms.)

Whitaker, John Thompson

(1906-1946), U.S. journalist, was born on Jan. 25 at

Chattanooga, Tenn., and was educated at the University of the South (Sewanee, Tenn.). Upon graduation he became a reporter for the *Chattanooga News* and later covered Washington, D.C., and the League of Nations at Geneva for the *New York Herald Tribune*. When Italy readied her troops for the invasion of Ethiopia, Whitaker was the first special correspondent to reach Eritrea. In 1936, he began reporting the Spanish revolution and was an observer when the Franco troops attacked Madrid. This same year, he published a book *And Fear Came*, in which he charged the League of Nations with partial blame for the Ethiopian war. In 1937, he joined the *Chicago Daily News* as a foreign correspondent and covered Latin America, the Vienna putsch, and the German invasion of Czechoslovakia. He was expelled from Italy in 1941 when Mussolini objected to his dispatches, and in 1942 he joined the Office of Strategic Services to become a colonel and the recipient of many decorations for his services in Africa, Italy, Sicily, France and China. It was in the far east, in the closing months of the war, that he was stricken with the malady that caused his death. His works in-

clude, *Americas to the South* (1939) and *We Cannot Escape History* (1943). He died at Washington, D.C., on Sept. 11.

White, Stewart Edward (1873-1946), U.S. novelist, was born on March 12 at Grand Rapids, Mich., the son of a millionaire lumberman. A restless youth, he travelled through the jungles of East Africa, scaled the high Sierras in California, prospected for gold in the Black hills of the Dakotas and bucked the frigid winds of Hudson bay in search of adventure. Before the era of the automobile, he measured the western plains of the United States on horseback and in 1913 mapped German East Africa, for which deed he was named a fellow of the Royal Geographical society of London. He incorporated these experiences in a series of books that brought to his readers a vicarious sense of romance and adventure. One of his earliest books, *The Blazed Trail* (1902) was his most popular work, but his fame is due mainly to his semihistorical books of life in the west. These include *The Gray Dawn* (1915), a tale of the gold rush days in San Francisco, and *The Long Rifle* (1932), a story of the mountain trappers. A lover of birds, White was considered an authority on Michigan bird life. Author of more than 40 books, his works include: *Folded Hills* (1934), *Old California* (1937), *Wild Geese Calling* (1940), *Stampede* and *The Road I Know* (1942), *Speaking for Myself* (1943) and *The Stars Are Still There* (1946). He was co-author of *Pole Star* (1937). White died in San Francisco on Sept. 18.

Wholesale Trade: see BUSINESS REVIEW.

Wilderness Preservation. Threats of civilization to modify remaining U.S. wilderness areas increased in 1946 as postwar development plans matured, yet at the same time wilderness preservation as a distinct aim in U.S. conservation achieved greater prominence than ever before. The Izaak Walton League of America described wilderness protection as one of its four "more important fields" of immediate action, declaring: "If we are to maintain in primeval grandeur and solitude a small fragment of this, our land, we must consolidate the Federal wilderness areas and insist that they be held forever inviolate." The Wilderness society—cooperating with all conservation agencies in mobilizing support as found necessary—established its publication *The Living Wilderness* as a quarterly and, with an augmented staff, enlarged its educational program. Various other conservation and scientific organizations gave express support to the movement. The Outdoor Writers association adopted a resolution declaring that this association—

"(1) endorses the movement for wilderness conservation and commends The Wilderness Society and other organizations for their work in this behalf,

"(2) recommends that all airplane landing fields and other installations—except as necessary for emergency or administrative purposes—be located at the boundaries of the wilderness or wild areas, or at nearby sites, and

"(3) urges all its members to devote themselves to an improvement of the public understanding of the values of the wilderness and the needs in its preservation."

And the Congress of Industrial Organizations in a statement at the American Forest congress in Washington, D.C., on Oct. 9, declared:

"... there are areas whose best use in the interest of all the people calls for their permanent protection as natural, wilderness, or roadless areas, in which the primary values are scenic and recreational in a sense which requires the permanent preservation of primitive characteristics. . . . An essential element of the proper administration of such areas is their permanent dedication to their special use."

General objectives of the movement as stated by the Wilderness society were:

"(1) To enlist the American people in the preservation of our American wilderness.

"(2) To spread the conception that the wilderness is a valuable natural resource of the people and should be conserved as such.

"(3) To promote nation-wide co-operation in resisting the invasion of such wilderness by the sights, sounds, and other influences of civilization, including routes which can be used for mechanized transportation, all commercial developments, and those non-commercial improvements and influences which clash seriously with the primeval environment."

Immediate purposes were to safeguard undeveloped areas in national and state parks and to preserve those portions of the national forests that had been formally designated as wilderness, wild, primitive or roadless areas, in accordance with the special regulations established for their administration by the secretary of agriculture or the chief of the forest service.

A preliminary survey of such areas still remaining in the United States and given public protection as such, conducted by the Wilderness society early in the year, based largely on data from federal land-management agencies, revealed 131. These included 15 on Indian reservations, 72 in national forests, 36 in the national park system, 5 on national wildlife refuges, and 3 on state lands, though the latter were inadequately covered in the survey. The forest service later withdrew from special classification the national forest primitive area that had been left on the boundaries of Olympic national park, in Washington, when the park was established. On Sept. 10 a 78,530-ac. area in the Siskiyou national forest in southwestern Oregon was newly set aside as the Kalmiopsis wild area. The totals thus remained the same.

Outstanding specific problems faced during the year concerned the protection of wilderness areas in New York's Adirondack state forest preserve against a dam-building threat and inconsistent recreational facilities, acquisition of privately owned lands within the Superior roadless area in Minnesota to prevent establishment of resorts in the midst of a wilderness canoe country that had become readily accessible to passenger-carrying hydroplanes, prevention of lumbering invasions threatened in the virgin forests of Olympic national park in Washington and mobilization of opposition to a modification of the San Geronio primitive area in southern California formally proposed by the forest service in Dec. to provide for a highway, hotel resort, and ski-tow on the slopes of San Geronio mountain. Efforts to forestall a commercial project for a skiers' tramway on the primitive San Jacinto mountain in California's San Jacinto state park had apparently failed and plans for the project were under way.

At the year's end these problems of 1946 seemed typical, apparently representing the principal threats to wilderness preservation: lumbering, dam construction for hydroelectric and other purposes, landing areas for aeroplanes, local demands for exploiting mass recreational possibilities of still primitive areas and commercial installations to attract visitors not interested in the wilderness as such. Based on the conviction that there remains enough land in the United States to provide adequately for all types of outdoor recreation, the wilderness movement's basic proposition was the *zoning in perpetuity* of the country's important wilderness remnants as monuments of the past and as areas for observation, scientific study, watershed protection and the kinds of recreation consistent with wilderness preservation and possible only in such areas.

(Principal national sources of specialized information on wilderness preservation were the federal land management agencies—the U.S. department of agriculture and the U.S. department of the interior—and the Wilderness society, 1840 Mintwood place, N.W., Washington 9, D.C.) (H. Z.)

Wildlife Conservation. The status of big game in the United States was described as "generally favourable" in 1946, but the year was marked by setbacks for several other species. The ruffed grouse was at a

"low ebb of abundance." The ring-necked pheasant declined over much of its range, especially in the midwest, as a result of unfavourable nesting weather. The bobwhite quail population was sharply reduced in parts of the northern limits of its range, for similar reasons, and the ducks and geese continued a decline that aroused nation-wide concern.

Hunters increased. Sales of federal migratory-bird hunting stamps (the so-called "duck stamps" required of all wild-fowlers more than 16 years of age) totalled 1,725,505 in the fiscal year ended June 30, 1936, as compared with 1,487,029 in the preceding year and 1,169,362 in 1944, and a sale of "close to 2,000,000" was predicted for the 1946 fall hunting season. Total sales of licences by the several states for hunters of nonmigrant species (not subject to federal protection) had not been summarized for 1946, but the tabulation of sales for the year ended June 30, 1945, showed a total of 8,190,191, an increase of 685,643 over the preceding year, and previous correlations of state hunting licence and federal duck stamp sales indicated a further increase in 1946. Data thus bore out the prediction made early in the year by Albert M. Day (who on April 1 succeeded Ira N. Gabrielson as director of the federal fish and wildlife service): "The wild game of this country is going to face the greatest army of hunters in all history."

Events in waterfowl management were observed with special interest by conservationists, because up-to-date co-ordinated information on this federally protected resource was generally available and it was the consensus that wildlife conservation in general depended on a solution of the same basic problems faced in waterfowl management; namely, provision of adequate habitat and successful regulation of hunting.

In 1945 and 1946, the fish and wildlife service pointed out, droughts dried up vast areas of the Canadian prairie provinces and reduced or destroyed the breeding value of something like 45,000 sq.mi. of territory inhabited by waterfowl, and there were other natural disasters. The service described 1945 and 1946 as "barren years," predicted that they would be eventually offset by fertile years, but also predicted: "The number of hunters will continue to increase. This is the most important fact in the problem of managing the waterfowl resource."

Early in 1946 (following the 1945 hunting season) waterfowl numbers were estimated at 80,000,000 for the continent—a decrease of more than 25,000,000 from the 105,500,000 estimated in 1945 and more than 45,000,000 (or 36%) from the 125,350,000 in 1944. During these two years hunters had increased by more than 47%.

As a corrective measure the 1946 waterfowl hunting seasons were reduced to 40 days in each of 3 zones (as compared with the 80 days allowed in 1945); daily bag limits were reduced from 10 to 7; and the shooting days were ended a half-hour sooner.

In Nov. the fish and wildlife service said that reports from its game management agents in the northern and intermediate zones substantiated "early forecasts that ducks are scarce but hunters plentiful," and in Dec. the service described early returns from duck hunters as bearing out "official predictions that waterfowl have fallen into a marked decline." (Scorecards printed in outdoor and state conservation magazines and in newspapers had been used by many hunters in making volunteer reports.) "In the northern zone, where the shooting season has ended," said the service on Dec. 4, "72 percent of the hunters who have sent in scorecards to date reported less ducks than last year, 28 percent the same or more." On Dec. 20 Director Day commented that "the pessimistic note of 'very few ducks seen' continues to dominate the reports."

At the close of the year official comments were not available either as to the success of the 1946 restrictions on hunting or

as to the 1947 regulation prospects, but the fish and wildlife service did announce that its 13th annual midwinter inventory (scheduled for Jan. 7-17, 1947) would include Mexico, Central America, Alaska and Canada and thus be continental rather than nation-wide. "We propose to do our utmost," said Mr. Day, "to find out what has happened to the ducks."

The waterfowl decline was described as emphasizing "the importance of maintaining and enlarging the national wildlife refuge system," which was augmented during the year by four new national wildlife refuges—Theodore Roosevelt in North Dakota, Tennessee in Tennessee, Tishomingo in Oklahoma and Hagerman in Texas. Refuges totalled 291 with 17,819,495 ac.—271 (9,889,856 ac.) in the United States and 20 (7,929,639 ac.) in Alaska, Hawaii and Puerto Rico—and were classified as follows: 201 (3,213,658 ac.) for migratory waterfowl, 24 (3,870,156 ac.) for other migratory birds and general wildlife, 49 (91,043 ac.) for colonial non-game birds, and 16 (10,642,015 ac.) for big game; the remaining area was the 2,623-ac. Patuxent research refuge in Maryland.

Providing desirable wildlife habitat was increasingly emphasized, and at the year's close the 1947 North American Wildlife conference was being organized on the theme "Americans, Wildlife, and Their Land." Wilderness preservation (see article under this heading) was more widely advocated than heretofore, and conservationists became more insistent that wildlife be considered in proposed water utilization programs for irrigation, navigation, hydroelectric power, flood control or other purposes. As a step to this end, public law 732 enacted by the 79th congress made it mandatory to have biological surveys made and reports thereon prepared before multiple-purpose or other high dams could be constructed or major diversions of water effected. Pollution control was vigorously demanded, and an anti-pollution measure prepared by the house committee on rivers and harbours on the basis of three earlier bills was reported to congress but failed to be enacted. The Izaak Walton League of America described this bill as a measure that "conservationists, public health interests, and all others who wish to see clean waters . . . can support without reservation," and at the close of the year the league was mobilizing support for a similar measure to be introduced in the 80th congress.

A bill that in response to local opposition would have abolished the Parker River National Wildlife refuge in Essex county, Mass., was passed by congress but failed of enactment when the president after adjournment of congress withheld approval, declaring: "It would not be in the public interest to authorize abandonment of this national wildlife refuge."

Significant to wildlife sanctuary policies were two bills that failed of enactment but were predicted as renewed proposals in the 80th congress. One would have permitted the opening of 25% of a national wildlife refuge to hunting. The other would have required the control of predators in Mt. McKinley national park, Alaska, as special protection for "game" species.

Most notable event of the year in the organization of conservation interests was the establishment on Oct. 26 of the Natural Resources Council of America—

" . . . to effect closer cooperation and coordination of the member organizations in the attainment of common objectives; to provide them with information on actions of Congress, the Chief Executive, and Federal administrative agencies affecting natural resources, and other matters within the scope of our objectives; and to make available to the member organizations scientific data and other pertinent information to aid them in intelligent determination of conservation problems."

Formed at a special conference at Mammoth Cave, Ky., by 11 leading organizations, the council had by the year's end established a daily information service for its members, arranged for regular meetings and invited the participation of other organizations.

The principal source of wildlife information in the United States was the Fish and Wildlife service, Merchandise Mart, Chicago 54, Ill., which had available lists of federal publications and compilations—including a list of officials and organizations concerned with wildlife conservation—and the periodical *Wildlife Review* prepared by W. L. McAtee as a listing and critical annotation of books, articles in journals and other publications. Leading private organizations were American Forest association, publisher of *American Forests*, 919 Seventeenth St., Washington 6, D.C.; American Nature association, publisher of *Nature Magazine*, 1214 Sixteenth St., Washington 6, D.C.; Izaak Walton League of America, publisher of *Outdoor America*, 31 North State St., Chicago 2, Ill.; National Audubon society, publisher of *Audubon Magazine*, 1006 Fifth Ave., New York 28, N.Y.; National Parks association, publisher of *National Parks Magazine*, 1212 Sixteenth St., Washington 6, D.C.; National Wildlife federation, publisher of *Conservation News*, 1129 Vermont Ave., Washington 5, D.C.; the Wilderness society, publisher of *The Living Wilderness*, 1840 Mintwood place, Washington 9, D.C.; and the Wildlife Management institute, 822 Investment Bldg., Washington 5, D.C., sponsor of research projects, special investigations, annual North American wildlife conferences and monographs—including a definitive work on *The Puma* by Stanley P. Young and E. A. Goldman issued in 1946. Scientific periodicals were notably *The Journal of Wildlife Management*, *The Journal of Mammalogy* and *The Auk: A Quarterly Journal of Ornithology*—organs respectively of the Wildlife society, the American society of Mammalogists and the American Ornithologists' union. (H. Z.)

Great Britain.—In the principal fields in which economics play a part, namely the conservation, for rational exploitation, of the stocks of fishes and whales, Great Britain and Europe had in 1946 reached, or were within measurable distance of reaching, sound agreements. Conservation from more aesthetic motives of the natural faunistic and floral oecologies of the world was threatened by the ever-increasing growth of human population and, with it, the steadily advancing exploitation of new regions of the earth. That is not to say that conservation was without advocates. In Great Britain, the Royal Society for the Protection of Birds, the British Trust for Ornithology and the British Bird Watchers' union were active in defense of the birds, and in 1946 revised legislation for their protection was being considered. The Society for the Promotion of Nature Reserves energetically defended the wildlife of Great Britain in general, itself administering certain small reserves; the establishment of national parks and nature reserves was part of the postwar reconstruction plan of the government, which was being advised by an expert committee; and the Society for the Preservation of the Fauna of the Empire, founded in 1903, was as vigilant as ever.

Europe.—Efforts were on foot for the reconstitution of the Society for the Preservation of the European Bison, once more seriously reduced in numbers through war. A new association under the name *Ardenne et Gaume* was established in Belgium with the purpose of saving some part of the territory in a state of nature. It was stated with authority that more than 27,000,000 ac. in the U.S.S.R. were occupied by state preserves for the preservation of national monuments and wildlife. For the rest, the European situation was too confused for any serious development of wildlife conservation.

Africa.—In British African territories there were many advocates of the comprehensive destruction of all or most of the native animals. They regarded the native wildlife as a menace to the health of domestic cattle and, through the tsetse fly, of men as well as cattle, and, further, as undesirable competitors with men and their cattle for the fruits of the land. The policy of destruction had long been in operation in Southern Rhodesia outside the Wankie reserve; it was later adopted in the Umfolozi region of South Africa and seemed to find many advocates in the British colonies of East Africa. There were, however, brighter spots in the African scene. In the Belgian Congo the Belgian government continued to apply its enlightened policy and created new reserves in addition to the famous Parc National Albert. In the west, also, the Institut Français de l'Afrique Noire with its colleague Département des Eaux et des Forêts, initiated a progressive policy of conservation. In Madagascar and Mauritius there were movements in favour of the conservation of the native fauna. In Kenya legislation was passed pro-

viding for the establishment of national parks. In South Africa the National Parks board continued its good work in the Hluhluwe and other reserves, and the Wild Life Protection Society of South Africa was endeavouring to make South Africa "conservation conscious," and strongly urged that organized destruction of game should be permitted only if the need for it could be supported by unchallengeable scientific evidence; the Society for the Preservation of the Fauna of the Empire in England urged the same view upon the colonial office. In Nigeria the Nigerian Field society also endeavoured to lead others in the path of conservation. Game is not abundant in Nigeria, but such wildlife as there is was reported to be well protected.

Australasia.—Australia had only recently begun to show signs of interest in the conservation of its fauna and to endeavour to preserve its native animals, in particular the remnant of the once innumerable population of koalas. Largely through the enlightened activities of Sir James Barrett, the conservation of wildlife was being taught in the schools in 1946. The Royal Zoological society of New South Wales called for a comprehensive zoological survey of the subcontinent as a preliminary to active conservation. The Royal Society of Tasmania endeavoured to protect wild nature and there was some hope that, through its efforts, the nearly extinct thylacine, or Tasmanian wolf, might be saved.

New Zealand, distinguished by unique avifauna and by forests of incomparable beauty, had the worst record in the British commonwealth for destruction of nature. By irrational exploitation of the native forests, birds were largely deprived of their habitat, and by the introduction of exotic rodents and small carnivores as well as pigs, goats and deer, the lives of the ground-living birds were in danger and the whole natural oecology of the islands was upset. The New Zealand Forest and Bird Protection society was fighting what seemed to be a losing battle against the sabotage of nature.

Asia.—Reports from Malaya in 1946 were contradictory, but the outlook on the whole was hopeful. During the Japanese occupation the use of firearms was so severely restricted that poaching by shooting was greatly reduced. In the postwar reconstitution of the game department, a new chief warden was appointed, and a former chief warden, E. O. Shebbeare, accepted an invitation to return to Malaya and advise the government on the development of the King George V national park, which offered great opportunities for conservation.

In Ceylon the Ceylon Game and Fauna Protection society, which had for years carried on propaganda in favour of conservation, strongly urged the establishment of a wildlife department. National parks and nature reserves were the responsibility of the forest department, already overburdened with its own work.

An interesting development attributable directly to the war was the establishment of the Jerusalem Naturalists' club for the study of the natural history of the middle east. The club was founded by officers of the British army, and it was hoped that it would continue, to study the natural history of the middle east under more settled conditions.

(H. G. M.)

Wilhelmina (WILHELMINA HELENA PAULINE MARIA OF ORANGE-NASSAU) (1880—), queen of the Netherlands, daughter of William III, king of the Netherlands, and Queen Emma, was born on Aug. 31. She succeeded to the throne in 1890 under the regency of her mother, and was enthroned in 1898. In 1901 she married Henry, duke of Mecklenburg-Schwerin (d. 1934), and in 1909 Princess Juliana, heir to the throne, was born. When the Netherlands was invaded on May 10, 1940, the royal family with members of the government sought refuge in London. On April 27, 1945, it was

announced that Queen Wilhelmina had taken up residence in Holland, near Breda, before returning to the royal palace at The Hague in July.

In 1946 the queen preferred to use a small villa as her headquarters in The Hague, rather than her palace at Noordeinde. The Huis ten Bosch, in The Hague, was being restored. Her country house, Het Loo, near Apeldoorn, was only partly used by the royal family. Some of it had been given over to be used as a rehabilitation centre for ex-resistance workers. On May 12, 1946, Queen Wilhelmina received Winston Churchill at Soestdijk, Princess Juliana's home, during his visit to Holland. In July the queen spent two days in London as guest of the royal family, when she presented King George VI with the insignia of the Grand Cross of the Willem's Orde, and with a number of horses, bred in the Netherlands, for use in the royal stables. In the same month she opened the states general, with a speech from the throne, outlining the tasks of the new government. On the second anniversary of the battle of Arnhem, on Sept. 17, Queen Wilhelmina unveiled the memorial to the fallen at Oosterbeek. She afterward attended the première of the film *Theirs is the Glory* at Arnhem.

(G. J. R.)

Wilkinson, Theodore Stark (1888-1946), U.S. naval officer, was born on Dec. 22 at Annapolis. He was first in his graduating class at the Naval academy in 1909. While still an ensign, he was awarded the congressional medal of honour for his part in the seizure of Veracruz in April 1914, and thereafter he was assigned to various important naval posts both on land and sea. He was secretary of the navy's general board in 1931, head of the planning division of the bureau of navigation, 1936-39, commander of the battleship "Mississippi," 1941, and at the time of the Pearl Harbor attack was chief of naval intelligence. He again returned to sea as commander of a battleship division, 1942, and in early 1943 became deputy commander, South Pacific area and South Pacific force. He later commanded amphibious forces in the South Pacific and participated in the amphibious operations at New Georgia, Treasury Island, Bougainville, Peleliu, the Palaus and the Philippines. He was made a vice-admiral in Aug. 1944. During the congressional hearings on the Pearl Harbor disaster, he testified Dec. 17, 1945, that he knew at 9.15 A.M. of the fatal day that the Japanese were about to break off negotiations and was unsuccessful in trying to reach the chief of naval operations to send a general warning to the fleet. A month before his death, Vice-Adm. Wilkinson became a member of the Joint Strategic Survey committee of the Joint Chiefs of Staff. He was drowned when his automobile plunged from a ferry into the Elizabeth river near Norfolk, Va., Feb. 21. His wife, who was with him in the car, was pushed to safety by the admiral just as the car began to sink.

Winant, John Gilbert (1889-), U.S. diplomatist, was born on Feb. 23, in New York city. He studied at Princeton university and in 1912 he joined the faculty of St. Paul's school as teacher of English and assistant rector. He joined the U.S. army during World War I and was captain of the 8th air observation squadron in France. After the war, he was elected to the New Hampshire legislature, and was governor of New Hampshire for two terms.

Winant joined the International Labour office in 1935, serving as assistant director and director. In 1941, he was appointed ambassador to Great Britain by President Roosevelt and served throughout World War II in this capacity. On Jan. 12, 1946, President Truman appointed him U.S. representative on the United Nations Economic and Social council. He relinquished

his post as ambassador to W. Averell Harriman and devoted all of his time to his duties on the U.N. Council.

Although the verbal exchanges between U.S. and soviet delegates on the council were frequently acrimonious, Winant reported to the state department, Aug. 24, 1946, that most of the disputes had been settled by compromise.

On Dec. 31, 1946, he was awarded the honorary order of merit in King George's New Year list.

Windward Islands. An archipelago in the southern part of the Lesser Antilles in the Caribbean Sea; the name is also that of a British crown colony consisting of four units. The French island of Martinique is the northernmost of the Windward group, while the island of Dominica (a part of the Windward colony) is, geographically speaking, one of the Leeward group. The four parts of the crown colony are: Dominica, area, 304 sq.mi., pop. (est.), 53,899; Grenada (including Carriacou, 13 sq.mi., and lesser islands), area, 133 sq.mi., pop. (est.), 90,586; St. Lucia, area, 233 sq.mi., pop. (est.), 76,174; and St. Vincent (including five of the Lesser Grenadines), area, 150 sq.mi., pop. (1946 census), 61,593. Total area, 820 sq.mi.; total pop., 282,252. The capital of the colony and of Grenada is St. George's (pop., 1946 census, 5,755); capitals of the other units (in the order listed above), with pop. ests. (except as indicated) are Roseau (9,000), Castries (9,000), and Kingstown (1943 census, 4,269). The four units in the Windward Islands are not federated and have no common revenues, tariffs, legislature or laws; they do unite for certain purposes, however. The governor of the colony is *ex officio* administrator of Grenada. The Windward and Leeward Islands (the latter a crown colony to the north) have joint judicial and police services. Governor in 1946: Sir Arthur Grimble.

History.—Administrators of the four Windward Island units met at St. George's early in February to discuss the possibility of union with the Leeward Islands colony. The two colonies reached a tentative agreement early in 1946 on the subject, with St. George's in Grenada being considered as the probable capital. Delegates from the Windward Islands participated in the civil aviation conference in Trinidad early in June.

Education.—The Windward Islands planned to participate in a new teacher training college to be established in Trinidad. A free grant of £500,000 was made to the Windward Islands early in 1946 under the British Colonial Development and Welfare act of 1945, the object being erection of new school buildings.

Finance.—The monetary unit is the pound sterling, although the Trinidad or West Indian dollar is legal tender in St. Lucia and Grenada; the latter is equivalent to 4s. 2d. and exchanges for about 84 cents U.S. The principal financial development of the year was the West Indies currency conference in Barbados beginning May 13, in which the Windwards participated. Recommendations of the conference included establishment of a decimal dollar currency and creation of a Regional Currency board to control it. Great Britain early in 1946 allotted to the Windward Islands £1,850,000, to be spent over a decade, under the 1945 Colonial Development and Welfare act.

Trade and Communication.—Arrowroot exports in 1945 from St. Vincent, which has almost a world monopoly, were 4,575,300 lb., almost all of which went to the United States. Cacao exports from Grenada in the first four months of 1946 were 890 long tons (same period in 1945: 966 tons). Exports of nutmegs from Grenada in 1945 were 2,341 long tons, of which 1,553 tons went to the United States.

British West Indian Airways began providing weekly plane service to St. Lucia and Grenada in 1946. St. Vincent was allocated a grant of £25,000 for road construction during the year.

Agriculture.—The 1945-46 arrowroot crop in St. Vincent was estimated at 30,000 bbl. of starch (1944-45: 22,000 bbl.). Grenadian nutmeg production in 1946 was about two-fifths of the world supply as against one-sixth prior to 1940. Grenada received a development allocation of £42,215 in 1946 for the establishment of three agricultural stations to study soil erosion, stock breeding and feeding, crop rotation, etc. St. Vincent received a soil conservation grant of £27,234. A cacao rehabilitation scheme begun in Grenada in 1946 involved the annual distribution of 80,000 plants.

BIBLIOGRAPHY.—Sir Hesketh Bell, *Glimpses of a Governor's Life* (1946); *Crown Colony Monthly* (London); *Foreign Commerce Weekly*; *West Indies Year Book*, 1945. (R. H. FN.)

Wines. Once again the United States made the greatest strides of any country in the world in the wine industry. Not only did consumption increase from approximately 93,000,000 gal. in 1945 to more than 112,000,000 gal. in 1946, but in the face of declining yields in nearly every other country, production exceeded that of 1945 when more than 115,000,000 gal. were produced.

France, while still the largest wine-producing country in the world, produced only about 66% of its normal crop, of good quality but not quite so good as in 1945. Of the total production there were just more than 5,000,000 gal. of champagne (60% of the normal crop), 71,000,000 gal. of Bordeaux, 25,000,000 gal. of Burgundy and Rhone and about 15,000,000 gal. of Alsatian wine.

In Algeria, on the other hand, the season was again a most disastrous one, the production being only 237,000,000 gal., a drop of more than 13,000,000 gal. from the 1945 crop which was only about 50% of normal.

In the Jerez district of Spain, the favourable weather conditions and abundance of rain up to the end of May produced a crop approximately 35% larger than in 1945 and ideal

weather conditions during the vintage assured a crop of exceptional quality. In the north and east of Spain, vintages also increased but were only about $\frac{3}{4}$ of those of normal years.

In Portugal, because of the small flowering of the vines and an attack of mildew and cold weather, the grapes available were far below average. About 29,000 pipes (more than 4,000,000 gal.) of port were made, against 25,000 in 1945. In the south of Portugal, quantities were much on the low side of normal with qualities reasonably good. The total production in Portugal was about 221,000,000 gal. compared with 236,000,000 in 1945.

In South Africa, somewhat more than 32,000,000 gal. of wine were produced, of which more than 21,000,000 gal. were produced for distillation. This production was far below normal.

Reports from Australia indicated an all-time record of approximately 25,000,000 British gal. (about 30,000,000 U.S. gal.), an increase of more than 10,000,000 British gal. as compared with the production of 1945 and by far the largest amount ever produced.

In Argentina the vintage was approximately 234,000,000 gal. against 191,000,000 in 1945 and 285,000,000 in 1944.

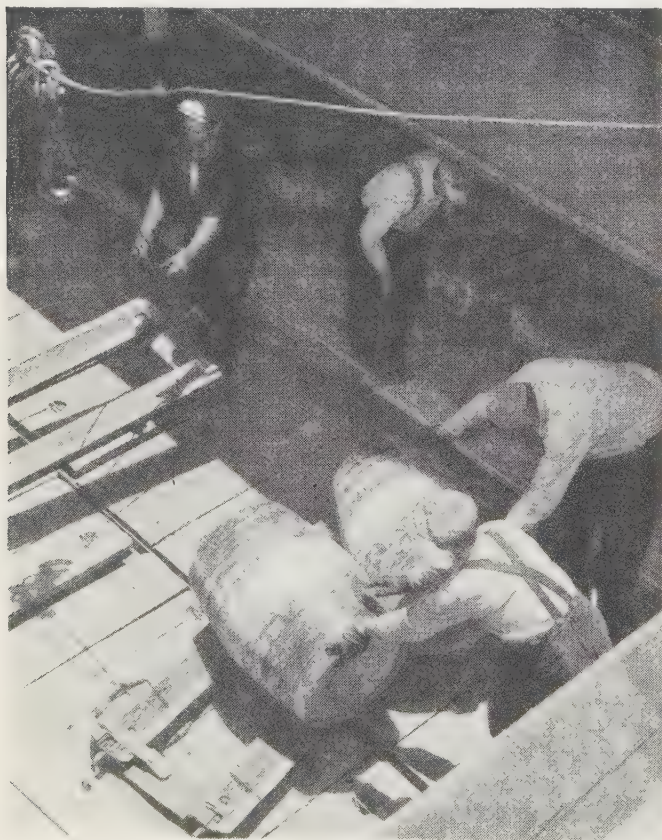
The vintage in Chile, while good in quality, was only 93,000,000 gal., a drop of nearly 7% from the previous vintage and considerably below the normal for half a decade. (See also LIQUORS, ALCOHOLIC.) (O. J. W.)

Wisconsin. One of the north-central states, Wisconsin, popularly called the "Badger state," entered the union as the 30th state in 1848. Area, 56,154 sq.mi. of which 1,439 sq.mi. are water. The federal census of 1940 gave its population as 3,137,587, an increase of 6.8% over 1930. The urban population in 1940 was 1,679,144 and the rural 1,458,443. Only 24,835 were non-white. Foreign-born whites numbered 288,774. On July 1, 1945, the bureau of the census estimated the civilian population of the state at 2,952,000. Capital, Madison (pop. 1940, 67,447). Milwaukee is the largest city with a population of 587,472, and other large cities are Racine (67,195), Kenosha (48,765), Green Bay (46,235), La Crosse (42,707) and Sheboygan (40,638).

History.—A special session of the legislature, July 4-5, 1946, authorized a second cost-of-living bonus of \$10 for each state employee earning \$200 or less a month, passed legislation facilitating action by county and local agencies to promote housing for veterans, allotted additional funds for the state emergency board, and ordered an independent survey of state salary scales and personnel utilization. The Progressive party, established in 1934 under the leadership of the La Follette brothers, dissolved itself at a convention at Portage, March 17, and voted to rejoin the Republican party. In the ensuing primary, Aug. 13, the former Progressive forces were turned back in an effort to capture the key nominations. Eighty-three year-old Gov. Walter S. Goodland, denied renomination by the Republican convention, defeated the former Progressive, Ralph Immell, in a three-way race in which the organization candidate ran a poor third, while Judge Joseph V. McCarthy upset Sen. Robert M. La Follette, Jr., in a very close contest for the senatorial nomination. The emergence of a new leadership in the Republican organization under Thomas Coleman, Madison industrialist, signalized by the McCarthy victory, was confirmed in the subsequent Republican sweep of all state offices. The state's representation in congress consisted at the beginning of 1947 of two Republican senators, ten Republican representatives.

The state officers in 1946 were all Republican: W. S. Goodland, governor; Oscar Rennebohm, lieutenant governor; F. R. Zimmerman, secretary of state; J. M. Smith, treasurer; J. E. Martin, attorney general and John Callahan, superintendent of public instruction. The chief justice of the supreme court was

BARRELS OF WINE for export to foreign countries being loaded aboard the "M. V. Thor" at San Francisco, Calif., during 1946





"YOU'VE LOST SOMETHING, SIR" commented Fitzpatrick of the *St. Louis Post-Dispatch* when Sen. Robert M. La Follette, Jr., was defeated in the Wisconsin Republican primary election on Aug. 13, 1946

M. B. Rosenberry.

Education.—There were 6,228 elementary schools, 460 secondary schools, 23 county normal schools and 9 teachers' colleges in 1944-45. The enrolment was 343,599 in elementary schools, 141,938 in secondary schools and 483 in county normal schools. There were 14,045 elementary school teachers and 6,148 secondary school teachers. The teachers' colleges had faculties of 409 teaching 3,481 college and 2,125 training school students. State aid for education in the fiscal year 1945-46 totalled \$9,391,000. Total expenditures in all elementary and secondary public schools totalled \$54,722,005.41.

Social Insurance and Assistance, Public Welfare and Related Programs.—The number of cases receiving public assistance as of June 1946 was as follows: general relief 5,125; old-age assistance 46,261; aid to dependent children 6,338; aid to blind 1,338; and 341 totally and permanently disabled—a total of 51,806 households. Expenditures for public assistance in the year ending June 30, 1946, were as follows: general relief \$2,209,795; old-age assistance \$16,900,103; aid to dependent children, \$4,537,636; aid to the blind \$508,207; \$70,-450 to totally and permanently disabled—a total of \$24,226,-191. Unemployment benefit payments in 1945 were \$4,264,654 as against \$1,249,692 in 1944 and \$880,512 in 1943. The contributions for 1945 were \$27,575,988 as compared with \$42,-081,693 for 1944 and \$32,600,000 for 1943.

Wisconsin's 13 charitable, penal, mental and correctional institutions were operated in the year ending June 30, 1946, at a cost of \$6,409,238. The average daily population for June 1946 was 8,564.

Communications.—The number of miles of highways as of Jan. 1, 1946, was 84,488 (towns), 2,378 (villages) and 5,960 (cities). The total was 92,826 mi. The expenditures on highways during July 1945-June 1946 was \$31,359,792. The total railway mileage on Jan. 1, 1946, was 6,400.33. The number of airports was 122. There were 687,486 telephones.

Banking and Finance.—At the end of 1945 there were 462

state and 97 national banks. The deposits in state banks totalled \$1,386,490,303, the assets were \$1,466,370,296. National banks had deposits of \$1,466,595,000 and assets of \$1,-546,889,000. The 536 credit unions (14 less than in 1944) listed assets of \$19,064,115. There were 113 building and loan associations with assets of \$134,358,354.

State receipts for the fiscal year ending June 30, 1946, were \$111,150,427; disbursements \$102,303,624. Taxes collected by the state and returned to local subdivisions totalled \$35,113,-139; agency collections returned to counties were \$923,941; state aids amounted to \$30,018,888. Because of a new law segregating certain funds received from state gasoline taxes, motor vehicle registrations and drivers' licence fees, no highway department activities are reflected in state receipts, disbursements or state aids. This segregated fund amounted to \$38,767,829 for the year ending June 30, 1946.

Agriculture.—The total acreage harvested in 1945 was 10,-275,000. The gross farm income excluding government payments was estimated at \$811,248,000, consisting of \$112,704,000 from crops and \$698,544,000 from livestock and its products, including milk. The total was an increase of 5.1% over 1944 which was the highest previous year, and 52% above the World War I peak. Physical production increased slightly. The land used in producing cash crops was small compared with the land used for feed crops, a result of the state's great dairy industry.

Table I.—Leading Agricultural Products of Wisconsin, 1946 and 1945

	1946 (est.)	1945	Value, 1946 (est.)
Corn (bu.)	111,980,000	107,160,000	164,611,000
Oats (bu.)	124,758,000	152,337,000	101,054,000
Canning peas (lb.)	307,640,000	340,400,000	12,859,000
All tame hay (tons)	6,081,000	7,752,000	123,620,000
All clover and timothy (tons)	4,383,000	5,290,000	....
Alfalfa (tons)	1,517,000	2,112,000	....

Manufacturing.—The total value of Wisconsin manufactured products in 1939 was \$1,604,507,356. The wages paid were \$251,946,993. The number of wage earners was 200,897 (average for the year). Wisconsin, with an extremely diversified industry, ranked first in the manufacture of cheese, milk products, malt and canned peas at that time.

Between June 1940 and Sept. 1944, Wisconsin manufacturers received \$4,559,261,000 in major war supply and facility contracts. In 1945 the estimated average number of wage earners in Wisconsin manufacturing establishments was 327,225, compared with 364,700 in 1944, while the estimated weekly pay rolls had decreased in the same period from \$17,233,000 to \$15,319,000.

Table II.—Value of Mineral Products of Wisconsin, 1944 and 1943

Mineral	1944	1943
Stone	\$7,741,499	\$6,677,382
Iron ore	4,190,380	3,822,025
Zinc	3,545,172	3,107,592
Sand and gravel	4,128,434	2,595,531

Mineral Production.—The value of all mineral production in Wisconsin for 1944 was \$22,794,000 as compared with \$18,-930,000 in 1943 and \$17,998,036 in 1942. (C. L. L.)

Wisconsin, University of. An institution of higher education at Madison, Wis. Almost 1,000 students received degrees at Wisconsin's annual commencement in May 1946, the 93rd in the university's 97-yr. history.

When the university opened its doors on Sept. 23, 1946, a total of 23,800 students registered for instruction, 18,600 at Madison and 5,200 at 34 extension centres established in cities in all parts of the state during 1946. This was an 88% increase over the highest prewar enrolment of 12,674 in 1939. The extension centre classes, taught by university instructors of regular faculty rank, were held in high schools, vocational schools

and regular university centres for both freshmen and sophomores.

More than 19,000 young people and adults were enrolled in correspondence courses provided by the extension division during the year. More special institutes, 22 to be exact, attended by more than 5,000 citizens, were conducted for labour, agriculture, education, business and industry during 1946 than in any other of the university's 97 years.

Faced with the huge demand for educational services, Wisconsin took many emergency steps during 1946 to meet the situation and carried forward plans, first inaugurated during World War II, involving the expenditure of more than \$50,000,000 over a 10-yr. period for expansion and development of campus and building facilities. Besides the 34 extension centres, other emergency steps taken at Wisconsin to meet the immediate problems of the situation included temporary housing for 5,000 students, temporary classrooms in the form of quonset huts and conversion of other buildings near the campus, 100% classroom use, longer class days and longer school year, larger classes, special courses of study and part-time faculty. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. Fs.)

Withholding Tax: see TAXATION.

Woman's Christian Temperance Union, National: see SOCIETIES AND ASSOCIATIONS.

Women's Army Corps. The Women's Army corps (WAC) became part of the army of the United States when public law 110 was signed by the president on July 1, 1943. Originally, it was created an auxiliary organization by an act of congress, which became law over the president's signature on May 15, 1942.

The purpose of the corps is to make available to the national defense, when needed, the knowledge, skill and special training of the women of the United States.

Col. Oveta Culp Hobby, former Texas newspaperwoman, became first director of the corps and was succeeded on July 12, 1945, by Col. Westray Battle Boyce of Rocky Mount, N.C.

At its top strength, the WAC numbered 100,000, of which about 18,000 served overseas in 21 different countries. Enlistments in the WAC were closed on Aug. 29, 1945. Demobilization of the WAC was carried out on a proportionate basis with that of the men of the army. The estimated July 1, 1946, strength of the Women's Army corps was 1,700 officers and 18,000 enlisted women. From April 1, 1946, to Aug. 1, 1946, 1,326 honourably discharged WACs re-entered the corps for service in the United States and overseas.

Under public law 110 WACs are entitled to the same rights and privileges as male soldiers, such as free postage, government insurance, allowance for dependents and provisions of the G.I. Bill of Rights and Veterans' Administration assistance. They are entitled to wear medals, decorations and ribbons they have earned. Overseas veterans wear the same ribbons as the men, with battle stars for various campaigns. Members of the original auxiliary wear the WAAC service ribbon. Those who never served beyond the continental limits of the United States are entitled to wear the American theatre ribbon after one year of honourable service.

As of June 1, 1946, 43 women had been awarded the Legion of Merit; 538 the Bronze Star; 16 the Purple Heart; 7 the Soldier's Medal; 2 the Air Medal; 2 the Navy's Letter of Commendation; 2 the French Legion of Honour; 5 the French Croix de Guerre; 7 the Most Excellent Order of the British Empire.

The insignie of the corps is the head of Pallas Athena, goddess of wisdom and victory; members, however, wear the insignie of

the branch of service to which they were permanently assigned after completion of basic training.

On July 24 and 26, 1946, bills were introduced in the senate and in the house of representatives, proposing the establishment of the Women's Army corps in the United States army (regular army).

The bills called for an initial corps strength of 5,000 enlisted women and 500 officers, and established the maximum strength at 2% of the regular army male strength authorized from time to time.

The bills also provided for the establishment of an officer reserve corps and an enlisted reserve corps. Generally, the laws and regulations applicable to males and their dependents would be applicable to women and their dependents in like cases.

Women in the regular army would serve at posts, camps and stations in the United States and overseas, in clerical, secretarial, administrative, personnel, statistical, communications, intelligence, hospital technicians, supply and training, and scores of other capacities. (W. B. BE.)

Women's Clubs, General Federation of: see SOCIETIES AND ASSOCIATIONS.

Women's Reserve of the Navy. During the 12 months following V-J day the women's reserve of the U.S. naval reserve was gradually demobilized from a peak strength of 86,000 to a total of approximately 5,600 officers and enlisted women, who volunteered to remain on active duty until July 1, 1947. The majority of these volunteers were secured among WAVES still in service during the period of demobilization but re-enlistments were also opened to a limited number of former WAVES in certain rating groups, especially hospital corps personnel, seamen and those holding aviation ratings. WAVES were assigned to duty throughout the continental shore establishment and performed duties primarily in the fields of aviation, supply, communications and hospital work.

The legislation authorizing the women's reserve was effective only "during the present war and for six months thereafter." The navy department asked the congress to enact appropriate additional legislation in order to provide for the continuing use of women in the peacetime navy both in the regular and in the naval reserve.

During the summer of 1946 provisions were made whereby ex-enlisted WAVES could join the volunteer reserve for inactive duty, thereby permitting them to build up their longevity and keep their highest wartime rating while remaining in a civilian status. WAVE officers automatically continue as members of the volunteer reserve unless they officially resign.

At one time there were more than 4,000 WAVES on duty at air stations, hospitals, the navy yard and other activities in the Hawaiian Islands. By Sept. 1, 1946, all WAVES from this area had been returned to the United States and were either separated from the service or, in the case of those volunteering for extended service, were reassigned to continental shore establishments. Although WAVES could still be ordered to temporary duty to such places as the Aleutians, Bermuda, Argentina (Newfoundland) and Hawaii, it was not anticipated that women would be assigned to permanent duty overseas until such time as the future status of the WAVE program was determined by legislation.

In June 1946 the secretary of the navy approved the wearing of service stripes by enlisted women. These stripes, traditionally known as "hash marks," indicate that the individual has completed four or more years of active service.

As of Sept. 20, 1946, women on active duty in the army and

navy were permitted to wear civilian clothes when on liberty or when in an off-duty status off the station.

Captain Joy Bright Hancock, U.S.N.R., became director of the women's reserve in July 1946, succeeding Captain Jean T. Palmer, who was separated from the service at that time. The director of the women's reserve from its inception until Feb. 1946 was Mrs. Mildred McAfee Horton, President of Wellesley College.

(J. B. Hk.)

Women's Reserve of the U.S. Marine Corps Reserve:
see MARINE CORPS.

Wool. The quantity of wool shorn in the U.S. in 1946 was estimated at 298,978,000 lb. This was 23,039,000 lb., or more than 9% smaller than shorn wool production in 1945 and 20% below the record production in 1942. It was the smallest production after 1928. This continued reduction in shorn wool from preceding years was the result of high labour costs on the ranch and the demand for meat, resulting in the slaughtering of large numbers of breeding stock. The estimated number of sheep shorn was 36,836,000, a decrease of 3,501,000 or 8½% from 1945, and a 20% decrease from the 10-year average, 1935-44. The estimated weight per fleece in 1946 was 8.12 lb. compared with 7.96 lb. in 1945 and the 10-year average of 7.98 lb. Pulled wools were estimated at 65,000,000 lb.

The 1946 world wool output equalled the prewar average. The world production of wool was estimated at 3,700,000,000 lb., but world wool supplies were much larger than before the war because of stocks accumulated during the hostilities. In the fine wool production countries of Australia, South Africa and the U.S., the total production of fine wools in 1946 dropped to 1,500,000,000 lb. in comparison with the record accumulation of 1,900,000,000 lb., shorn during the war years and a prewar (1934-38) average of 1,700,000,000 lb. As of June 30, 1946, according to the U.S. department of agriculture, world stocks of wool were estimated to be 5,000,000,000 lb., or more than 3 times as much as before the war. Of this amount of carry-over wool, 2,600,000,000 lb. were still owned by governmental organizations. Of this latter amount, the United Kingdom-Dominions Wool Disposal Ltd. held 81% and the Commodity Credit corporation (CCC), in the U.S., the remainder.

The Australian wool production in 1946 was estimated at 878,880,815 lb., a decrease of 69,280,129 lb. from 1945. Sheep production showed a total of 98,140,998, a decrease of 6,927,742. In New Zealand the clip was estimated at 352,721,194 lb., or a decrease of 10,962,633 lb. Exports of wool from Argentina, ending Sept. 30, reached a record of 293,000 tons greasy, 12% of the total production. That country had become the second largest producer and exporter of wool.

The first part of the year showed uncertain manufacturing prospects, because of labour complications. These fears were allayed through agreements reached prior to the expiration of contracts of Feb. 1. The strike of the Western Union Telegraph company in January delayed cable service to Great Britain, South Africa and South America. An intense heat wave in New South Wales killed 1,250,000 sheep. A joint organization capitalized by the British, Australian, New Zealand and South African governments, was formed to take over surplus stocks of wool possessed by the British government from its wartime purchases of dominion clips and to arrange the marketing of these, along with that of each annual clip as it became available. Heavy wool consumption by the U.S., in January, amounted to 49,680,000 lb., scoured basis, 90% being of foreign origin.

On Feb. 20 the first reduction in the selling price of the CCC controlled wool took effect. Selling prices were reduced five cents a pound clean basis on the 1943 clip and three cents a

pound on the 1944-45 accumulations. Large sales of Uruguayan wools were made in Montevideo to the U.S.S.R., the Netherlands and Spain. In Australia plans were made to establish 30 new woolen mills, 80% woolen and 20% worsted. The first sale of surplus wool, held by the War Assets corporation, was held in Boston in March, at which time more than 4,000,000 lb. were auctioned off, with approximately 500 interested buyers in attendance. The following month an additional 3,000,000 lb. were sold by auction.

Announcement was made in April that Australian sales were to be resumed in September. It was also understood that similar auction sales would be resumed in London, South Africa and in New Zealand. Considerable talk of legislation was heard in Washington, D.C., relative to assisting domestic wool growers in maintaining their sheep, wool being considered a wartime necessity.

The wool merchants favoured a direct subsidy on sheep, rather than continuing the government purchase of the yearly clips, government control of wool imports and the raising of wool tariffs.

In August reappraisals of the 1943 domestic clip took place and shrinkages were raised 3% to 5% above the original appraisals, thus interesting, to a great extent, the manufacturers in purchasing domestic wools. Australian sales commenced on Sept. 2 in Sydney, the first after 1940, with a sharp rise in price above the old issue prices. France and other continental countries were the principal purchasers. Because of this advance in price of 15% to 20%, the U.S. was unable to meet this competition on account of the Office of Price Administration ceilings, in force from 1941. The first sale in South Africa was held in Capetown on Sept. 4, and was followed by the first London sale held on Sept. 12. Prices advanced 10% to 15%, and even Bradford, England, could not compete with the continent. During the month of September the third sale of War Assets corporation surplus wool was held in Boston, at which time 2,000,000 lb. were sold by auction.

Resulting from the advance in world prices, parity between domestic grown wool and foreign wool widened. On Oct. 7 the CCC raised the selling prices on their holdings of domestic grown wool about five cents a pound clean basis. This raise in price was anticipated prior to that date, and more than 40,000,000 lb. of domestic wool were sold of the 1943-46 domestic clips controlled by this government agency. The OPA ruled, at this time, that manufacturers could purchase wools at the Australian and other wool auctions, competing at any price, without being affected by wool ceilings then in force. Wool merchants, however, were limited in the price which they might pay, based on the maximum prices they paid during a base period fixed between Oct. 1 and Dec. 15, 1941.

The decontrol of prices, including wool, on Armistice day, Nov. 11, brought back free trading in the world's markets for U.S. handlers. On the same day, because of the world's parity prices on wool advancing, the CCC advanced, for the second time, the selling prices of its government-controlled domestic wool, averaging five cents per pound clean basis.

Public hearings on tariffs before the Commission for Reciprocity Information were announced in November and were to be held in Washington, D.C., beginning Jan. 13, 1947. Under the terms provided for in the Tariff Act of 1930, wools and its manufactures constitute Schedule II. The third raise in CCC selling prices took effect Nov. 30 when an advance of two to three cents a pound clean basis occurred. The total of unsold CCC wools, as of Nov. 16, approximated 462,112,071 lb. The total consumption of wool in the U.S. approximated 800,000,000 lb., as compared with consumption during 1935-39 of 590,000,000 lb. (See also SHEEP; TEXTILE INDUSTRY.) (C. M. AN.)

Words and Meanings, New.

The most certain characteristic of a living language is its tendency to change. New conditions of all kinds, new ideas, new inventions—all must be described by new words, by extensions of old words or by new combinations of words. English thus adds many new words to its vocabulary every year, some destined to live long, others to die soon. The words listed below are but a small residue of those collected by the committee preparing this article.

In the 1946 *Britannica Book of the Year* reference was made to the new terms for new inventions which had been "under wraps" during World War II. The list below contains many more such terms and reveals clearly the continuing importance of the science of physics (especially electronics) in the creation of new words. In aviation and medicine as well, the influence of science on word coinage can be seen. In the nonscientific field an indication of a world still beset with problems can be seen in such new terms as "ADA," "buyers' strike," "existentialism," "52-20 club" and "iron curtain."

These words became prominent or were seemingly used for the first time during the years 1945 and 1946. Dates within the parentheses following a word or definition indicate the first recorded use of the new word or meaning in the files of the committee. A preceding hyphen means that the word or meaning is suspected to be older than the date given. If no date is given, the first record on file is 1946.

A.A.A. Proposed, American Authors' authority.

Able day. See **A-day**.

ACS. The initials of antireticular cytotoxic serum, said to retard the coming on of old age. (1944)

ADA. Atomic Development authority, proposed by Bernard Baruch to exercise control over those aspects of atomic energy inimical to global security.

A-day. Short for Atomic day, June 30, 1946 (July 1 Bikini time), when the fourth atomic bomb was dropped in a test at Bikini to determine its effect on a fleet of war vessels. Also Able day, from "able," the signaler's word for "a."

aeropulse. A type of jet-propulsion motor in which the air sucked in from the atmosphere is let into the combustion chamber through shutters equipped with springs which open and close with a pulse-like movement.

americium. Element number 95, named by Glenn T. Seaborg for the two Americas.

A.S.V. Initials of air-to-surface-vessel, a radar device able to detect vessels on the surface of the water. (1945)

athodyd. See **ramjet**.

atomic cloud. The mushroom-shaped, radioactive cloud formed by the explosion of an atomic bomb.

bacitracin. An antibiotic substance which promises to be effective against many bacteria, including those that cause pus and blood poisoning. It was first isolated in a wound of Margaret Tracey, after whom it is named. (1945)

Baker day. The day on which the second atomic bomb of Operation Crossroads was to be set off beneath the surface of the water in the midst of a fleet. So called after the signaler's word for "b." See **Able day**.

BAL. Initials of "British anti-lewisite," an alcohol (2, 3-dithiopropional) which counteracts arsenic and mercury poisoning by combining with the poisons to produce compounds which the body is able to pass off. (1945)

banana money. Japanese currency, so named because it bears the design of a banana. (1945)

Bat (bomb). A glider bomb, containing radar in its tip, which, launched from the wing of its mother ship, is electronically guided until it hits its target. It was developed by the U.S. navy and the Bell Telephone laboratories. (1945)

be-bop. Slang. Name of uncertain origin—possibly from a similar sound made on the trumpet—to describe a recent development of swing music which is unrestrained, unrehearsed, high-note, full of horseplay and often off-key. (1945)

benzene hexachloride. See **666**.

Bloc(k). Code name for a television transmitter attached to a plane which enables one to see what is going on 200 mi. away. It was developed by the U.S. navy in co-operation with the Radio Corporation of America and was used in life-saving and in actual battle.

boom-and-bust, n. A cycle of economic inflation and deflation. (1946)

brideship. A ship carrying a large number of brides of servicemen.

Bungalow Biddy. See **Tourlayer**.

buyers' strike. A movement by consumers to force prices down by not buying. (1946)

Calutron. A word composed from *California* university *cyclotron* to describe an electrical machine that classifies atoms on the basis of their weight differences. It is manufactured by the Westinghouse Electric Corp. (1945)

carbon 14. A radioactive substance of great promise as a synthesizer of food and fuel and as a tracer in biological research.

caretaker, adj. Pertaining to something temporary; stop-gap; as, a "caretaker government." (1945)

chalk. 1. Information, often posted in chalk on slates or blackboards, concerning the odds in horse-race betting. **chalk favourite.** A horse favoured to win. (1936) **chalk player.** One who waits for the last writing or posting of prices or odds so that he can play the favourite. (1934), also **chalk eater** (1942) 2. Hence, by extension, a favourite in horse racing as indicated by such information or "chalk." (1946)

Chromovox. An electric machine devised by Herman R. Goldberg to help teach the deaf to talk by associating voice sounds with certain colours.

cuddle seat. A contrivance for carrying small children, consisting of a seat hung from a strap slung over the shoulder. It was introduced by Australian war brides.

curium. Element number 96, named by Glenn T. Seaborg for the late Pierre and Marie Curie.

cyclophon. A tube used in pulse time modulations (*q. v.*).

DANA. Initials of the Deutsche Allgemeine Nachrichten Agentur (German General News agency), sponsored by U.S. newspapermen as a successor to the DNB, which was controlled and dominated by the nazis.

DFF. Short for diisopropyl fluorophosphate, a poison gas.

Doron. A glass-cloth armour, named for its inventor Brig. Gen. G. F. Dorion, and which is impervious to bullets as large as .45 calibre. (1945)

drone. A plane handled by remote control from a control or mother ship (*q. v.*). (1946)

echo. A radar wave which has been reflected from an object. It makes a pip (*q. v.*) on a radar screen. (1941)

electropult. A small car, something like a trolley, provided with a 1,400-ft.-long track and capable of developing sufficient speed (120 m.p.h.) within 500 ft. to launch a plane.

elevon. A combination *elevator* and *aileron* located in the trailing edge of the wing of a flying wing.

ENIAC. Initials of Electronic Numerical Integrator and Computer, a machine invented by John W. Mauchly and J. Presper Eckert which can solve difficult mathematical problems with great rapidity. (1946)

Exercise Musk Ox. A U.S. expedition into the subarctic and arctic regions to obtain scientific data. See **operation**.

existentialism. A pessimistic literary-philosophic doctrine in France which denies the value and significance of human existence. Jean-Paul Sartre is its chief proponent. (1945)

fact finder. One engaged, as in a labour dispute, to ascertain the facts of a case. (1945)

52-20 club. The veterans of World War II who, rather than take low-salaried jobs, are accepting the \$20 a week unemployment compensation the government will pay for a year (*i.e.*, 52 weeks).

fissionable, adj. Pertaining to that which is subject to fission. (1946)

Flying Ram. The U.S. army XP-79, a small jet-propelled flying wing made by Northrop Aircraft Co. Fourteen feet long, with a wing span of 38 ft., it is flown at speeds of more than 500 m.p.h. by a pilot in a prone position. The plane is welded into a simple magnesium sheet strong enough to withstand the ramming of enemy planes.

flying stove pipe. See **ramjet**.

FPHA. Federal Public Housing authority.

Gopa. Short for "ground-to-air pilotless aircraft," a guided missile of the U.S. army air forces. It is a thin, rocket projectile, ten feet long, to be used against enemy missiles before they strike. It is manufactured by the Boeing Aircraft Co.

G.C.A. Initials of "ground control approach," a radar-operated system in which a ground operator "talks in" (*q. v.*) a plane that must make a blind landing. (1945)

gray market. A modified black market.

guided missile. A missile directed by some means of remote control such as radio, radar or television. (1945)

hoppicopter. A flying machine invented by Horace T. Pentecost which operates on the principle of the helicopter. Its source of energy is a 20-h.p., 2-cylinder engine, attached to the back of the pilot. (1945)

hot, adj. Pertaining to objects which have been made radioactive.

huckster. Slang. A radio advertising man. (1946)

Huff-Duff, n. Pronunciation given by servicemen to the initials (HF DF) of "high frequency direction finder," a device which can determine the location of such objects as ships and aeroplanes as far away as 3,000 mi. Through Huff-Duff lost planes and ships can be told where they are. It was developed by the U.S. navy and the International Telephone and Telegraph Corp.

Huks. Shortening of Hukbalahaps, a Tagalog word meaning "armed peasants," "people's army." (1945)

hydrobomb. A 3,000-lb. aerial torpedo with an explosive charge of 600-1,250 lb., built to withstand launching speeds as high as 350 m.p.h. In the water it is rocket-powered accurately at 40 knots.

IFF. Initials of "identification, friend or foe," equipment carried in an aeroplane which is sensitive only to corresponding sets, in another plane or on the ground, using a pre-arranged code. (1945)

iron curtain. 1. The supposed impenetrable censorship and secrecy dividing soviet-dominated Europe from the remainder of the world. Attributed variously to Winston Churchill and to William Joyce (Lord Haw-Haw). (1946) 2. Any such curtain.

Mad Operator. Slang. Navy nickname for the magnetic air-borne detector which enabled aeroplanes to locate submerged submarines.

missile. Specif. Mil. Term that includes the whole class of pilotless, jet-propelled projectiles.

mop. Slang. A word connoting surprise, anguish; a mild sort of "hubba, hubba, hubba." (1944)

mothered. pp. Controlled by a mother plane.

mother ship. An aeroplane whose pilot controls a drone or push-button plane. Also **mother plane** (1945), **worker plane**.

mycoidin. A substance obtained from mould in the *aspergillaceae* family, of promise in the treatment of tuberculosis. Developed by Drs. Isadore F. Gerber and Milton Gross, it is still in an experimental stage.

Navar. A system developed in the International Telephone and Telegraph Federal Telecommunications laboratories of controlling air navigation and airport traffic from centres containing screens on which electronic images enable a control officer to determine the position of all aircraft within a radius of 80 mi. (-1946)

operation. In the last several years new specified combinations of this word, too numerous for inclusion, have occurred. 1. Such specific military uses as **Operation Neptune** (the naval aspect of the invasion of Normandy) to describe a campaign involve a sense of the word dating from 1749. 2. As a rehearsal, the term apparently goes back to World War I; a new specific combination involving this sense is seen in **Operation Crossroads**, the atomic bomb test at Bikini. 3. Under the influence of the many combinations in senses 1 and 2, operation is now being employed to cover any specific plan or project, especially nonmilitary. Thus, **Operation Dixie** describes the plan of the C.I.O. to organize the south; **Operation Friendship** is a plan of the British Travel Assn. to cement friendships made in England between Americans and Englishmen.

orbit rocket. A theoretical rocket which could be sent out into space, where it would be made to act as a satellite until such time as it might be directed at an enemy.

paludrine. An antimalarial drug developed by English investigators from coal tar. (1945)

performance-observer method. A method to keep horse racing honest. For each entry in a race an observer is appointed who watches the race through binoculars to which is attached a microphone connected with a recorder to make a record of his remarks during the race. (1945)

pip. The indication of an echo (q. v.) on a radar screen. (-1945)

Plesianthropus. An "almost man," some of whose skeletal remains were found by Dr. Robert Broom not far from Johannesburg, South Africa. (1945)

pregnenolone. A synthetic chemical, daily doses of which improve human performance by counteracting fatigue. (1945)

psychodrama. A kind of play invented by Dr. J. L. Morens for neurotics. The patients resolve their neuroses by extemporaneously creating and acting out before their fellow patients the type of situation they fear to face in actual life. (1945)

pulse time modulation. A method of using microwaves whereby a number of phone conversations can be transmitted over a single wave band. Abbrev. PTM.

push-button, adj. Pertaining to the remote-control made increasingly possible by developments in the field of electronics; as, a **push-button plane**, **push-button war**. (1945)

radar scope. 1. Short for radar oscilloscope, a machine for viewing the images produced by radar. 2. A radar screen. (-1946)

radar screen. A fluorescent screen at the end of the radar scope on which the pips are indicated. (-1946)

radioisotope. Short for radioactive isotope.

ramjet. A jet-propulsion unit without moving parts which operates on a continuous stream of air which is compressed by the speed with which the unit "rams into the air." The higher the speed, the greater the compression and hence the efficiency. Also called **athodyd** and **flying stove pipe**.

raticide. See **rodenticide**.

Red Feather. The symbol of the Community Chest.

ribbon city. A city about a mile wide built along a highway. Also **strip city**.

Ring. Code name for a large, free-moving, air-borne television transmitter capable of relaying pictures as far as 200 mi. It was developed by the U.S. navy in co-operation with Radio Corporation of America and was used in life-saving and in actual battle.

rodenticide. A rodent killer. (1945) Also **raticide**.

Sferics. Short for static direction finders, the U.S. army's electronic system for obtaining information on weather conditions. It is reliable for distances up to 3,000 mi. (1944)

Shock wave. A wave resulting from the fact that as a plane approaches the speed of sound, the air flows over the rear of the wing more slowly than the front, causing shocks that affect the lifting efficiency of the plane and eventually batter it to pieces. (1945)

Shoran. Short for "short-range radar," a radar device which uses high-frequency radio waves sent from a plane to ground stations to locate and measure by miles or feet any spot on the earth. Used during World War II to bomb targets through an overcast, it may be used in peacetime for mapping unknown areas. Developed by the Radio Corporation of America. (1945)

sitter. Short for **baby sitter** (1937), one, usually a teen-age girl, who sits with a baby while the grown-ups are out. (1944)

666. A new insecticide (hexachlorobenzene) which promises to kill intestinal parasites. (1945)

Skimobile. A mechanical chain of cars used to pull skiers up a mountain.

SN 7618. A synthetic drug (7-chloro-4-[4-diethylamino-1-methylbutylamino]-quinoline) said to excel atabrine or quinine in the treatment of malaria. So called because it was the 7,618th substance tested.

snake. Nickname of a device used during an advance to destroy wires and detonate mines.

sniperscope. A U.S. army detection device, attached to a .30-calibre carbine, for sighting objects in the dark. Infra-red rays, shot out by electronic equipment powered from a source on sniper's back, hit an object, an image of which is reflected on a screen. Japanese soldiers thus sighted were unaware of the fact. It is manufactured by Electronics laboratories of Indianapolis, Ind.

snooperscope. A U.S. army detection device, operating on the same principle as the sniperscope, which can be attached to a soldier's helmet to enable him to see, or be used by leaders for signalling. It is manufactured by Electronics laboratories of Indianapolis, Ind.

snowmobile. Currently applied also to a light tank, equipped with a glass cabin and rubber tracks in which particles of steel are imbedded for traction. (1943)

Sofar. An underwater sound system, called "Sofar" from the initial letters of "sound fixing and ranging," developed by the U.S. navy and the Oceanographic institution, Woods Hole, Mass., which made possible the location of air and ship survivors as far as 2,000 mi. from shore and thus facilitated sea rescue.

sono-radio buoy. A buoy equipped with hydrophones which pick up sound waves from a submerged submarine and convert them into radio waves for transmitting to aircraft or surface vessels. Also **sonobuoy**. (1945)

stacking, n. The assigning of planes to certain altitudes, say, 1,000 ft. apart, especially over an airport when landings are delayed by bad weather conditions. As the bottom plane lands, each member of the stack drops 1,000 ft. and a new plane can then be brought in on top. Also **stack up, n.** (1943)

synchrotron. A new 300,000,000 electron-volt atom smasher being developed by Prof. Edwin M. McMillan. (1945)

talk down, v.t. To aid a pilot to land a plane in overcast weather by studying the position of his plane on a radar screen and giving him directions. Also **talk in**. (1943)

target-seeking missile. A missile, equipped with a target-seeking mechanism, which is attracted toward its target when it approaches its vicinity.

Tournalayer. A huge machine, made by R. G. LeTourneau, Inc., which can "lay" a 24 ft. x 30 ft. 4-room concrete house in 24 hr. Also called **Bungalow Biddy**. The poured concrete houses are called **Tournaloids**.

transuranic, adj. Pertaining to elements beyond, that is, heavier than, uranium. (1945)

Truman bread (flour). The bread made from 80% wheat flour, adopted in April 1946 to make it possible to send more wheat abroad. The measure was temporary.

truth serum. Popular name for sodium pentathol, under the influence of which an individual will disclose the truth he has been suppressing. (-1946)

U.N. Designated in April 1946 as the official abbreviation of the United Nations.

U.N.E.S.C.O. The United Nations Educational, Scientific and Cultural organization. (1945)

velvet curtain. Term used by the U.S.S.R. to describe British secrecy in British-occupied Europe and the middle east.

WAA. War Assets administration, organized to handle the disposal of surplus U.S. government property.

Waccorporal. A rocket, 16 ft. in length, 12 in. in diameter, weighing 600 lb.-1,000 lb., the nose of which contains weather instruments to determine various facts about the ionosphere at an altitude of about 43 mi. So called from its slim and graceful appearance.

wave guide. Hollow pipes through which radio waves flow.

weaponer. The person who prepares an atomic bomb for dropping by the bombardier. (1945)

window, n. An antiradar device consisting of strips of aluminum foil one-half the length of a radar wave which, when scattered from a plane, confuse the enemy radar operator by producing a number of echoes on his screen. Also called **chaff**, **shaft**.

wire recorder. An electrically-operated machine for recording sound on a thin aluminum wire strung between two spools, one of which winds and the other unwinds. The recording can be heard as often as desired, or it can be rubbed off and a new one made on the same wire. (-1943)

worker plane. See **mother ship**.

X-M bank. The Export-Import bank. (-1946)

(I.W.R.)

Works Agency, Federal: see **FEDERAL WORKS AGENCY**.

World Bank: see **INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT**; **INTERNATIONAL MONETARY FUND**.

World Commerce: see **INTERNATIONAL TRADE**.

World Council of Churches: see **CHRISTIAN UNITY**.

World Federation of Trade Unions. In 1946 the old International Federation of Trade Unions was dissolved to leave a clear field for the new World Federation of Trade Unions, formed in Paris in Oct. 1945, whose membership was more than 71,000,000 by the end of the year. Sixty countries were represented and only one large trade union organization, the American Federation of Labor, remained outside.

A second congress to be held in 1947 was provided for by the constitution. In the meantime business was conducted by a general council, an executive committee and an executive bureau. The bureau was responsible for the detailed direction of business and met as often as required; it was appointed by the executive committee. The members were: Sir Walter Citrine, president; Sidney Hillman (U.S.A.), V. V. Kuznetsov (U.S.S.R.), L. Toledano (Latin America), Evert Kupers (Netherlands), Chu Hsueh Fan (China), Léon Jouhaux (France), G. di Vittorio (Italy), vice-presidents.

Changes had already taken place by the end of 1946. Sir Walter (later Lord) Citrine, the president, took office as a member of the National Coal board in Britain's newly nationalized mining industry, and his place was filled provisionally by Arthur Deakin of the British Trades Union congress. The death of Sidney Hillman (U.S.A.) created a vacancy among the vice-presidents, and he was succeeded by Frank Rosenblum (U.S.A.). The activities of the W.F.T.U. during 1946 included the sending of a commission to the four zones of occupation in Germany and discussion of the ensuing recommendations with the Allied Control council in Berlin, to be followed by a further visit to the four zones. Broadly, the W.F.T.U. recommended greater freedom for the German trade unions, with federation on a zonal basis and a consultative link-up for the four occupational zones. Arrangements were made with the Economic and Social council of the United Nations organization for representation in an advisory and consultative capacity. The W.F.T.U. was also to seek representation in other agencies of the U.N. Missions of inquiry into the trade union position visited countries and places such as Greece, Iran, Tunisia and Trieste. Visits to Japan were planned. A colonial committee was set up to encourage trade unionism in the colonies. Action was taken for the consolidation of peace, in particular by liquidating the remnants of fascism wherever they were to be found, more especially in Spain.

Negotiations continued with the International Trade secretariats to integrate them into the W.F.T.U. as International Trade departments, and a Paris conference was planned for Dec. 1946 to which all secretariats were invited to send three delegates, and the two countries not affiliated to existing International Trade secretariats, namely, U.S.A. (Congress of Industrial Organizations) and U.S.S.R. (All-Union Central Council of Trade Unions) to send six delegates each.

The headquarters of the W.F.T.U. remained in Paris. The secretary-general in 1946 was Louis Saillant; the assistant secretaries were W. Schevenels (Belgium), Michael Falin (U.S.S.R.) and Adolf Germer (U.S.A.). (W. M. Cr.)

World War II. On Dec. 7, 1941, carrier-based planes of Japan blasted U.S. ships at anchor in Pearl Harbor; on Aug. 10, 1945, the Japanese government, terrified by the potentialities of atomic bomb warfare, sued for peace. Between these two dates the United States was involved in totalitarian war on a scale never before contemplated. What did such war accomplish? What lessons were learned? What mistakes were made?

Briefly, World War II removed Germany and Japan from the ranks of world powers, possibly forever. In the process of effecting this, there was indicated the preparation of an eventual meeting ground for the powers of victory. This meeting ground would be the concerted attempt on their part to formulate a plan of living for practically all of the surviving world. The manifestation of such thought was the United Nations assembly wherein the dominating, remaining governments of the world were seriously attempting to chart national and international living so that war might be outlawed and the economic, social and political structure of the universe be stabilized. To be successful, this effort would have to burn out all of the dross of national and international greed, suspicion, and distrust, to the end that there should remain only the refined and purified gold of superlative humanitarianism, to operate permanently as a shield against the possibility of war.

To evaluate the lessons learned from World War II is not easy. The stormy sessions of the United Nations assembly prove that, at least politically. The military lessons are difficult of appreciation. Individual incidents of combat stand out as

mistakes—hindsight, as usual, is better than foresight. The high command has come under the sharp barb of direct condemnatory criticism. Throughout the months of World War II, Gen. George C. Marshall, chief of staff of the armies of the U.S., repeatedly tried to show his countrymen some of the problems that would confront the U.S. as an aftermath of war.

When Hitler unleashed his wehrmacht on Europe, the United States was not even a third-rate military power. It had no field army; it had barely three and one-half divisions spread thin over the entire area of the continental United States and its territorial responsibilities; it lacked motor transportation to train adequately the few troops it had; it had lacked congressional appropriation of funds in sufficient amounts to set up and operate troop manoeuvres which would have strengthened its woefully small forces. Modern arms, equipment, aeroplanes were lacking. Modern thinking was seemingly just as lacking, as witness the conflict at that time between the army air force and the navy—the former pleading for the building and flying of long-range, heavy bombing planes, the latter claiming that the army's mission ended at the shore line and that from there out the navy's big battleships and cruisers took over the job. However, there were isolated instances wherein navy officers did not subscribe to such policies or thoughts. One such was the collaboration of Major General Frederick L. Martin, army air commander in Hawaii and Vice-Admiral Patrick N. L. Bellinger, air defense officer of the Pearl Harbor naval base. These two prepared a historic document which reached Washington, D.C., on Aug. 20, 1941. In it was a detailed statement of how the Japanese would launch their attack on Pearl Harbor and what measures should be taken to forestall the attack. Among other things, this report stated that the Japanese task force would contain six aircraft carriers (it did); to avoid detection it would travel the Great Circle route and approach Hawaii from the north (it did); the attack must be launched at dawn (it was); early on the morning of the previous day the Japanese force must be within 884 mi. of Hawaii (on the morning of Dec. 6 it was 800 mi. due north of Hawaii); on the morning of the day of the attack, the task force must be within 350-mi. striking range (actually it was within 200 mi. on Dec. 7).

This report preceded the Pearl Harbor disaster by four months. Its authors went further than calling the turn on Admiral Yamamoto's plan. They also prescribed the means of breaking the force of the attack and their prescription was the employment of long-range bombardment aviation to intercept a surface fleet. But, the navy wanted no part of such viewpoint. It had blasted against it for 20 years. The events of 1941 had not convinced them. The Baker board (former secretary of war, Newton D. Baker) reported in 1934, after much sifting of evidence, that "the limitations of the aeroplane show that the ideas that aviation, acting alone, can control the sea lanes, or defend the coast, or produce decisive results . . . are all visionary, as is the idea that a large air force is necessary to defend our country." Truly Martin and Bellinger were voices crying in the wilderness. The early Pearl Harbor official investigators, looking for goats upon whom to dump the blame, named Martin, among others. He promptly demanded public court martial. When the investigators realized that, instead of a goat they had a bear by the tail, all charges were dropped against him and he was restored to duty with the assurance that there was no case against him.

In fairness to the army it should be recorded that by 1941 General George Marshall and General Frank Andrews were bending every effort to build an efficient, powerful, land-based bombardment force in aviation. They were clamouring for abolition of the 300-mi. limitation imposed by the navy. The army

was awake—not so the navy, where the big appropriations were apparently still to be spent for building huge battleships.

Among the civilian population conditions were so bad also that many of the so-called intellectuals were sounding off in the public press to the effect that the young men of the U.S. would not fight abroad in defense of their country.

The U.S. guard was down and the enemy struck. A scant four years later that enemy lay broken in humiliating and total defeat in the two main theatres of war, the European and the Pacific. Through the planning of the joint chiefs of staff a military plan of action had been evolved which, under the leadership of General Dwight D. Eisenhower in the European theatre and General Douglas MacArthur in the Pacific theatre, brought ultimate victory to the United States and its Allies.

Costs.—A very brief consideration of the human factor of the two wars presents considerable contrast. World War I saw fewer than 4,500,000 U.S. men in military and naval forces. Their average service in actual war was from seven to eight months. For World War II, the U.S. had 15,000,000 men and women in uniform, many of whom served four or five years. Man-years totalled 40,000,000—10 times that of World War I. The U.S. spent for World War I approximately \$30,000,000,000; during World War II the U.S. spent \$380,000,000,000—more than 12 times as much as for the earlier conflict, and the end

in soldier pensions and benefits was not yet visible in 1946. Furthermore, U.S. spending for the years 1941-46 amounted to more than twice as much as the nation spent for all purposes for the 150 years prior to 1940.

The latest (1946) casualty figures released by the war department for World War II stand at a total of 948,418. This is nearly four times as many as the total casualties suffered in all of the United States' previous wars against a foreign enemy, including World War I. Of the total casualties, the number of army deaths for all theatres was 229,238. Greatest number of casualties was recorded in the European theatre, followed in order by the Mediterranean theatre, the Pacific, China-Burma-India, Africa-middle east, the B-29 command in the China-Burma-India and Pacific areas, the Alaskan department, and the Caribbean and South Atlantic areas.

(See also CANADA.)

Criticism.—The trend of criticism can be illustrated by a few examples:

The capture of Makin was effected between Nov. 20 and 24, 1943. It was really the prelude to the later U.S. advance among the Marshall Islands. A published report covering this operation covers the course of the operation thoroughly. It concludes with this criticism: "At Makin, then, the report of the participants declared, the preparatory naval gunfire and aerial bombing, the selection of beaches, the initial coordination among tanks and ground troops, the performance of com-

UNITED STATES FORCES occupying part of the Venezia Giulia province in northeast Italy being briefed before practice manoeuvres in Aug. 1946





MEDICAL SUPPLIES which had been stocked by the nazis in a German salt mine in preparation for World War II. By 1946 the U.S. army had distributed hundreds of tons of these supplies to needy areas

munications elements, and the 'indiscriminate' fire over the flat terrain were all faulty. The men were said to have carried much burdensome, useless equipment ashore . . ." Certainly such criticism, freely published, doesn't seek to gloss over any mistakes!

In one of the popular weekly magazines, an article of criticism appeared as part of a discussion of the U.S. campaign in southern Italy. In this article, the judgment and tactics of General Mark W. Clark were flayed. Apparently the accusers were the former members of the American 36th division, commanded by Major General Fred L. Walker. The basis of the critical article was the alleged mishandling of the Rapido river crossing in the 1943 Italian campaign.

The charge, a serious one bluntly placed before the reading public, sought to show that lives were needlessly sacrificed in this operation, particularly so among 36th division personnel.

Misjudging what the enemy intentions were led to the worst blue-water defeat in United States navy history. In a half hour of fighting the U.S. lost four cruisers, Aug. 9, 1942, in the battle of Savo Island, off Guadalcanal. With ample warning, the enemy's intentions were misread. Japanese Admiral Mikawa, in his first 'slash, fired all his torpedoes to cripple the "Chicago" and the "Canberra." On his second round, the Jap admiral hit the heavy cruisers "Vincennes" and "Quincy" which soon sank. The badly damaged "Astoria" stayed afloat for some hours later. U.S. Admiral Richmond Kelly Turner and British Vice-Admiral V. A. C. Crutchley were the commanders involved on the losing side. The news of the disaster reached the public in Oct. 1942. The official records bearing on it were brought to public light four years after the event. At the time, the defeat was a bitter blow to morale in the United States since this was its first offensive in the Pacific.

Perhaps more than any one publication, Ralph Ingersoll's book *Top Secret*, published by Harcourt, Brace and Company, Inc., in 1946, sets forth what he believes to be mistakes in the campaigns of World War II. Allowing for personal bias of the author against individuals, there still remains much valid, critical, operational material. This he points vividly in un-

mistakable phraseology. Writing of the effort of the Americans to capture Brest, he states, "Brest was the greatest boondoggle of the American campaign . . . because for months of effort and thousands of casualties, neither a single soldier nor even a pound of American supplies was ever landed there. By the time Brest was taken, there was no need for it."

Striking on Dec. 16, 1944, Hitler unleashed his Ardennes offensive, the "Battle of the Bulge," which so nearly reversed the ultimate course of the war. Ingersoll blames a faulty supply system for the fact that Hitler was allowed time to mount this attack. He claims that, since the U.S. had the Germans completely off balance and badly disorganized and, had the U.S. supply been swift and efficient, the final, demoralizing blow could have been struck against the Germans in 1944. But, the Ardennes battle began and, in one day, the Germans tore a 50-mile gap in the U.S. lines and seemed certain of victory. Field Marshal Sir Bernard Montgomery urged upon General Eisenhower that the battle be considered as two battles, Montgomery fighting on the north face and General Omar Bradley on the south. Apparently he convinced General Eisenhower since he took the 1st and 9th U.S. armies from General Bradley and made them a part of Montgomery's forces. The very thing that the Germans sought to do was now a fact—the Allied command was split. Eventually, the brilliant, sharply concentrated supporting attack of General George Patton's 3rd army enabled Bradley to break through and relieve Bastogne and to smash Marshal Karl Gerd von Rundstedt's offensive. However, there seems to be little justification for the acceptance of Montgomery's viewpoint. Some months earlier, when General Eisenhower had decided that Walcheren Island, fortified by the nazis and the key to Antwerp's use as a supply port, must be captured, relations with this same General Montgomery became considerably strained. Ingersoll writes, "Eisenhower had no choice but to *order* Montgomery to take Walcheren Island . . . Montgomery ignored Eisenhower's first order . . . Eisenhower ordered Montgomery a second time . . . and a second time nothing happened . . . the American War Department was asking how come? . . . Montgomery at last complied and after two further minor postponements the attack was begun."

This incident of conflict in command was nothing new. In

World War I, it was not until after the United States had entered the conflict that any effort was made to set up a unified command for the Allies. When the plan was finally implemented, Ferdinand Foch was the man chosen. This marshal of France had always preached the gospel of *offense*; Henri Pétain, his logical competitor for the position of supreme commander, and the man with whom General John Pershing had to deal most, had always been the apostle of *defensive* warfare. Thus, at the top, to language difficulties, was added the clash of warring personal philosophies of the conduct of war. Furthermore, unity of command was not too literally taken by the British and it was not uncommon for their commander, General Sir Douglas Haig, to ignore Foch's authority. The story was nearly paralleled in World War II. It was not until Feb. 12, 1944, that General Eisenhower was made supreme Allied commander—and all necessary forces in the United Kingdom, British and U.S. (with the exception of the strategic air forces) were placed under a committee of three British commanders in chief.

Research and Experimentation.—Army experts lost no time in plunging into research work to turn some of the lessons of World War II to good account. A few instances are here cited.

On Jan. 10, army signal corps scientists made radar contact with the moon from their station at Evans Signal laboratory, Belmar, N.J.

To study the artificial control of weather, a B-25 medium bomber dropped icy pellets into super-cooled clouds and produced a snowfall.

On Aug. 2 the Manhattan engineer district, key organization in the development of the atomic bomb, delivered the first radioactive isotopes to the nation's research institutions. These were the first peacetime products of the government's atomic energy facilities and took the form of pea-sized units of carbon-14. These, for the next 10,000 or 25,000 years, will emit 37,000,000 beta particles per second and will be used in research in connection with the medical study of cancer, diabetes, photosynthesis, carbon deposition in the teeth and bones, and the utilization of fats by the body.

On Jan. 26 the war department activated the first experimental guided missiles group whose functions were set forth as development of tactics and technique of guided missile operations, training of personnel, development of organizational and equipment requirements, and demonstration of guided missiles in the army air force program. Experiments were planned with three types, (1) air-to-ground, (2) ground-to-ground, and (3) ground-to-air. The German V-2 is an example of the second type and was extensively tested during the year at the Ordnance Proving Grounds, White Sands, N.M. One of the first concerns of this new experimental group was the study of cosmic rays to learn their effect on the elements used in the production of long-range guided missiles.

Army ground forces units known as Task Force Frigid, Task Force Frost and Task Force Williwaw, on Oct. 1 began a seven-months' study of the reaction of modern army equipment in all types of dry cold and wet cold weather. Some 4,500 troops composed the forces who were equipped to pit new army equipment—tanks, self-propelled guns, radars, rations, kitchens, clothing—against the rigours of Alaskan winters.

At Aberdeen Proving Grounds, Aberdeen, Md., extensive experiments were conducted to develop bombs which could be dropped accurately from supersonic planes. Tests in the supersonic wind tunnel and in the free flight aerodynamic range proved that present type bombs were worthless for use with planes travelling faster than sound.

Jet planes made and unmade speed records during the year.

In this field the U.S. had lagged in World War II. It was just beginning to show some progress at the end of the conflict. In Aug. 1946 a P-80 Shooting Star set up an average speed of 592 m.p.h.; the following month an XP-84 Thunderjet was timed at a speed of 619 m.p.h. As the year closed, attention was focused on the coming tests of the Bell XS-1, the air force's first rocket-propelled aeroplane designed to fly at a top speed of 1,700 m.p.h. at an altitude of 80,000 ft. Not designed as a military aeroplane, it is actually a piloted, flying research laboratory to record the effect of transonic and supersonic speeds of aircraft.

In the Bikini Atoll area of the Pacific, atomic bombs were tested during the summer months. Using anchored obsolete Allied and Japanese vessels as targets, bombs were dropped under varying conditions. One of the most exacting studies made from these operations was that dealing with the relative effect and persistence of radioactivity within a bombed area.

Early in the year the ordnance department publicized the invention of a mathematical robot known as Eniac (Electronic Numerical Integrator and Computer). It is the invention of Dr. J. W. Mauchly and J. Presper Eckert, of the Moore School of Electrical Engineering of the University of Pennsylvania where the machine was built. It was the first all-electronic general purpose computer ever developed and the ordnance department requested its construction to break a mathematical bottleneck in ballistic research. The electronic methods of computing used in the Eniac make it possible to solve in hours problems which would take years on a mechanical machine.

Postwar Objectives.—World War II results have set up at least two objectives to engage the attention of army administrative personnel, (1) the creation of a single national defense department and (2) the promulgation of a satisfactory program of universal military training.

General Billy Mitchell was among the first to plead for a single department of national defense. He saw the problem from the viewpoint of the air arm. Sensing the possibilities of air fighting, he begged military heads for a consolidation of

ATOMIC BOMB blast cloud taken 20 min. after the blast over Nagasaki on Aug. 9, 1945. The picture was taken by an industrial worker on the outskirts of the city, and was published in 1946



war and navy departments, making full use, thus, of their combined forces, particularly air power. When official support was not forthcoming, he carried his case to the American people. The result is well-remembered—he was cashiered out of the army in 1925. But, in the days of World War II, when practically all his predictions had come true, a belated award of the congressional medal of honour went to him posthumously. In 1946 there was again a battle under way for a single national defense department. In World War II, ground, air and sea forces were combined in hard-hitting task forces which ultimately won through to complete victory. Yet the navy, despite these practical examples of unified action, was seemingly reluctant to back the unified program. In an Armistice day address at St. Louis, Mo., General George C. Kenney, commanding general of strategic air command, urged the establishment of a single department of national defense with co-equal status for air, land and sea forces. To meet the critics of the movement he said, "Unification does not mean subjugation . . . no submergence of any arm of our military forces." A little later, Nov. 22, Under Secretary of War Kenneth Royall, a veteran of both World Wars, voiced the support of the war department in an address before the national convention of American Veterans of World War II. He there declared that the U.S. could never have an efficient and economically sound defense organization without a single department of national defense with a single administrative head. To this end, the army ground forces and the army air forces are co-operating. William B. Huie in his book, *The Case Against the Admirals*, published in 1946, takes the navy seriously to task for withholding its support of the movement.

On Oct. 3, 1946, the war department released a new plan for universal military training with the hope that it would meet with congressional approval. The basis of the plan is one year

of military service and training for all physically and mentally fit young men of the nation between the ages of 17 and 20. This would include six months of intensive military and technical specialist training and an additional six months, or the equivalent, in one of eight other categories. Speaking before the National Council of Reserve Officers association on Nov. 22, 1946, Secretary of War Robert Patterson had this to say for universal military training: "Had Congress in 1920 enacted the universal military training proposed, the United States would have had nine million trained reserves when Japan invaded Manchuria, ten million when Hitler rose to power, twelve million when Mussolini invaded Abyssinia, fourteen million when Germany invaded the Rhineland, sixteen million when the Nazis seized Poland. The world's war mongers would never have gone forward with their design for world rule had we had available an effective trained reserve. War would have been averted."

(See also ATOMIC ENERGY; AVIATION, MILITARY; INTERNATIONAL LAW; MUNITIONS OF WAR; NAVIES OF THE WORLD; PACIFISM; PRISONERS OF WAR AND DISPLACED PERSONS; PSYCHIATRY; REFUGEES. See also various countries.)

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WPB (War Production Board): see CIVILIAN PRODUCTION ADMINISTRATION; PRIORITIES AND ALLOCATIONS.

WRA: see WAR RELOCATION AUTHORITY.

SACKS filled with nazi records discovered at Munich and sent to the Berlin document centre in 1946 for sorting





MILDRED BURKE (top), Women's World Champion Wrestler, shown in a match with Dorothy Kauffman, during the summer of 1946. Miss Burke won, throwing her opponent in 14½ min.

Wrestling. Doug Lee of Baltimore, Md., became the "amateur wrestler of 1946" with his victory in the 175-lb. class of the National A.A.U. championships. A three-time champion in lower weights, Lee defeated another triple champion, Dr. M. A. Northrup of the San Francisco Olympic club, in the 175-lb. final. Henry Wittenberg won his fifth national title as champion of the 191-lb. class. The meet's other highlight was the crowning of 17-year-old Dick Hauser of Waterloo, Ia., as the 121-lb. champion. The New York Athletic club won the team title with 17 points to 13 for the Alameda, Calif., Naval Air station. The Baltimore Y.M.C.A. was third with 10. (M. P. W.)

WSA: see WAR SHIPPING ADMINISTRATION.

Wyatt, Wilson Watkins (1905—), U.S. government official and lawyer, was born Nov. 21 in Louisville, Ky. He studied law at the University of Louisville (1922–23) and at the Jefferson School of Law from which he was graduated in 1927. Admitted to the bar in Louisville, he became a successful corporation lawyer, held directorships in several large firms and was prominent in Democratic state politics. In 1941 he was elected mayor of Louisville and after his term ended, President Truman named him national housing expeditor, Dec. 12, 1945. Five weeks later, Wyatt presented Truman with a plan calling for construction over a 2-year period of 2,700,000 low-cost homes. The proposal, which gave priority for purchase or rental to veterans, was later passed in much modified form by congress. To assure the success of the project, both Wyatt and John D. Small, civilian production administration director, ordered a halt on all general housing construction. Earlier (Jan. 28), John W. Snyder, then director of the Office of War Mobilization and Reconversion, delegated his housing powers and authority to Wyatt to expedite the building program. Wyatt ordered, April 20, a reduction in cost ceilings for new houses and set aside 25% of new construction

for rental. On Aug. 4 Wyatt reported that during the first 6 months of 1946 construction was begun on nearly 500,000 homes and completed on 225,000. In efforts to speed the program, Wyatt and Small ordered lumber dealers to hold four-fifths of their sawmill shipments for veterans' housing. Non-residential construction was cut 27% and hoarding of materials for future building was halted. Many real estate organizations, however, criticized the Wyatt program and on Nov. 1 the Reconstruction Finance corporation rejected his efforts to get substantial loans for builders of prefabricated homes. After President Truman sided with the RFC on this issue, Wyatt resigned Dec. 4.

Wyoming. A Rocky mountain state, admitted to the union July 10, 1890, as the 44th state. Leadership in the extension of rights to women gave it the name "Equality state." Land area 97,506 sq.mi.; water area 408 sq.mi.; pop. (1940) 250,742. The rural population was 157,165; urban 93,577; 229,818 native white; 950 Negro; 17,107 foreign born. Capital, Cheyenne (1940: 22,474). Other cities of 10,000 or more: Casper (17,964); Laramie (10,627); Sheridan (10,529).

History.—State officials elected in Nov. 1946 were: governor, Lester C. Hunt, second term (D.); secretary of state, Dr. A. G. Crane (R.); auditor, Everett T. Copenhaver (R.); treasurer, C. J. Rogers (R.); superintendent of public instruction, Edna B. Stolt (R.). Fred H. Blume was re-elected associate justice of the supreme court. Holdover justices were Ralph Kimball and William A. Riner. By rotation William A. Riner became chief justice. A Republican legislature was elected.

The state legislature which normally meets only in odd-numbered years was called into special session in April principally for the purpose of providing an emergency appropriation for the state university.

Education.—In 1946 there were 626 elementary schools with 1,781 teachers and an enrolment of 39,395. There were 123 high schools with 894 teachers and an enrolment of 13,014.

Social Insurance and Assistance, Public Welfare and Related Programs.—Funds allocated in 1946 included \$274,314 for dependent children; \$1,790,233 for old-age assistance; \$204,455.47 for general relief; \$59,199 for aid to the blind; and \$260,888 for general welfare health.

There were three correctional institutions with inmates (average) and expenditures as follows: penitentiary at Rawlins (267 inmates) \$187,278.97; girls' school at Sheridan (52 inmates) \$37,931.35; boys' industrial institute at Worland (46 inmates) \$75,258.94.

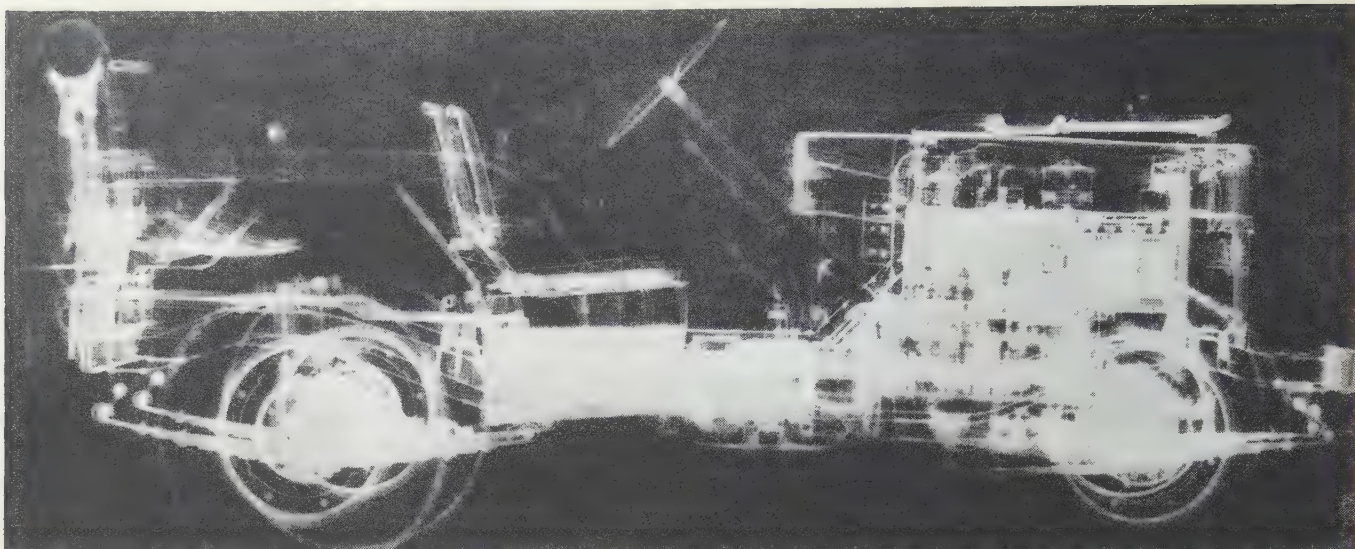
Communications.—Wyoming had 4,019 mi. of oiled or paved roads in 1946. Highway construction contracts totalling more than \$8,300,000 including 575 mi. of road were let in 1945 and 1946. The state railroad mileage in 1946 was 1,912.32.

Banking and Finance.—On June 30, 1946, there were 29 state banks with deposits of \$60,031,213.76 and resources of \$63,935,009.21. There were 27 national banks with deposits of \$141,934,762.44 and resources of \$150,026,187.73. There were ten savings and loan associations, all but one insured by the federal government.

Total state receipts for the fiscal year ending Sept. 30, 1946, were \$21,695,325.33. Total disbursements were \$17,299,540.35. The bonded debt Sept. 30, 1946, was \$2,596,000.

Ranching and Agriculture.—Wyoming livestock products sold for approximately \$80,000,000 in 1946. Cattle marketing increased 11%; sheep marketing declined 25%. Other farm products were valued at an estimated \$40,000,000. Crop production was above average.

Manufacturing.—The value of manufactures, excluding oil refining and dairying, was estimated at \$25,000,000. Employ-



Leading Agricultural Products of Wyoming, 1946 and 1945

	Crop	1946	1945
Corn, bu.		1,122,000	1,155,000
Winter wheat, bu.		4,348,000	3,078,000
Spring wheat, bu.		1,140,000	1,155,000
Oats, bu.		4,514,000	4,920,000
Barley, bu.		3,990,000	3,720,000
Hay, tons		1,296,000	1,274,000
Beans, cwt.		1,305,000	1,075,000
Sugar beets, tons		488,000	346,000
Potatoes, bu.		2,498,000	2,362,000

ment in manufacturing in June 1946 was 5,830. Principal products were those of petroleum and coal, employing 2,250, and food, employing 1,440.

Mineral Production.—The taxable valuation of Wyoming mineral products in 1945 was as follows: petroleum \$30,892,000; bituminous coal \$18,900,000; iron \$2,600,000; bentonite \$300,000; natural gas \$1,900,000. (A. T. L.)

X-Ray and Radiology. During 1946, there was continued interest in the artificial radioactive isotopes both for diagnosis and treatment of disease. This interest was greatly stimulated by the dramatic events surrounding the explosion of atomic bombs at Bikini and the world-wide discussion of possible constructive results to be secured by means of atomic fission. An isotope of an element has the same atomic number; that is, the same nuclear charge as the element itself but differs from the latter in mass. For example, the nucleus of the hydrogen atom contains one proton which has a positive charge and no neutrons, but its isotope, heavy hydrogen, contains one proton and one neutron. Since the isotope has only one proton, it can attract only one electron and it behaves chemically like hydrogen, although its nucleus is approximately twice as heavy because of the presence of a neutron.

Elements with a more complex nucleus may have a number of isotopes.

When G. Hevesy in 1923 employed a radioactive isotope of lead (Radium D) to investigate the metabolism of plants, he originated the method of radioactive tracers. Later, when Irene Curie and F. Joliot discovered artificial radioactivity and Ernest O. Lawrence developed the cyclotron, it was found possible to prepare radioactive isotopes of all of the stable elements. After that time biologists have had a unique tool of immense value. Almost any element could be traced in its course through the body. The value of the artificial radioactive elements as tracers lies in the fact that the radioactive isotope of an element behaves chemically and physiologically the same as the stable element.

During 1946, Leslie A. McClintock and Murray M. Fried-

FIRST X-RAY of an entire automobile made in 1946 at the University of Rochester X-ray laboratory showed the inner parts of a jeep. The original X-ray was 145 in. long and 56 in. high

man utilized a variation of the tracer principle in experiments in which metals and dyes combined with specific antibodies were carried to selected sites in tissues. They used purified pneumococcus antibody, type I, combined with uranium injected intravenously into guinea pigs. A subsequent roentgenogram showed deposition of the metal in the thigh at the site of injection of specific antigen polysaccharide pneumococcus, type I. None of the metal was deposited in the opposite thigh, where polysaccharide pneumococcus, type II, had been injected. For similar experiments on the lungs, malachite green was used. The metal or dye evidently remained firmly bound to the antibody and was deposited within a few minutes at the site of the specific antigen. The specificity of the antibody was not altered by combination with the metal or dye.

Another variation of the tracer method was reported by B. V. A. Low-Beer and his associates. Their investigation was based upon the fact that radioactive phosphorus administered orally or intravenously is assimilated by different tissues in varying degrees. Since the rate of deposition of radioactive phosphorus depends upon the rate of metabolism in the given tissue and since malignant growths have a higher metabolic rate than tissues from which they originate, it follows that the phosphorus will be deposited in greater amount in the malignant growth than elsewhere. These facts were established by measurements after removal of the tissues. Low-Beer and his associates discovered that they could estimate the amount of radioactive phosphorus in superficial tissues by measurements with a Geiger-Muller counter. They utilized this method for investigation of tumours of the breast after intravenous injection of 300 to 500 microcuries of radioactive phosphorus in the form of isotonic disodium hydrogen phosphate solution 24 hours before operation. At 2, 4, 6 and 24 hours following injection, surface measurements were made directly over the palpable tumour and over comparable areas of the opposite breast with a Geiger-Muller counter. After removal of the breast, the phosphorus content of the tumour and normal tissues was measured. They reported results of 25 patients, 17 of whom had malignant tumours. Sixteen of these showed at least 25% higher counts over the tumour than elsewhere. The single case of malignant tumour which did not show an increased count was a mucoid cancer with very few cells. There were eight benign tumours and in all of them the count was less than 25% above the normal control areas. They concluded that breast cancers could probably be diagnosed by this method

except for slow-growing tumours such as mucoid carcinoma. They cautioned against depending upon the method for diagnosis until it is confirmed by a much larger series of cases.

From the time of the first production of artificial radioactive isotopes there has been a vast amount of research work to determine their value for the treatment of disease, and a considerable number of them have been used clinically. Chief among the latter were radiophosphorus, radioiodine and radiostrontium. The reports on radioiodine in diseases of the thyroid gland and of radiostrontium in malignant tumours of bone do not indicate that they will supplant established methods of treatment.

Radiophosphorus, P 32, was the most widely used of all the radioactive isotopes in treatment of disease. During 1946 an excellent review based upon the literature and personal experience was published by a well qualified group at Washington university in St. Louis, Mo. The report was the result of nine years' observation and experience based upon treatment of 155 patients with polycythaemia vera, myelogenous leukaemia, lymphatic leukaemia, monocytic leukaemia, Hodgkin's disease, lymphosarcoma, reticulum cell sarcoma, multiple myeloma, Ewing's sarcoma, malignant melanoma, anaplastic carcinoma, mycosis fungoides and xanthomatosis.

The only one of the above diseases in which the results seemed to be an improvement over roentgen irradiation was polycythaemia vera. In this disease, administration of P 32 brings about prompt remissions sometimes lasting two or more years. It was not certain, however, that this treatment would prolong life beyond that secured by roentgen treatment. In chronic myelogenous and lymphatic leukaemia, P 32 had no advantages over roentgen therapy except that it did not produce radiation sickness. In monocytic leukaemia it was found of no value and in Hodgkin's disease was found inferior to roentgen irradiation. It was not found of value in lymphosarcoma, reticulum cell sarcoma, multiple myeloma, lympho-epithelioma nor in the remaining diseases named above.

It was found that P 32 has a profound effect upon the bone marrow; severe leucopenia, thrombocytopenia and anaemia may occur as result of treatment.

An interesting piece of research in which an artificial radioactive salt was utilized was carried out by Gunnar Sohrne. By means of Geiger-Muller tubes, Sohrne determined the time of blood-flow between various portions of the human body by injection of radioactive common salt.

He has also used the method to determine vascularity in a brain tumour. The radioactive sodium chloride solution is injected into a cubital vein and Geiger-Muller tubes are placed symmetrically on each side of the calvarium. If the vascular tumour is situated under one of the tubes its millimeter will react more strongly than the other. (See also CANCER; PHOTOGRAPHY; TUBERCULOSIS.)

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(A. C. CH.)

Yachting. The yachting season of 1946, the first full season after World War II, was marked, particularly in the United States, by a huge growth in interest and participation in the sport, a growth which would have been even greater

INTERNATIONAL CLASS SLOOPs bearing down on the starting line at Larchmont, New York, July 21, 1946, as the Larchmont Yacht club's 48th annual race week got underway



had postwar difficulties not made it impossible for boatbuilders to keep pace with the demand for new craft.

The revival of ocean and long distance racing aroused great public interest. Howard Fuller's sloop "Gesture" won the 635-mi. race from Newport to Bermuda in a fine fleet of 34 yachts, among them a British entry, "Latifa," and among the smaller boats in this race the class-B prize went to Robert F. de Coppet's new yawl "Suluan." The races to Mackinac Island from Port Huron and Chicago, on the Great Lakes, also saw fine fleets. Robert Schleman's 12-metre sloop "Nyala" set a new Port Huron-Mackinac course record of 30 hr. 31 min. 38 sec. Among the class winners in the Huron-Mackinac race were James Ryder's "Carina" among the cruisers and John Blunt's "Rangoon" in the racing class; while in the much slower race from Chicago to Mackinac top honours went to Ernest Grates' "Blitzen" and Vitas T. Thomas' "Spindle."

British deep-water racing also proved popular in spite of the handicap of war-decayed sails and gear. One of the outstanding boats in a full season of this type of racing was H. G. Hasler's 30-square-metre sloop "Tre Sang," which confounded the conservatives by an outstanding record and no mishaps, though she was the antithesis of the usual ocean-going type of yacht.

International class racing did not get into full swing but there were some events of this nature, including the Star class world championship, held at Havana, Cuba, won by George Fleitz's "Wench II," of the Los Angeles Harbor (Calif.) fleet. The International one-design class held a series in Bermuda in which the Bermudians defeated a Long Island sound team by a decisive margin. The revival of international racing in the six-metre class, which was active in British and Scandinavian waters during 1946, was forecast by challenges by the United States for the Seawanhaka cup, held in Scotland, and by Scandinavian countries for the Gold cup, held by the Seawanhaka Corinthian Yacht club at Oyster Bay, N.Y., the races to be held during 1947.

The sport enjoyed an active revival not only in Sweden, where some sailing was done throughout World War II, and England, but also in the formerly occupied countries of Europe, where, as in the United States, the only limit of the expansion appeared to be the ability to build boats under postwar conditions. The tendency in all countries was noticeably to smaller boats than in prewar days, but many more of them, and a further departure from the old idea of yachting being solely a "rich man's sport." Among the classes of small sailing craft holding championships, the Snipe class title series drew representatives of Brazil, Portugal, Newfoundland and Switzerland, as well as many U.S. entries, and the winner was Robert Davis, of Balboa, Calif. Other class champions were P. A. Somervell, with "Double Scotch" in the Comet class; Walter Swindeman, Jr., with "Yankee Doodle" in the Lightning class; and Roger Willcox, with "Morss," in the 110 class.

Famous trophies for which competition was revived during the year were the King's cup, won by Henry C. Taylor's "Baruna"; Astor cup, won by John B. Shethar's "Sylvia"; Freeman cups, won by L. F. Grant's "Tramp Royal" and Jack Castle's "Fo'Castle II"; Sears cup (U.S. National junior championship) won by the Stage Harbor (Mass.) Yacht club crew; Manhasset cup, won by Philip Benson's "Reaper"; Mrs. Adams trophy (national women's championship) won by the Edgartown (Mass.) Yacht club crew; and the Ocean-Great Lakes Challenge cup, won by the Indian Harbor (Conn.) Yacht club team.

(H. L. St.)

Yale University. Unprecedented increases in student and faculty population were reflected in every aspect of university life in 1946. When the student peak

rose from a prewar high of 5,300 to 8,647, an increase of 65%, and the faculty from 1,000 to 1,200, emergency housing measures were adopted.

Dormitories, private homes and even a hospital were remodelled, 100 Quonset huts and 3 barracks were built to handle the overflow. While making room for the veteran enrolment, the university planned to accommodate several hundred freshmen from secondary schools each year.

Organized studies in the field of American civilization, at both the undergraduate and graduate levels, were set up which cut across traditional departmental fields. Goal of the new courses was objective appraisal of the political facts and cultural development of the U.S.

The various branches of the armed forces terminated training during the year, concluding instruction of 22,000 members of the army, navy and marine corps which had taken place at Yale. The National Yale Alumni Placement Service, created for aiding graduates who are veterans, by the end of the year had helped 1,500 men to find jobs.

Yale strengthened its interest in the far east by establishing an institute of Chinese language and literature to train missionaries, government and commercial representatives in the language and customs of China. The war department sent a group of officers to study for future service as attachés in the far east.

In the sciences, the school of medicine continued its institute of occupational medicine and hygiene to train physicians in industrial medicine and conducted postgraduate refresher courses for doctors who had been in the armed forces. The astronomical station on the grounds of the University of the Witwatersrand, Johannesburg, South Africa, was placed under the joint operation of Yale and Columbia universities. (For statistics of endowment, enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(C. A. L.)

Yeast. Preliminary fermentation of corn steep liquor by yeast was shown during 1946 to improve yields of penicillin fermentation in which the steep liquor is used. Pear canning wastes were recommended as a substrate for the growing of *Torulopsis* yeasts. Reports of the U.S. Technical Industrial Intelligence committee describing German yeast industries were released.

Patents issued included two for improvement of stability of active dry yeasts, one by coating with lignin and the other by stimulating spore formation. Other patents claimed improved recovery of sterols from yeast, a device for continuous dewatering of yeast suspensions, a method for producing dry, stable invertase preparations from yeast and manufacture of a fertilizer comprising yeast and lignin from the yeast fermentation of sulphite waste liquor.

Research published during 1946 showed that diets consisting solely of yeast and mineral salts were capable of supporting growth, reproduction and lactation in animals; that yeast is a valuable addition to cereal foods, where it supplements both vitamins and proteins, and that the vitamin content of foods fortified with yeast is relatively stable during storage.

Two enzymes were newly isolated from yeast; hexokinase (an enzyme entering into the intermediate metabolism of carbohydrates) and yeast lactic dehydrogenase, a cytochrome-reducing enzyme. Details of the formation and breakdown of glycogen, and the effect of such stored food reserves upon respiration and fermentation were established.

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(F. W. N.)

Yemen: see ARABIA.

Yoshida, Shigeru (1878–), Japanese politician, was born Sept. 22, in Tokyo. Educated at the Tokyo Imperial university, he was graduated from the law college in 1906. He held many minor diplomatic posts in the far east and Europe and was second secretary at the Japanese embassy in Washington (1916–17). He was minister to Sweden, Norway and Denmark in 1928, vice foreign minister, 1928–30, ambassador to Italy, 1930–32 and ambassador to London, 1936–39. Yoshida was arrested in June 1945 allegedly for heading a “defeatist” peace faction. He was freed after Japan’s surrender and became foreign minister in the Kijuro Shidehara cabinet, Oct. 6, 1945.

On May 16, 1946, Yoshida, who had accepted the presidency of the Japanese Liberal party the previous day, was named successor to Shidehara as premier and his cabinet was sworn in May 22. Although he resisted the Allied headquarters directive for reorganization of Japan’s economy, he yielded in Aug. 1946 to the order after Gen. Douglas MacArthur’s headquarters put it on an “either or else” basis. The demands of Japanese labour that Yoshida resign resulted in the premier’s statement, Dec. 31, 1946, in which he said that the tactics of Japanese leftist and labour groups were designed to cause social unrest.

Yost, Fielding Harris (1871–1946), U.S. football coach, was born on April 30 at Fairview, W.Va., and was educated at the University of West Virginia and Lafayette college. At the latter school, he played football and studied law. He turned to football coaching as a career and his first job of importance was at Ohio Wesleyan. In 1901 he was made coach at the University of Michigan. In the succeeding years, Yost, Bob Zuppke of the University of Illinois and Amos Alonzo Stagg of the University of Chicago made the football teams of the “Big Ten” conference nationally famous. Yost’s early teams scored the equivalent of a point-a-minute and Yost achieved a national reputation as a football strategist. Between seasons, he practised law. He also promoted and developed the Tennessee Power company hydroelectric plant (1907–14) and was an official of the Cumberland Valley National bank at Nashville, Tenn. (1912–19). He was appointed director of athletics at the University of Michigan in 1921, and it was then that he began to devote less time to football and more to what he termed a “sports for all” program. Under his guidance, the recreational facilities of the university blossomed and many new buildings were constructed. He retired in 1941. Yost died at Ann Arbor, Mich., on Aug. 20.

Youmans, Vincent (1898–1946), U.S. composer of popular songs, was born on Sept. 27 in New York city. During World War I he entered the navy and was assigned to an entertainment unit where he produced and composed a number of musical shows for the servicemen. After the war, he obtained a job as a “song-plugger” with a New York music publishing house and wrote a number of moderately popular pieces. His initial success was his first full score for the musical comedy, *No, No, Nanette*. Two of his songs, “Tea for Two” and “I Want to be Happy” were “smash hits.” The musical comedy opened in London and New York city in 1925 and was successful in both cities. Its first London engagement ran to 665 performances, and in Chicago the comedy played for a year. Eventually 17 companies playing in *No, No, Nanette* circled the globe, playing in Europe, South America, China, New Zealand and Java. In 1933, Youmans went to Hollywood and wrote the score for the motion picture *Flying*

Down to Rio, from which two songs, “Carioca” and “Orchids in the Moonlight,” enjoyed great popularity. Other of his well-known songs were “Hallelujah,” “Without a Song” and “Time on My Hands.” He retired from the music world in 1933 because of ill health. His last stage production was *Vincent Youmans’ Ballet Revue* (1944). He died in Denver, Colo., on April 5.

Young Men’s Christian Association.

The Young Men’s Christian association is a world-wide fellowship seeking to improve the spiritual, social, recreational and physical life of young people, particularly young men and boys.

Early in 1946 an international convention brought together more than 2,000 representatives of associations in the United States and Canada to examine Y.M.C.A. responsibilities to youth around the world in the light of postwar conditions. North American Y.M.C.A.’s accepted the convention’s challenge to raise \$8,650,000 to restore shattered association buildings and equipment abroad and to meet urgent war-occasioned needs at home. While funds were to be allocated to association movements in all countries according to need, North American Y.M.C.A.s felt particularly close ties with associations in Asia, the middle east, eastern Europe and Latin America which were established with North American aid. Undertaken in 1889, the World Service program had provided trained leaders to help organize Y.M.C.A.s in 28 countries.

Absorbing veterans into on-going programs of personal and vocational counselling, recreation, social activities, athletics, informal and formal education had received emphasis in every U.S. Y.M.C.A. As program aids, most associations are equipped with dormitories, cafeterias, gymnasiums, swimming pools, reading and club rooms. Constantly expanding programs for boys and girls of grade and high school age were conducted in Y.M.C.A. buildings and school and neighbourhood clubs. Student associations were greatly expanded to meet the needs of veterans on the campus. Service to the armed forces continued in 22 army and navy Y.M.C.A.s and 114 Y.M.C.A.-operated U.S.O. clubs.

Expenditures of the 1,345 associations in the United States totalled \$73,537,600, and capital investments totalled \$228,949,800. Officers in 1946 were Kirtley F. Mather, president, and Eugene E. Barnett, general secretary. Headquarters of the National council of the Y.M.C.A. were at 347 Madison avenue, New York 17.

(O. E. P.)

Young Womens Christian Association.

In 1946, the Young Womens Christian association of the United States continued its varied services to women and girls engaged in peacetime activities, as well as for those still affected by war. The World Emergency and War Victims fund carried on its program of material and spiritual aid, sending approximately 185,000 lb. of clothing, food and other essentials to 17 countries in less than 2 years, as well as supplying staff and opening centres for rest and recreation. The 17th national convention of the Y.W.C.A., held in March 1946, in Atlantic City, N.J., voted approval of a program to raise at least \$2,000,000 for the reconstruction of Y.W.C.A.s throughout the world, as well as a \$500,000 fund for further development of Y.W.C.A. work in the U.S. With the clear intent of encouraging interracial co-operation within the Y.W.C.A. as well as in other movements, local and national, with which it is associated, the convention adopted the report of interracial activities in community Y.W.C.A.s and the interracial charter presented by the national

board. A public affairs program stressing international relations was also adopted. In the autumn of 1946, the national board held 15 leadership-institutes in various parts of the U.S., in order to give Y.W.C.A. leaders an opportunity to draft workable plans for dealing with postwar needs of women and girls. The executive body of the Y.W.C.A. of the U.S. is the national board, with headquarters at 600 Lexington avenue, New York 22, N.Y. President in 1946-47, Mrs. Arthur Forrest Anderson; general secretary, Mrs. Harrison S. Elliott. Publications: *The Woman's Press*; *The Bookshelf*. (M. S. Ss.)

Yugoslavia. A federal peoples' republic in southeastern Europe. Area: 95,558 sq.mi.; pop. (est. Jan. 1, 1940) 15,703,000. Capital: Belgrade. Chief cities (1931 census): Belgrade, 238,775; Zagreb, 185,581; Subotica, 100,058; Ljubljana, 59,767; Sarajevo, 78,173. Religion: 6,785,501 Greek Orthodox; 5,217,910 Roman Catholic; 1,561,166 Mohammedans; 231,169 Protestants; 68,405 Jews.

History.—With the election of Nov. 11, 1945, in which the voters could only vote for the unique list of candidates presented by Marshal Tito's Liberation Front government, the outward compromise character of the government ceased and it became openly a government modelled in every instance after the totalitarian example of the soviet union. Even the nationality problem was solved after the soviet model. Yugoslavia was divided into six "states," Bosnia-Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia, each with its own administration but directed entirely and unified by the Communist party. The new constitution also imitated the soviet model by empowering the praesidium of the assembly, among other executive functions, to represent the new state inside and outside the country. President of the praesidium, supported by six vice-presidents, was Ivan Rybar. Premier of the government was Marshal Tito.

The U.S. government recognized Marshal Tito's government but acting Secretary of State Dean Acheson made public instructions sent to the U.S. ambassador in Belgrade declaring that in view of conditions existing in Yugoslavia, it could not be said that the guarantees of personal freedom and of liberty of speech, press and assembly, promised in the agreement between Marshal Tito and Dr. Ivan Subasitch and underlying the Yalta declaration, had been honoured. Under these circumstances the establishment of diplomatic relations with the present Yugoslav regime "should not be interpreted as implying approval of the policies of the regime, its methods of assuming control or its failure to implement the guarantees of personal freedom promised its people."

On March 24 the Yugoslav government officially announced that on March 13 Gen. Draja Mikhailovitch had been taken a prisoner and would face trial for treason. A request by the U.S. government to permit U.S. army personnel who were in Yugoslavia during the war to testify at the trial was rejected. The trial against Gen. Mikhailovitch and 23 other defendants was held in Belgrade in June. On July 15 Gen. Mikhailovitch was sentenced, with ten other defendants, to death. The other defendants were sentenced to various prison terms.

The execution of Gen. Mikhailovitch opened a new phase of even more bitter antagonism toward the United States and Britain in Yugoslav official policy. This antiwestern agitation against the "imperialism" and "reactionary" character of the democracies was also strengthened by Yugoslavia's expansionist demands upon Italian and Greek territory. The conflict with the United States was sharpened by Yugoslavia's shooting down of U.S. aircraft over Yugoslavia. The Yugoslavs accused the United States of "constant and systematic flights over Yugoslav territory" without permission. The U.S. acting Secretary

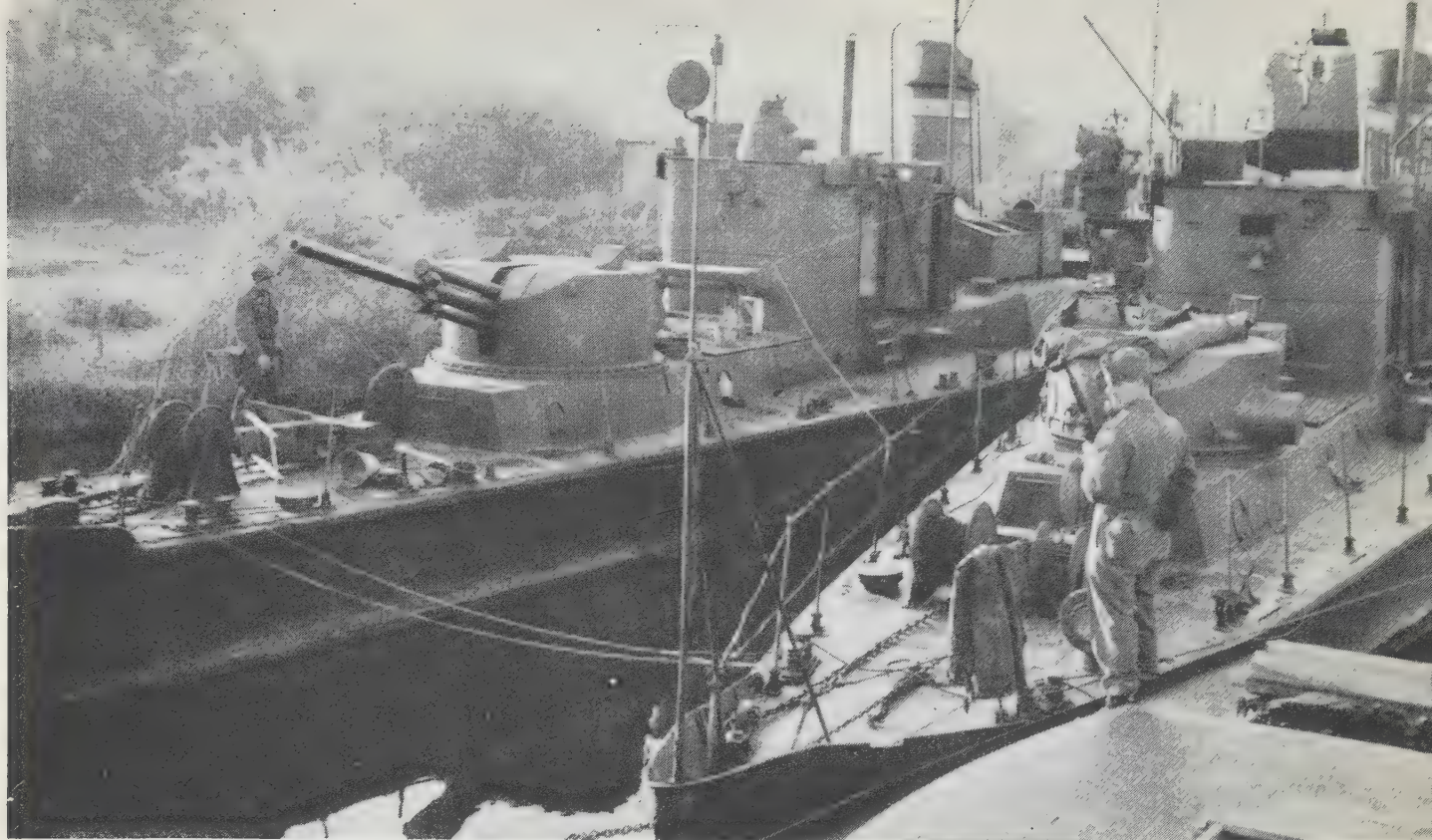
of State Dean Acheson declared that only bad weather had forced the U.S. planes to fly over Yugoslav territory, but instead of being helped, as they would be in virtually every other part of the world, "this outrageous performance" had taken place. The U.S. government demanded the release of the U.S. airmen shot down in Yugoslavia and permission for its representatives to investigate the disappearance of another plane with the loss of U.S. lives. The incidents led to much bitterness in the relations between the two countries though Yugoslavia fulfilled the U.S. demands connected with the two aeroplanes shot down and the sacrifice of U.S. lives involved.

The trial of the Catholic archbishop, Aloysius Stepinac, who was sentenced on Oct. 11 to 16 years' imprisonment and confiscation of his property, was regarded by many as part of the fight of the regime against the Catholic clergy which exercised strong influence over Croatian peasants. Archbishop Stepinac, who was the ranking Catholic prelate in Yugoslavia and whose see was in Croatia's capital, Zagreb, was accused of collaboration with the German puppet government of Croatia during World War II. A number of other Catholic priests and monks were sentenced with him. While the relations between the regime and the Catholic church were strained to the utmost, the government tried to win the Serbian Orthodox Church in a way similar to that followed by the soviet government with its own Orthodox Church. A large part of the Orthodox clergy under leadership of the deputy patriarch Bishop Josif was antagonistic to the government, but Patriarch Gavrilko, who returned to Belgrade in Nov. 1946 after an absence of five years, was assumed to be much more friendly toward Marshal Tito's regime.

Under the government of Marshal Tito, Yugoslavia and its capital, Belgrade, became a center of soviet-directed pan-Slavism, a movement revived by the soviet government in the critical hours of World War II. In Dec. 1945 the first postwar pan-Slav congress was held in Belgrade. Besides the European Slav nations, Slav representatives from the United States and Canada attended. Among other demands were a Slav Trieste and an outlet for Bulgaria on the Aegean sea. A second pan-Slav congress met in Dec. 1946 and as a result a permanent pan-Slav committee with its seat in Belgrade was established. For the first time demand for the loyal support of all people of Slav race who were citizens of non-Slavic states and of Slav emigrants to foreign lands for pan-Slav policy and the U.S.S.R. was officially raised. (See also TRIESTE.)

In Sept. 1946 the Yugoslav government suspended the U.S. information service in Belgrade. The information service had maintained a public reading room containing U.S. books and papers, distributed a daily bulletin with texts of official U.S. statements and representative editorial comments from the U.S. press, arranged lectures and established contacts between Yugoslav scholarly and artistic organizations and similar ones in the United States. On Dec. 13 it was announced that Yugoslavia granted permission to reopen the U.S. reading room in Belgrade under condition that it would give information only on the life and culture of the people of the United States and that it would distribute its bulletins only to the official personalities.

On Dec. 5 a law nationalizing all private economic enterprises, public works and industries in Yugoslavia was presented by the government, without any advance notice, to the parliament. This complex legislation was unanimously passed the very same day by both houses of the national assembly. The nationalization comprised all movable and immovable property in 42 branches of the national economy, including mining, metallurgy, all industries processing natural products, food



DANUBE RIVER GUNBOATS, part of a fleet impounded by the U.S. army on charges of smuggling, shown at Vilshofen, Germany. On Aug. 9, 1946, Yugoslavia appealed to the United Nations for the release of 167 craft which belonged to that country. Return of the vessels to the claimant countries began in late November

processing, beverages, building, transportation, and all land, sea and air communications. No new private enterprise in these categories could be founded in the future. Compensation to former owners would be in state bonds on the estimated value of the net assets on Dec. 9, 1946.

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Yukon Territory. Yukon, the most northwesterly political division of Canada, created in 1898, is bounded by Alaska, British Columbia, the Northwest Territories and the Arctic ocean. Area, 207,076 sq.mi., of which 1,730 are fresh water; pop. (1941) 4,914 (1944 est.) 5,000. Seat of government: Dawson. Administered by a three-member territorial legislative council elected triennially, and a controller, the Yukon is represented federally by one member of parliament.

History.—Main items of interest in the Yukon in 1946 centred on the aftermath of World War II. White Horse city, which boasted 40,000 population at the height of war construction projects, dropped to 3,000 in 1946. The oil line (Canol) from Normal Wells, Northwest Territories, to White Horse was still owned by the U.S. government in 1946. So were the White Horse refineries.

Communications.—Communications within the territory are maintained by aeroplane, and, during the season of navigation, by steamship. From June till Oct., steamships ply regularly between White Horse and Dawson. A railway from White Horse to Skagway gives access to the Pacific. With the completion of the Canada-Alaska highway, the Yukon was brought into direct road communication with the rest of Canada. Approximately 570 mi. of the highway lie in the Yukon.

On April 1, 1946, the Alaska highway lying between the

Yukon-Alaska boundary and Edmonton was taken over by Canada. In Oct. the telephone line paralleling the highway between White Horse and Edmonton was bought by Canada for \$1,700,000. The 1,600-mi. highway—built between March and Oct. 1943 at a cost of \$125,000,000—was maintained by Canadian army engineers who had 18 camps along it.

A triweekly bus service ran over the highway for 927 mi. between Dawson Creek, B.C., and White Horse. Automobile refuelling and servicing stations and tourist facilities began to appear along the highway in 1946, but gasoline prices ranged from 42 to 86 cents per gal. About 700 travel permits were issued in July, peak month. (C. Cy.)

Natural Resources.—The gross value of production in 1944 was \$5,529,745 (value of Northwest Territories included). Of this total, furs represented \$467,188; lumber \$33,148; fish \$3,131. In 1944, the value of mineral production was \$939,319. In 1945, the available waterpower was 731,000 h.p. Turbine installation was 19,719 h.p. (See also CANADA.)

Zanzibar and Pemba: see BRITISH EAST AFRICA.

Zinc. There were still gaps in 1946 in the official data on zinc production in the important countries, but by adding estimates from various sources a fairly complete table was compiled.

Table I.—World Production of Zinc

	(Thousands of short tons)					
	1939	1940	1941	1942	1943	1944
Australia	79.8	85.1	87.0	83.2	84.8	88.2
Belgium	205.1	84.3	52.1	40.6	48.2	9.8
Canada	175.6	185.7	213.6	215.8	206.5	168.5
France	67.3	41.7	28.6	25.2	19.6	9.2
Germany	254.6	350.1	350.1	346.2	343.9	321.9
Great Britain	58.3	66.2	75.7	79.8	77.5	80.7
Italy	39.0	43.4	42.8	34.8	?	?
Japan	56.5	65.8	67.3	64.2	68.7	66.7
Mexico	39.0	36.8	42.6	57.0	60.0	54.3
Netherlands	22.6	5.6	4.1	5.7	5.0	2.3
Northern Rhodesia	14.2	14.8	15.2	14.4	15.0	16.2
Norway	50.6	19.0	7.1	8.5	16.9	13.0
Poland	120.0	132.0	132.0	?	?	?
Spain	14.8	13.6	21.1	21.1	21.2	19.9
U.S.S.R.	93.7	93.7	?	?	?	?
United States	507.2	675.3	822.0	891.9	942.3	869.3
Total	1,819	1,925	(2,100)	(2,200)	(2,200)	(2,000)

The figures in Table I include so many gaps and estimates that it is not possible to arrive at any world totals after 1940. The figures shown in parentheses are rough approximations based on the year-to-year changes in the figures reported and include the assumption that the over-all changes in other countries are in the same proportion. Since the countries reported cover about 85% of the total output, the variations from the true total should not be great.

While some countries showed increased outputs in 1945, these were more than offset by the decrease in the United States, leaving a downward trend.

United States.—The salient features of the zinc industry in the United States are indicated in Table II.

Table II.—Data of Zinc Industry in the U.S., 1939–45 .

	1939	1940	1941	1942	1943	1944	1945
	(Thousands of short tons)						
Mine production. . .	583.8	655.1	749.1	768.0	744.2	718.6	614.4
Smelter production. .	507.2	675.3	822.0	891.9	942.3	869.3	764.6
Domestic ores. . .	491.1	590.0	652.6	630.0	594.2	574.5	467.1
Foreign ores. . .	16.2	85.3	169.4	261.9	348.1	294.8	297.5
Imports.	67.0	196.8	323.8	404.8	593.2	486.3	478.8
In ore.	36.1	180.3	289.2	368.4	537.0	422.7	381.7
Metal.	30.9	16.5	34.6	36.4	56.2	63.6	97.1
Secondary recovery. .	189.6	222.0	284.0	330.5	368.5	345.5	366.4
Consumption. . . .	626.0	733.1	827.4	728.2	816.8	888.6	852.3
Stocks.	?	88.1	92.0	155.6	261.0	298.5	329.7
Producers.	86.3	20.0	25.1	84.4	170.6	233.7	256.2
Consumers.	?	68.1	66.9	71.2	90.4	64.8	73.5

Mine production declined by 15% in 1945 and smelter production by 12%. Metal produced from foreign ores increased, leaving all of the decline on the domestic side. Ore imports decreased, but metal imports increased, leaving total imports off only 2%. Consumption declined 4%. Mine production continued to decline in 1946, with some improvement after mid-year, bringing the October output back to the 1945 level. The 10-months' total was 470,219 tons, 8% less than the average rate for 1945. Imports continued the 1945 trend, with metal increasing and ore decreasing. Smelter production in the first three-quarters of 1946 was 568,802 tons, about the same as in 1945. Consumption declined after the first quarter of 1945, reaching a low of 41,415 tons in Feb. 1946, but recovered to 73,536 tons in August, and then dropped back to 69,827 tons in September. Consumption for the first three-quarters of 1946 was 563,394 tons.

Canada.—Zinc production in Canada decreased from 275,412 short tons in 1944 to 258,606 tons in 1945, and to 235,917 tons in 1946, 9% under 1945. Exports in ore declined and metal output increased slightly.

Mexico.—Mine production declined to 50,700 short tons in the first 4 months of 1946, nearly a third under the average rate for 1945.

(G. A. Ro.)

Zionism. The advent of 1946, the first year of peace, raised hopes that it would witness the end of the White Paper policy of 1939 which the British government had justified as a necessary prewar and wartime security measure, but which the Permanent Mandates commission of the League of Nations had adjudged to be a violation of the mandate over Palestine. Favourable expectations had been stirred at the London Zionist conference of Aug. 1945, by the accession to power of the Labour party whose platform repudiated the White Paper policy and advocated a Jewish state in Palestine. The urgency of Palestine for the Jews in the displaced persons camps in Europe had been pointed up by President Truman, on the basis of a report by Earl G. Harrison, whom he had sent to Europe in 1945 to investigate the conditions. On Aug. 31, 1945, the president in a letter to Prime Minister Clement Attlee urged that 100,000 certificates for immediate immigration into Palestine be made available to the Jews in the displaced persons (DP) camps.

Following the refusal of Prime Minister Attlee and Foreign Minister Ernest Bevin to comply with President Truman's rec-

ommendation of the 100,000 certificates, the Anglo-American Commission of Inquiry was appointed. It began its hearings in Washington, D.C., on Jan. 7, 1946, and published its unanimous report April 30. It recommended that "100,000 certificates be authorized immediately for the admission into Palestine of Jews who have been the victims of Nazi and Fascist persecution" and "that these certificates be awarded as far as possible in 1946, and that actual immigration be pushed forward as rapidly as conditions will permit." It also recommended that the restrictive land regulations of 1940 be "rescinded and replaced by regulations based on a policy of freedom in the sale, lease, or use of land, irrespective of race, community, or creed." Both of these recommendations called for revocation of the salient prohibitions in the British White Paper of 1939. For the longer-range political status of Palestine, it recommended that Palestine become neither a Jewish nor an Arab state. President Truman urged the adoption of the immediate recommendations, leaving the longer-range recommendations in abeyance. Prime Minister Attlee, however, insisted that the report be dealt with as a unit, that the United States furnish assistance for the implementation of the recommendations and that the Jewish forces of resistance disband and surrender their arms. The Arabs objected to both the immediate and the long-term recommendation. The report became the subject of prolonged discussion and contention.

In the meantime Jews from Poland, where pogroms were raging, were crowding the DP camps, while others from Hungary, Rumania and other lands where postwar anti-Semitism was making life intolerable, were moving to Mediterranean ports where, without certificates, they embarked surreptitiously for Palestine, exceeding by far the 1,500 monthly visas authorized by the British. The British took forceful measures to prevent them from settling in Palestine. At first the refugees were landed and detained in camps in Palestine until they were admissible under the quota. Beginning in August, however, ships carrying uncertified immigrants caught by British naval patrol were transferred to detention camps in Cyprus.

The Jewish community of Palestine, the Yishuv, and mass Jewish opinion the world over, demonstrated against the British attempt to bar Jews from the Jewish National home. Haganah, the main arm of the Jewish underground resistance movement in Palestine, supported by the Jewish community, countered British force against the Jewish immigrants. The Irgun Zvai Leumi and the Sternists, small underground groups without the support of the Jewish community as a whole, resorted to terrorist tactics such as the assassination of British officials and the blowing up of a wing of the King David hotel in Jerusalem housing British administration and military offices.

British military forces turned Palestine into a police state. Military searches were conducted, curfews were imposed, elementary civil rights were violated, some of the troops behaved with barbaric cruelty, Jewish property was destroyed and thousands of Jews were placed in detention camps. On June 29, a Sabbath, members of the Jewish agency for Palestine, recognized under the League of Nations mandate as liaison between the Jewish people and the mandatory, were arrested and placed in Latrun. They were released in September. Charges of the connection between Jewish agency members and the underground resistance were never proved.

Meanwhile, on June 11, a cabinet committee supplemented by a committee of technical experts had been appointed by President Truman to meet in London with a parallel British committee for the purpose of dealing with the implementation of the Anglo-American Inquiry commission's recommendations. On July 31, Herbert S. Morrison, lord president of the council, presented the main features of its report in the house of commons. Since Henry F. Grady headed the U.S. members of the

committee in London, the report became known as the Morrison-Grady report. It proposed cantonization of Palestine in four areas: an Arab province, a Jewish province, a district of Jerusalem and a district of the Negev. All would have limited regional autonomy within the framework of a central government of the mandatory, which would supervise immigration and control foreign affairs, trade and other functions. The Morrison-Grady report was not approved by President Truman. It was rejected by the Jewish agency executive. It was also rejected by the Arabs.

On July 25, the British foreign office announced plans for holding a conference on Palestine and European Jewry, to which Arabs and Jews would be invited and at which the Morrison-Grady report would be the basis of discussion. The Jewish agency executive, meeting in Paris in August, informed the British that its members would go to a conference only if the basis of discussion would be "a viable Jewish State in an adequate area of Palestine."

A conference did convene in London on Sept. 10, attended by representatives of the Arab league, but with no delegation of Jews or Palestinian Arabs. On Oct. 2, the conference recessed without any decision and was to re-open in mid-Jan. 1947.

The World Zionist organization held its 22nd congress in Basel, Switzerland, Dec. 9-24, at which the entire situation was reviewed. It reaffirmed the historic claims to the whole of Palestine and strongly condemned British policy in Palestine. It decided not to go to the London conference under the existing circumstances; and if the circumstances should change, a sub-committee of the general council of the World Zionist organization was to decide whether to go to the conference. The office of president, held for many years by Dr. Chaim Weizmann, was left vacant. A coalition executive representing the major parties was elected, with David Ben Gurion as its chairman and Dr. Abba Hillel Silver as head of the U.S. section. (I. GN.)

Zirconium. The production of zircon in the United States for the first time reached significant proportions in 1945. The small earlier output had been negligible as compared with requirements, which were supplied by imports, mainly from Australia and Brazil; shipments from India had been discontinued from 1943. Imports during late years were as shown in the table.

Imports of Zircon and Baddleyite, 1939-45

(In short tons)

	Australia	Zircon from India	Brazil	Total Zircon	Baddleyite from Brazil	Total Imports
1939	1,526	241	*	1,767	706	2,473
1940	7,387	3,609	*	10,996	1,591	12,587
1941	14,689	963	*	15,652	5,002	20,654
1942	11,145	196	...	11,341	15,283	26,624
1943	11,472	...	110	11,582	8,821	20,403
1944	11,317	...	101	11,418	2,231	13,649
1945	17,138	...	...	17,144	792	17,936

*included with baddleyite.

Several thousand tons of zircon were produced in 1945 by the concentration of beach sands in Florida. Shipments of domestic and imported material to consumers in 1945 reached a record high of 16,000 tons, one-fifth of which was used in the production of zirconium, ferrosilicon and other alloys, and the remainder in ceramics, mainly porcelains and refractories.

In the first half of 1946, imports declined sharply to 7,595 tons, and shipments of foreign and domestic zircon to consumers totalled 13,912 tons. Production had increased to approximately the same level as imports. (G. A. Ro.)

Zoology. During 1946 in the United States recovery from immediate effects of World War II continued in zoology, although zoologists and their colleagues in universities and colleges were faced with larger and more numerous classes as the numbers of returning veterans reached a new high. The

American Association of Zoologists met twice jointly with the American Association for the Advancement of Science—once in St. Louis, Mo., on March 28-30 (this was the postponed 1945 meeting), and again in Boston, Mass., Dec. 28-30. There were 189 and 197 papers scheduled at these meetings respectively, compared with 116 in 1944 and 333 in 1940. The \$1,000 prize awarded annually by the association for a distinguished contribution to science was divided between two groups of investigators: one-half went to Quentin M. Geiman and Ralph W. McKee of Harvard university, Cambridge, Mass., for their achievement in growing the human malarial organism outside the body for the first time; the other half went to Tracy M. Sonneborn, Winifred Jacobson and Ruth V. Dippell, Indiana University, Bloomington, Ind., for their studies of heredity in paramecium.

Research and Publication.—Despite the understandable failure of German journals to resume activity, the flow of publications continued at a rate some found alarming. The problems of binding, classifying and storing a mass which doubles every 15 years formed the basis for zoologist Garrett Hardin's fantasy on the end of civilization in *The Last Canute*. Only a few of the abundant publications will be considered here:

Anatomy and Behaviour.—Donald R. Griffin further investigated "echolocation" (location of solid object by reflected sound waves) in bats, finding that they utter supersonic cries the frequency of which drops from 70,000 to 40,000 vibrations per sec. during the time of .001 to .002 sec. they persist. That the relation of nerves to muscles in different vertebrates is no necessary guide to muscle homology was the conclusion of W. L. Straus who in his review said that "present evidence is against the concept of nerve-muscle specificity. Thus resemblances in muscular nerve supply must merely reflect general similarity in development." Carefully controlled studies of the effect of hormones on behaviour by Elizabeth A. Beeman demonstrated that male mice castrated while young fail to develop the aggressive behaviour characteristic of normal adults. In response to implantation of pellets containing male hormone (testosterone propionate), they became fully as aggressive as normal males. When hormone treatment ceased, most, but not all reverted to the docility of the typical castrate. A large amount of experimental and observational studies on behaviour in a wide variety of animals was brought together in book form by Mrs. Ruth Crosby Noble.

Embryology.—Edmund W. Sinnott cautioned against a "narrow materialism" in interpreting development and thought it unlikely that biochemical discoveries would fully account for "the precise spatial distribution of diverse substances which accompany the development of organic form and the differentiation of its parts in an organized pattern." Richard B. Goldschmidt suggested that the interpretation of evolution from the standpoint of gene frequencies alone overlooked the fact that "evolution is to a large extent also a problem of development." What are probably the most accurate maps of the movements leading to the formation of the primitive streak in the chick embryo were prepared by Nelson T. Spratt, Jr., who marked the cells of the blastoderm with carbon particles and traced their subsequent fate. Of cytological interest was the finding of R. R. Humphrey and G. Fankhauser that most of the eggs in ovaries of triploid salamanders (three sets of chromosomes rather than the normal two) degenerated. They further showed by transplantation of the triploid ovaries to normal salamanders that the degeneration was very likely intrinsic to the cells with the extra chromosome set, since the transplanted cells showed a similar degeneration. The idea that the mesonephros undergoes a timed degeneration was controverted by Meredith N. Runner who found mesonephric tubules of rat embryos to persist as grafts in



ANACONDA SNAKE, purchased by Chicago's Brookfield zoo in 1946, being measured at 13 ft. 9 in. The price was determined according to the length of the reptile

the eyes of adults for as long as six times their normal life. F. E. Lehmann produced an important book on the physiological embryology of sea urchins and amphibians—the two groups of animals which have yielded the most information in this field.

Natural History, Biography and Taxonomy.—N. A. Mackintosh drew on all the available evidence in his review of the breeding habits, reproduction, growth rate, migration and distribution of the whalebone whales. On the basis of indirect evidence, he estimates that these largest of all animals reach sexual maturity in two to three years. The complexities of vertebrate predator-prey relations were reviewed by Paul L. Errington. A. Raymond Hall published a complete account of the taxonomy and distribution of mammals in Nevada. Among autobiographies, that of Walter B. Cannon, a distinguished physiologist, should be mentioned not only for its interest to scientists in general, but also as an important and valuable account of the life and thoughts of a socially conscious and penetrating research scientist. Of more purely literary interest is Ivan T. Sanderson's beautifully illustrated anthology of scientific writings from "scientific observation" to "fantastically impossible" stories. (See also ENDOCRINOLOGY; ENTOMOLOGY; GENETICS; MARINE BIOLOGY; PALAEONTOLOGY; PHYSIOLOGY.)

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Zoological Parks.—*Australia.*—Managements of collections in Australia recorded in 1946 a serious depletion in the list of

foreign animals exhibited. An unique and co-operative effort was made to import African and Asiatic collections; all were to share in their allocation. There existed a useful affiliation of the zoos for determining policy of exporting native animals; concessions were not made to commercial dealers, the zoos having a monopoly in the transactions.

Europe.—The condition of zoos in middle Europe seemed not to have improved at all. Zoos in Great Britain, the Netherlands and Denmark made phenomenal progress in the physical reconstruction of their premises and structures, although no particular innovations seem to have been devised. Important collections of foreign animals were received, most of the world's supply having gone to them.

Africa.—The collections at Ghiza, Pretoria and Johannesburg, were carefully maintained and extensively improved. Pretoria secured a square-mouthed rhinoceros, the first exhibited in modern times. It was probably the most valuable mammal in captivity.

North and South America.—Although zoos of both continents had substantial financial resources in 1946, probably the greatest of all times, no costly or extensive physical improvements were undertaken. Nearly all had architectural plans in hand for modernizing and enlarging their parks. In the United States, New York city and San Diego, Calif., received the largest collections from abroad. At The Chicago Zoological park, Brookfield, Ill., a synoptic collection of invertebrate animals was presented for the first time. An experiment of showing large mammals in back of transparent organic glass was tried at this park. The material proved to be of sufficient strength to hold the large apes, and appeared to be of such worth that it was expected to be used extensively to replace bars and netting. In the United States there was a trend to diversify collections rather than enlarge them, and to present collections so as to illustrate theories and principles of zoology. (Ro. B.)

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